A SIMPLE WOUND CARE PROTOCOL FOR A NURSING HOME: RESULTS FROM AN AUDIT

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SUMMARY

Objectives: To evaluate the current clinical and cost effectiveness of the wound dressing regime in place at Schloessli Biel Nursing Home and to test a simple protocol of care which offered savings in time and money and the benefits of simplifying the wound formulary.

Material and Method: A three Phase audit was carried out of the materials and time used in managing chronic wounds and the cost in time and materials. Phase I of the audit was a retrospective review of the clinical outcomes, the materials used and costs incurred in managing all wounds in the nursing home in 2011. Phase II consisted of a prospective audit for one month of the existing dressing regime, clinical outcomes and costs incurred in managing all of the current wounds in the nursing home. Phase III took the form of a prospective cohort study for one month of all the current wounds managed with a combination of a plant-derived spray dressing ("1PWD" Primary Wound Dressing) and a simple absorbent or protective secondary dressing appropriate to the moisture status of the wound.

Results: Audit Phase I : In 2011 27 patients with 39 wounds were treated for an average of 72 days at a mean cost per treatment day of CHF 14.80 [£10.36] (CHF 16.90 [£11.83] if the treatment cost of treating one patient with negative pressure therapy is included). Audit Phase II: One month with no change to the dressing regime. The close observation of wound care practices resulting from the audit resulted in 7 patients with 9 wounds having a mean cost per treatment day of CHF 10.50[£7.35] , a saving of 29% versus 2011, at the same duration of dressing change (18 mins).

Audit Phase III: Replacement of the current wound care formulary by 1 Primary Wound Dressing® and secondary dressing; mean cost per treatment day of CHF 8.50 [£5.95], a saving of 42% versus 2011 and 19% versus Audit Phase II, with a mean duration of dressing change of 8 mins versus 18 mins for the existing protocol of wound care.

The number of different types of dressing used was reduced from five (Audit 2011 and Audit Phase II) to two (Audit Phase III).

Clinical outcomes; All wounds progressed towards healing. Three wounds (3/9) healed during the prospective audit. The wound care protocol of 1 Primary Wound Dressing® and a secondary dressing saw the use of additional wound cleansing materials decrease by 53%, the incidence of debridement (mechanic debridement with swab and tweezers) required by 83% and the incidence of dressings adhering to the wound by 52%.

Conclusion: The close observation entailed in carrying out an audit motivates general nursing and care staff to pay more attention to the assessment of wound status and the implementation of an appropriate dressing regime. 1 Primary Wound Dressing® used in conjunction with a cost-effective and appropriate secondary dressing offers clinical, and financial benefits and the opportunity to simplify wound care procedures and the dressings' formulary.

INTRODUCTION

The constant pressure on wound care costs has led to legislators developing systems which favour the use of cost effective therapies. This requires the service provider to be able to evaluate the clinical and economic efficacy of wound care procedures. In many centres, however, the data and processes needed to carry out such assessments are not in place.

In recent years in the Long-term Care Home Schlössli at Biel we have also observed the trend in wound care described above. The product usage for treatment of wounds has increased proportionally more than the increase in the number of wounds being treated. Furthermore, we have noticed that the treatment guidelines put in place by our Doctors, wound care clinicians and experts are not always fully implemented, and care staff are overwhelmed by the complexity of modern wound dressings, leading to incorrect dressing changes. This in turn can lead to additional costs.

At the beginning of 2012, within the framework of an audit, we decided to examine our existing wound care protocol. This would provide the basis for a Quality Management System, to allow a qualitative high level and cost effective Wound Care Protocol and also improve cooperation within the Care Team. New products and therapies can from now on be tested against this for cost efficiency. Due to their practical nature audits are an ideal instrument for the systematic process evaluation and initial judgement on the efficacy of new products both on a clinical and cost basis. (Vowden & Vowden, 2010a, 2010b; Ovens, Louison, Elliot, 2007).

MATERIALS AND METHODS

As a first step we analysed all wound care treatment in 2011. We determined the type of wound (Table 1), number of patients treated, the length of treatment (number of days), dressing changes and the total cost per treatment day and dressing change (Table 2). These figures gave a basis for comparison (cohort) for the audit.

Table 1: Overview of all wound types treated in 2011

Type of Wound	Number of patients
Bedsore (dekubitus[1])	9
Traumatic wounds	7
Arterial leg ulcer	5
Post operative wounds	3
Venous leg ulcer	2
Burns II degree	1
Primary closure (stitches)	1
Other	11[2]
Total	39

[1] 1 Pressure Ulcer was treated with (VAC™) therapy

[2] Acute wounds: 4, Ulcer unknown aetiology: 3, other non-healing wounds: 4

Table 2: Overview of factors relevant to treatment of all wounds treated in 2011

Residents and Wounds		
	Number (female/male)	27 (18/9)
	Average age & Standard deviation	86 ± 11
	Number of wounds	39
Dressing change and No of treatment days		
	Average number of dressing changes	28.6
	Average number of treatment days in 2011	72
	Average frequency of dressing change	Every 2.5 days
Cost of Treatment		
	Material and personnel costs per dressing change	CHF 42.60 (38.-)[1] [£29.82]
	Material and personnel costs per treatment day	CHF 16.90 (14.80-)[1] [£11.83]

[1] Values in brackets are without V.A.C™ treatment.

During a 4 week audit phase we recorded all dressing changes and wound assessments using a standard document form (Table 3) in accordance with the existing Wound Care Regime (Table 4). Photographs of the wounds were taken weekly and the size of the wound was measured using the Software WoundManager™. Ethical Approval was obtained from the relevant Ethics Committee.

Table 3: Data gathered during the Audit Phase

Case History	Resident's details, diagnosis, medication, previous wound care treatment
Wound Assessment	Wound cleaning, debridement, size of wound, tissue, odour, exudate, wound edge, peri wound skin , signs of infection
Dressing change	Clinician, application of secondary dressing, wound cleaning, debridement, material used, discharge/Compression, Time taken for dressing change, side-effects, treatment compliance.
Pain	During dressing change, since last dressing change, pain medication

Table 4: Simplified description of existing Wound Procedure

Reporting to Wound Expert	• Every new wound must be reported to the Wound Expert within 24 hours • An acute deterioration of the wound must be reported to the Wound Specialist immediately
Wound Treatment Process	The Wound Specialist specifies wound treatment, taking into consideration the individual circumstances of the patient. The product range includes following product groups:

	• Cleansing solutions • Antiseptic • Hydrocolloid, Hydrofibre, foam dressing, silver, gel (alginate), dressings containing silver, mesh dressings • Compresses, sterile wound dressing, film dressing, wadding plaster
Debridement	Debridement is carried out by the Wound Specialist or the doctor.
Antiseptic Treatment	Antiseptics are only used on an existing infection and for no longer than 1 week. The Wound Specialist carries out the evaluation.

The data from the Audit Phase II were compared with the Audit Phase I 2011 data. Since the treatment was carried out following the same Wound Care Protocol, we were able to assess whether the fact that the wound treatment was documented systematically and in detail already produced an increase in efficiency.

After the initial 4 week Audit Phase II we introduced a plant-derived spray dressing 1 PRIMARY WOUND DRESSING® (1PWD; Phytoceuticals AG.) to our product range. 1PWD is a primary wound dressing spray made from a specially formulated combination of Neem Oil (Azadirachta indica) and Hypericum Oil (Hypericum perforatum). 1 PWD is a product for treatment of the wound bed, wound edge, and surrounding area and used together with a simple absorbent or protective secondary dressing appropriate to the moisture status of the wound without any active ingredients (ideally a traditional cotton dressing or absorbent) allows a very simple treatment regime (1PWD + traditional cotton dressing/absorbent) for the treatment of acute and chronic skin wounds.

During the further 4 week Audit Phase III we used this regime for all wound care treatment and evaluated the same values as for the Phase II Audit:

- Wound cleansing only if necessary
- Debridement only if necessary
- Daily application of 1PWD on the wound bed, wound edge and surrounding
- Use of cotton compress or absorbent as secondary dressing
- On the start of epithelialisation reduce the frequency of treatment from daily to 3 times a week

Data for the Phase III Audit were compared with the data results for Audit Phase I (2011), as well as the data results for the Phase II Audit. We were therefore able to see whether the simplification of the wound re-gime through the introduction of 1PWD had an effect on clinical and cost outcomes.

All 18 nurses, who had carried out dressing changes during both the Phase II and III Audit phases, answered a standard questionnaire on the audit and were asked to assess, in their personal opinion, how much 1PWD had contributed to an increase in efficiency.

RESULTS

In both audit phases 7 residents with a total of 9 wounds were treated. The average age of the 7 residents was 76 (standard deviation +/- 11) and the residents showed typical co-morbidities for their age and underlying illness. With pressure ulcers the compromised areas had the pressure offloaded as far as possible, for venous leg ulcers compression therapy was used. All treatment during the Phase III Audit was able to consistently follow the Regime "1 PWD plus cotton compress/absorbent". No additional therapies were used (apart from wound cleansing and debridement). None of the treatment was interrupted.

As a result of the small number of wounds treated, we put both Audit phases into 2 groups in order to make the results comparable to the data for Audit Phase I (2011):

- Group 1 contained the data for all 9 wounds. 3 of the 9 healed during the Phase II Audit. These wounds were in the end phase of healing and had an impact on the comparability of data for 2011, as on the one hand in comparison with the wounds treated in 2011, they had a significantly shorter treatment period and on the other hand due to their advanced state of healing hardly needed any more care. Making up 42% of all wounds treated in the Phase II Audit these 3 wounds constituted a disproportionately large percentage of the whole.

- Group 2 omitted the 3 wounds mentioned above and included the remaining 6 wounds, which required relatively intensive treatment and therefore allowed a clear comparison with the 2011 data.

The most important factors captured through the questionnaire are shown for Group 1 (all wounds) in Table 5 and for Group 2 (data for wounds comparable with 2011 wounds) in Table 6.

Table 5: The most important Factors for Group 1 (all wounds)

	Results			% Difference		
	Audit Phase I 2011	Audit Phase II (existing wound re-gime)	Audit Phase III (1PWD +secondary dressing)	Audit Phase II/2011	Audit Phase III/2011	Audit Phase III/Audit Phase II
Number of dressing changes	1116	78	141			
No of treatment days	2815	179	158			
Average time for dress-ing change (min)	18[2]	18	8	0	-54	-54
Total treatment costs[1] per dressing change (CHF) [£]	38.00[3] [£26.60]	20.20 [£14.14]	9.10[6] [£6.37]	-47	-76	-55
Total treatment costs[1] per treatment day(CHF) [£]	14.80[3] [£10.36]	8.80 [£6.16]	8.50 [£5.95]	-41	-42	-3
% No. Dressing changes with wound cleansing[4]		87	43			
% No. Dressing changes with debridement[5]		23	5			
% No. Dressing changes with application of secondary dressing		51	35			

[1] Includes all material costs for wound cleansing, debridement, wound dressings, sterilisation and personnel costs.

[2] As this value was not recorded for 2011 we assumed that the value for 2011 was the same as for the Phase 1 audit.

[3] Not inclusive of Negative Pressure Therapy costs. Personnel is calculated on the basis of an average time for dressing change of 18 minutes(see Footnote 2).

[4] Wound cleansing with Ringer solution, NaCL 0.9%, Octenisept or Prontosan

[5] Mechanical Debridement with swab und tweezers

[6] For all dressing changes 1 spray can 1PWD for an average 30 daily applications was sufficient. The average costs 1PWD per dressing change was CHF 3.30.[£2.31]

Table 6: The most important factors for Group 2 (Data for wounds comparable with 2011 data)

	Results			% Difference		
	Audit Phase I 2011	Audit Phase II (original wound re-gime)	Audit Phase III (1PWD +secondary dressing)	Audit Phase II/2011	Audit Phase III/2011	Audit Phase III/Audit Phase II
Number of dressing changes	1116	49	141			
No of treatment days	2815	102	158			
Average time for dress-ing change (min)	18[2]	21.90	8	-1	-54	-54
Total treatment costs[1] per dressing change (CHF)	38.00[3] [£26.60]	21.90 [£15.33]	9.10[6] [£6.37]	-42	-76	-58
Total treatment costs[1] per treatment day(CHF)	14.80[3] [£10.36]	10.50 [£7.35]	8.50 [£5.95]	-29	-42	-19
% No. Dressing changes with wound cleansing[4]		90	43			
% No. Dressing changes with debridement[5]		29	5			
% No. Dressing changes with application of secondary dressing		73	35			

[1] Includes all material costs for wound cleansing, debridement, wound dressings, sterilisation and personnel costs.

[2] As this value was not recorded for 2011 we assumed that the value for 2011 was the same as for the Phase 1 audit.

[3] Not inclusive of Negative Pressure Therapy costs. Personnel is calculated on the basis of an average time for dressing change of 18 minutes (see Footnote 2).

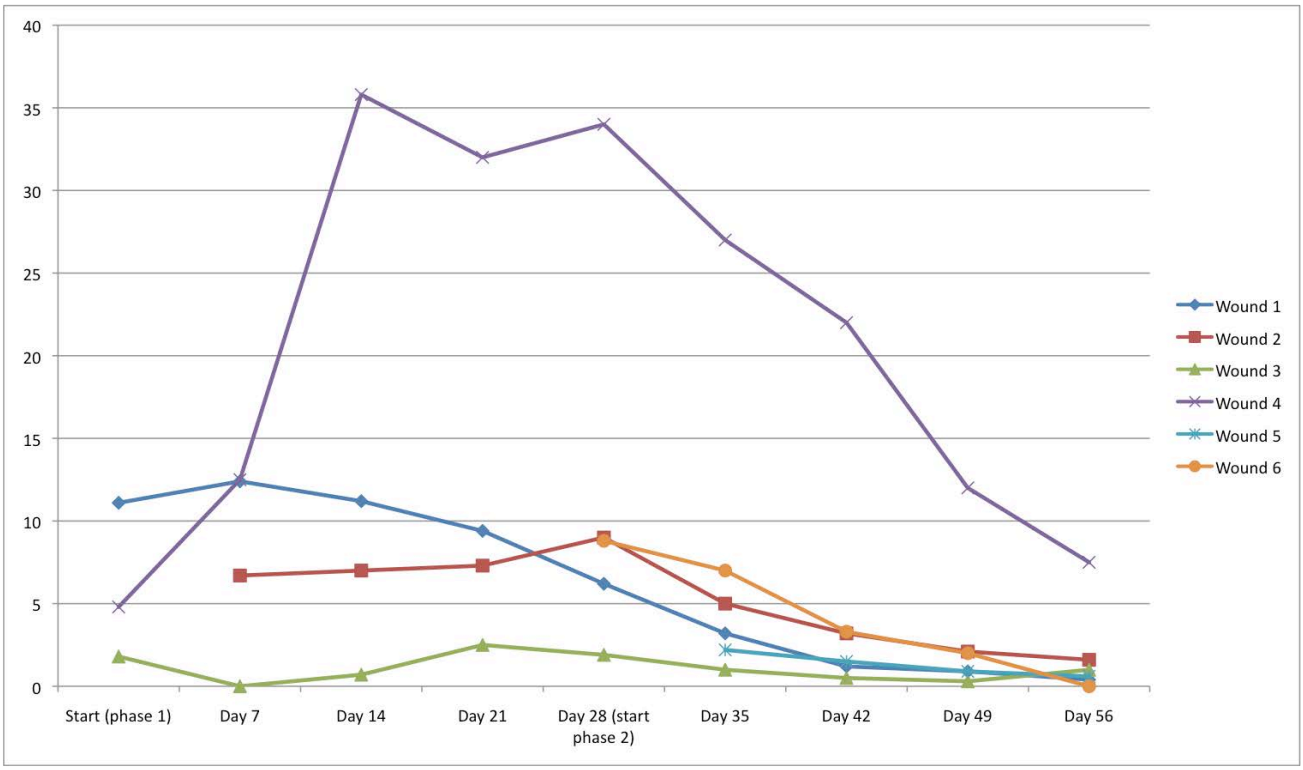
[4] Wound cleansing with Ringer solution, NaCL 0.9%, Octenisept or Prontosan

[5] Mechanical Debridement with swab und tweezers

[6] For all dressing changes 1 spray can 1PWD for an average 30 daily applications was sufficient. The average costs 1PWD per dressing change was CHF 3.30.[£2.31]

Progress of wound size of all 6 wounds in Group 2 during Audit Phases II & III are shown in Figure 1.

Figure 1: Wound measurement of all 6 Wounds in Group 2 in cm^2



At the beginning of the Audit Phase II wound 1 had already been treated for 4 months. Wound 2 had existed a year previously and healed in between times (recurrence). The clear improvement after use of 1PWD is, according to the Wound Expert, on the one hand possibly due to semi-occlusion regulating the moist wound conditions better than the previous treatment and on the other hand due to the fact that the 1PWD spray application permits a less traumatic dressing change. The wound healed 4 weeks after conclusion of the Phase III Audit. Wounds 3 and 4 occurred during Phase II Audit and wounds 5 and 6 during the Phase III Audit.

A qualitative description of the treatment and healing processes of all 6 wounds in Group 2 is shown in Table 7.

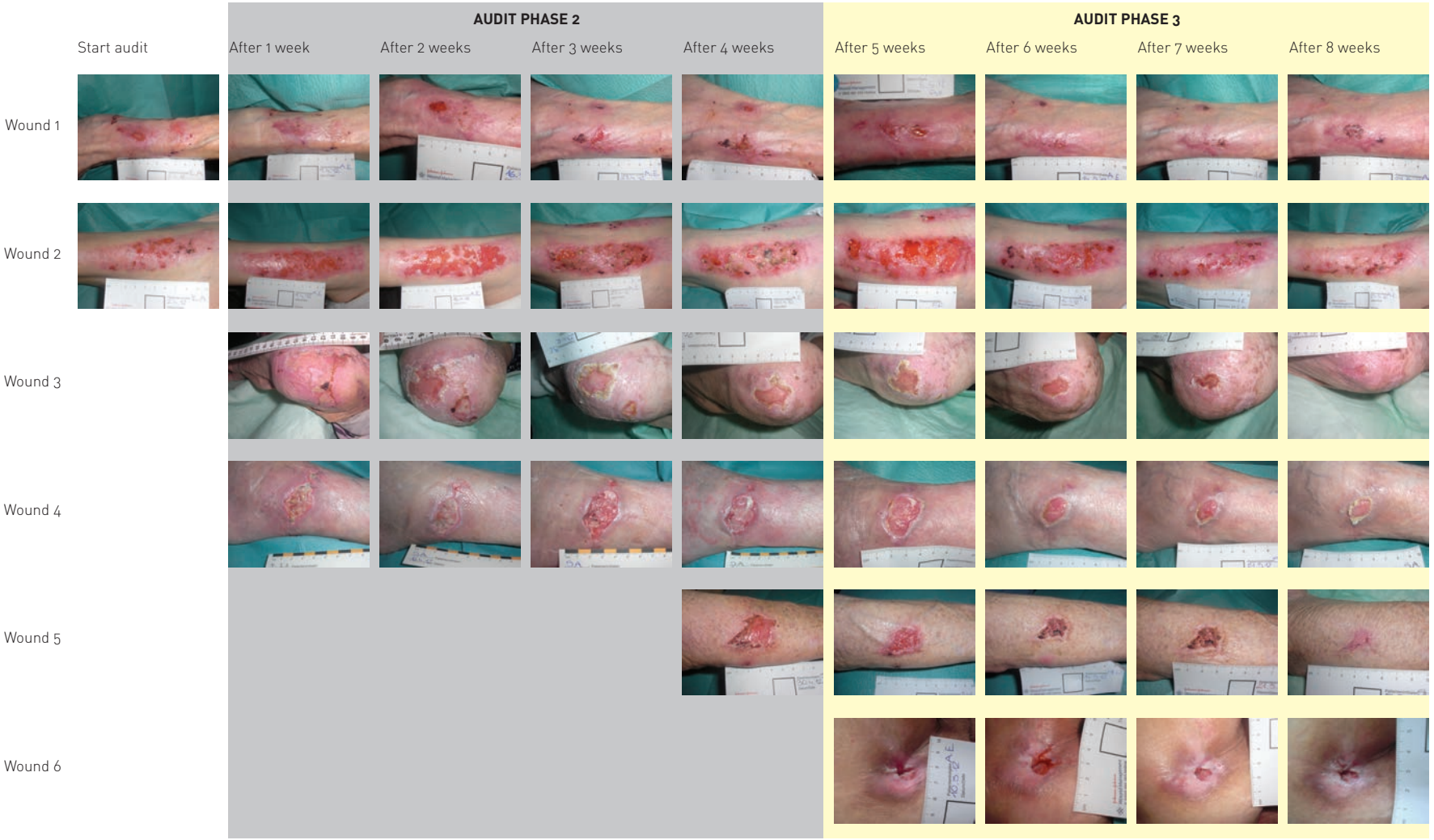
Table 7: Qualitative description of Progress in Treatment and Healing of all 6 wounds in Group 2

	Description of Wound	Comments	Previous Treatment	Healing Process Audit Phase II	Healing Process Audit Phase III
Wound 1	Ulceration lower thigh left lateral – transfer injury Recurrent: yes Level of exudate: moist Wound present for 4 months „Angiologische" Diagnosis/Compression: no	Parchment-like skin High pain sensitivity in wound area Reduced nutritional condition	In Long Term Care Centre (Nursing Home) with Aquacel, Telfa	Wound closure after 10 days. 3 days later: Tissue defect – unknown cause - on scar tissue. Moistening wound with recurrent scab formation. Wound dressing stuck to the wound bed Products used: Prontosan, NaCl 0.9 %/Ringer solution, Adaptic/Aquacel, Telfa, Gauze-/bandage dressing Dressing change with: Wound cleansing: 69% Debridement: 13%	Wound moistened progressively less. Continued scab formation. On removal of scab epithelium partially visible. Peri wound skin stable. Products used : Ringer Lactat, 1PWD, simple compress, gauze dressing Dressing change with: Wound cleansing: 21% Debridement: 7%
Wound 2	Ulceration on skin graft removal area, upper thigh right Recurrent: yes Exudate level: moist Wound present for 1 year	Recurrent ulceration on scar tissue for 1 year Clarification by resident refused Unstable general condition	In long term care centre (Nursing Home) with Adaptic, Telfa, Gauze dressing	Heavily exuding wound. Wound bed granulating, however still increase in wound area, as the epidermis breaks down. Wound edge macerated. Build up of scab. Wound dressings stick to wound bed. Products used: Prontosan, NaCl 0.9 %/Ringer solution Debridement, Adaptic/Aquacel, Telfa, Gauze dressing Dressing change with: Wound cleansing: 100% Debridement: 25%	Continued scab formation, wound exudate clear/serous. On removal of scab epithelium partially visible. Epithelial formation from wound edge. Dressing stuck to the wound bed. Products used: Ringer solution , 1PWD, simple compress, Gauze dressing Dressing change with: Wound cleansing: 68% Debridement: 7%
Wound 3	Implantation, Total endoprothosis, left elbow Wound suture dehiscence, treatment of infection with antibiotics systemically after week 2 Level of exudate: wet Wound present for 1 week	The resident is in a wheelchair and cannot keep their elbow still High risk of infection Parchment like skin	In hospital, non-ambulant with a plaster (dry/sterile)	Wound heavily exuding Wound bed sloughy /fibrin covered Periwound skin reddened, mal-odorous and partially macerated. On treatment with antibiotics fast clear up of infection Positive wound healing progress apparent Products used: Ringer solution, Aquacel Ag, Telfa, Gauze dressings Dressing change with: Wound cleansing: 100% Debridement: 63%	Wound bed granulating Scab build up at wound edge. Over time visible epithelial growth. Periwound skin intact. Products used: 1PWD, simple compress, Gauze dressing Dressing change with : Wound cleansing: 0% Debridement: 0%

Wound 4	Osteosynthesis of the upper ankle joint right after bimalleolarer Luxation fracture Delayed secondary healing with wound suture dehiscence Level of exudate: wet Wound at start heavily fibrinous Wound present for 3 weeks	At beginning of Phase II removal of plaster cast Consistent pressure relief in bed not possible Unstable general condition	In hospital non-ambulant with Adaptic, gauze compress, plaster cast	Wound edges reddened, then macerated. Fibrin partially cleared within 3. Wound surface stagnant. Products used: Octenisept, Debridement, Aquacel, Zetuvit, Omnifix Dressing change with : Wound cleansing: 100% Debridement: 33%	Reduction in fibrinous covering after 7 days due to autolytic debridement. Periwound skin without irritation . Continuous reduction in wound surface area. Products used: Ringer Lactat, 1PWD, simple cotton dressings, Zetuvit, Cofix Dressing change with: Wound cleansing: 32% Debridement: 11%
Wound 5	Detachment of the epidermis on mobilisation of parchment-like skin Level of exudate: moist, bloody Wound lightly fibrinous	Recognised delay in wound healing – unknown cause (4-6 months for superficial wounds according to daughter) Unstable general condition	None	Start treatment in Audit Phase III	Fast granulation formation, reduction of the fibrinous slough. Scab formation after 2 weeks. Treatment with 1PWD until the scab dissolved. Complete epitheliialisation under the scab. Product used : 1PWD, simple cotton dressings Dressing change with: Wound cleansing: 42% Debridement: 0%
Wound 6	Grade 2 pressure ulcer , sacral Level of exudate: moist Periwound skin macerated Recurrent over several years	Non-concordant with pressure relief Dressing cannot be attached, as the resident has allergic reaction to adhesive materials	In long term care centre (Nursing Home) with Aquacel 5x5	Start treatment in Audit Phase III	Visible Granulation after 2 weeks . Reduction in maceration. Products used: Ringer solution , 1PWD, simple cotton compresses Dressing change with: Wound cleansing: 100% Debridement: 0%

The clinical illustration of all 6 wounds in Group 2 can be found in Figure 2:

Figure 2: Clinical illustration of progress of the 6 wounds of Residents in Group 2



REMARKS

— Wounds 1 and 2 were present at start audit phase 2
— Wounds 3 and 4 started treatment during week 1 of audit phase 2
— Wound 5 started treatment at the beginning of audit phase 3
— Wound 6 started treatment during wekk 1 of audit phase 3

We could not evaluate the data on pain experienced between and during dressing changes because three of the residents treated were suffering from advanced dementia and one from chronic pain, which made an evaluation of the data gathered on pain between dressing changes difficult. Since only two residents experienced pain during dressing changes, these data were also difficult to evaluate statistically.

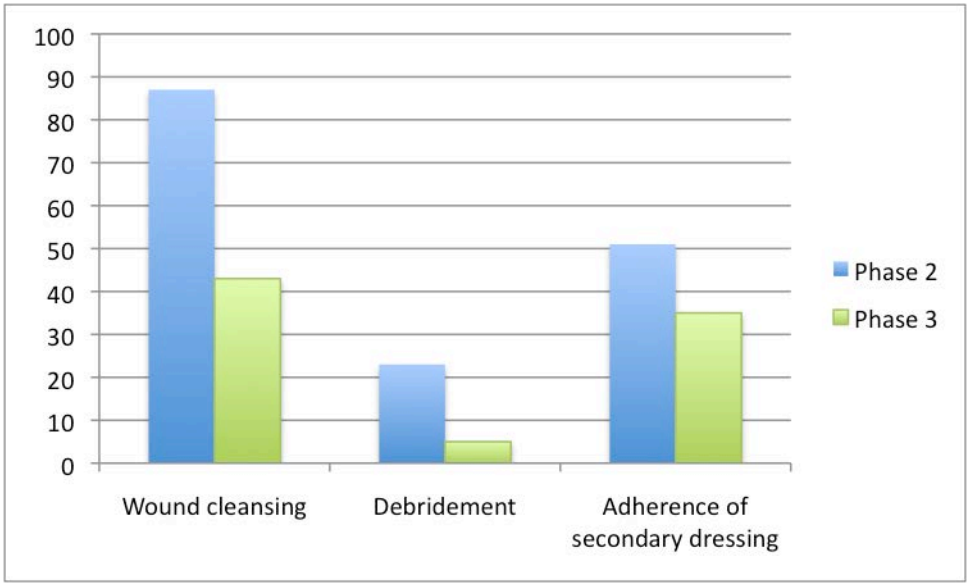
There were no allergic reactions or other side effects experienced in either Audit Phase. Wound 3 began Phase II with a localised wound infection, which was treated with antibiotics.

The audit shows the following quantative and qualitative findings:

a. Quantative findings:

- Costs: Since the frequency of dressing changes in treatment regimes in the different audit phases was different we chose to use "Average treatment costs per treatment day" as the relevant value. In Group 2 (Data comparable to Phase I 2011) the results were as follows:
    - The simplified wound regime "1 PWD + secondary dressing" (Audit Phase III) achieved the lowest treatment costs with CHF 8.50 [£5.95] per treatment day. This value is 42% lower than the figure for 2011.
    - At CHF 10.50 [£7.35] per treatment day the treatment costs for Audit Phase II (existing wound regime) are 29% lower than the Phase I 2011 costs . A possible explanation for this cost reduction is that in 2011 the cost effectiveness of the range of dressing materials available was already being looked at and during 2011 adjustments to the product list were undertaken. All similar duplicated products from different companies were removed. Additionally, wound care treatment procedures were carefully documented and care workers became responsible for the dressings chosen which had a positive influence on the outcome.
    - The introduction of the simplified wound care regime "1PWD + secondary dressing" led to an additional reduction in the cost of treatment of 19%. This is surprising, since we had reviewed products available on our dressing formulary already the year before, as explained previously. We had limited the range to include only cost effective products which allowed efficient treatment of the most prevalent wound types in the Nursing Home.
    - The % of dressing changes where wound cleansing and/or debridement (mechanical with swab and tweezers) was necessary, as well as the proportion of dressing changes where the secondary dressing stuck to the wound, could be clearly reduced due to the fact that wound healing during the third phase was already advanced, in addition to the introduction of the simplified wound care protocol "1PWD + secondary dressing" (Figure 3)

Figure 3: % Dressing change, where wound cleansing and/or debridement were necessary as well and % dressing change where secondary dressing stuck



b. Qualitative findings

- As can be seen in the graphs in Figure 1, the change from the existing wound care regime to the simplified wound care regime "1PWD + secondary dressing" did not have a negative effect on the healing process of the wounds. In at least two of the cases the change to the simplified regime led to an acceleration in the healing process.
- During the Audit it was observed that two residents experienced pain whilst having their dressings removed by care assistants. Also, wound cleansing is often carried out when the wound is no longer in need of it. Training is needed on how to change a dressing without causing pain and in which stages a wound needs to be cleansed.
- In recent years we have observed again and again that treatment procedures are not being adhered to by the nurses responsible , often for no apparent reason (this could however not be looked at closely during the Audits). In addition, changing wound conditions would sometimes be interpreted incorrectly. Both behaviours observed lead to the incorrect use of wound dressings and can prolong the time the wound takes to heal. The multitude of dressings available and the technical complexity of some of them exacerbate the problem. There are no simple instructions in the existing wound care regime to set out what should be done in which situation.
- With the introduction of the simplified wound regime "1 PWD + secondary dressings" inappropriate treatment as described above can be avoided. The number of different wound dressings available for the dressing change were reduced from 5 (2011 and Audit Phase II) to 2 (Audit Phase III). This can also reduce the anxiety the nurse may have that s/he may mistakenly use the wrong type of dressing.

- In the Nursing Home care assistants to date only treat acute wounds. Due to their complex nature chronic wounds are looked after by diploma-qualified nurses. Using the simplified wound regime "1PWD + secondary dressing" less qualified nurses can also treat this type of wound, where regular assessment of the wound condition by a qualified nurse is imperative. 20% of the dressing changes in the Phase III Audit were carried out by care assistants and showed that this increase in the level of competence has benefits for the Nursing Home.
- The daily dressing change required by the implementation of the simplified wound regime "1 PWD = Secondary dressing" was not found to be onerous either by the resident or the nurse, as the time necessary for the dressing change is relatively short at an average of 8 minutes.

The final assessment survey completed by the 18 nurses after the Phase III Audit gave the following subjective opinions: (Table 8)

Table 8: Final Opinions of the 18 nurses

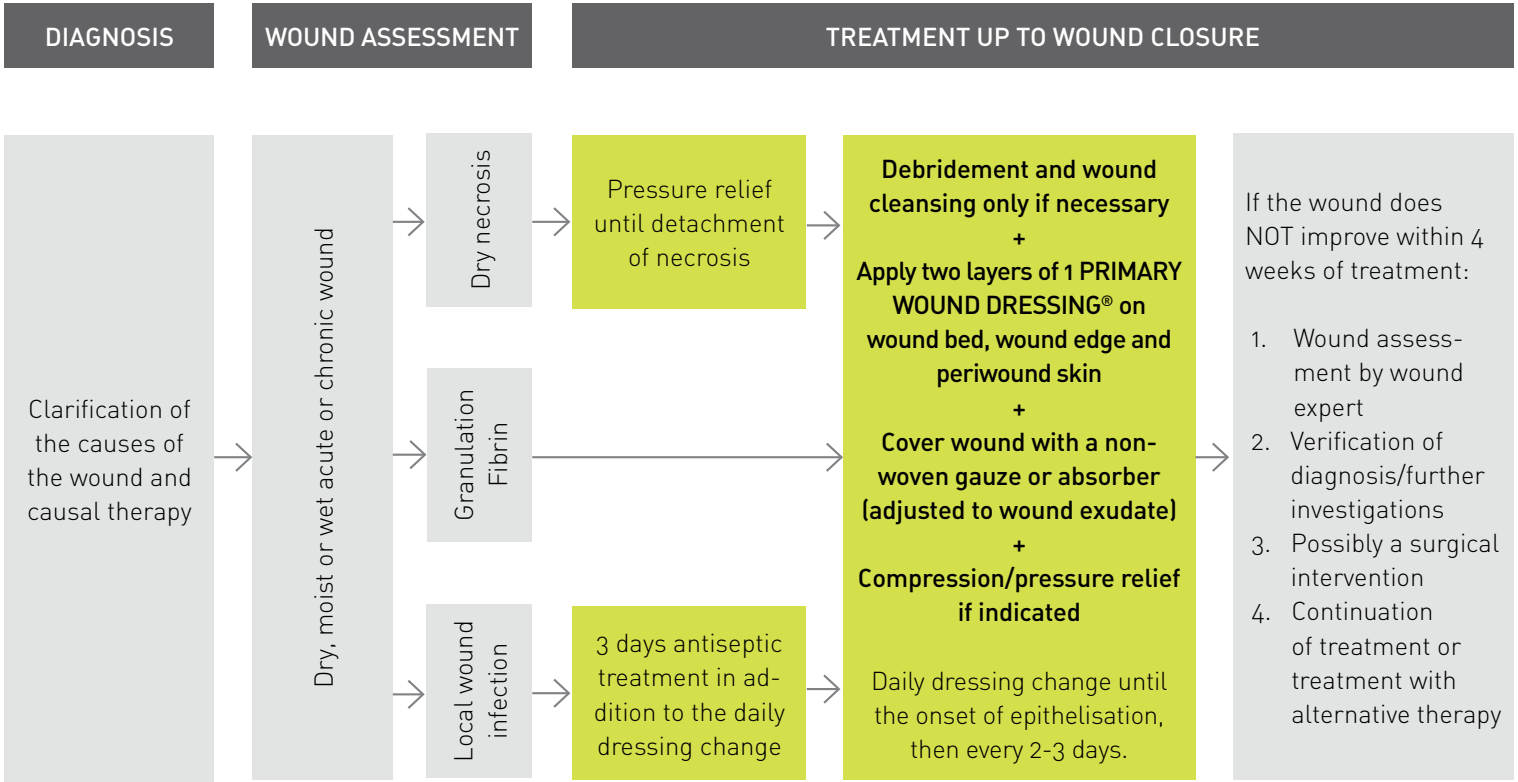
Question	Answer	% Percentage answers	Anzahl
What did you think of the 1PWD spray application?	Easy	100%	18
	No opinion	0%	0
	Complicated	0%	0
In comparison with the existing procedure is the dressing change …?	Easier	94%	17
	The same	6%	1
	More complicated	0%	0
In comparison with the time taken to change the dressing previously is the time to change the dressing with 1 PWD ....?	Shorter	94%	15
	The same	6%	1
	Longer	0%	0
How often did the wound need to be cleansed in comparison with the existing wound regime?	Less often	94%	17
	The same	6%	1
	More often	0%	0
In your opinion does 1PWD support autolytic debridement?	Yes	72%	13
	No opinion	28%	5
	No	0%	0
Would you continue to use „1PWD" ?	Yes	100%	18
	No	0%	0
How would you judge the satisfaction of the resi-	7.8 out of 10, (0 =not satisfied, 10 = satisfied)		

dents treated by you with 1 PWD?	
Are you satisfied with the use of 1PWD?	7.8 out of 10, (0 = not satisfied, 10 = satisfied)

As a result of the Audit we have taken the following decisions:

- Wound treatment procedures will in future be fully documented.
  It is important that the healthcare professional responsible for the wound treatment is named and the dressings used listed in detail. In addition, that the Wound Specialist discusses each case every week with the healthcare professional and the resident. In this way we can be sure that the efficiency savings achieved in the Phase II Audit are maintained.
- We are reinforcing our Training Programme. The elements "Wound cleansing" and "Pain at dressing change" will be the main topics at our next internal training session.
- We have put 1 PWD on our dispensary list and simplified our wound care regime.
  - For wounds where closure of the wound is the aim, the wound care regime follows Figure 3.
  - For palliative wound situations the wound care treatment follows a path of extensive pain and exudate management as well as control of infection.

Figure 4: Simplified Overview of the New Wound Care Regime, resulting from the Audit outcome



DISCUSSION

The Audit carried out at Nursing Home Schlössli Biel is an effective instrument for the practical clinical and cost assessment of our existing Wound Care Regime and for the evaluation of new products to be adopted into the existing dressings formulary. Use of an existing set of data (in our case the treatment data from 2011) makes the Audit conclusions all the more valuable as a cohort comparison can be made.

Our nurses were also highly motivated by participating in the Audit, which came through in the fact that the paperwork was completed fully for 90% of dressing changes.

The data generated in the Phase 1 Audit, when compared with the data from 2011, allowed us to conclude from the detailed documentation and by tracking the treatment procedures and dressings used back to the nurse responsible, that there is a potential cost saving of 29%. This can be explained by the fact that as the decisions made by the nurse become clearer both for herself and for the Nursing Managers , the level of cooperation between the Wound Specialist and the nurse improves.This increases the motivation to work more efficiently and provides Nursing Management with a mechanism which can be linked to an incentive scheme for the nurse.

In recent years we have seen again and again, that the person responsible for the dressing change becomes challenged not only by the change in the state of the wound but also by the wide choice of different modern wound dressings, which can lead to inappropriate dressing changes and an excessive use of dressing materials. Easy to follow, clear wound care documentation and a weekly wound assessment by the wound specialist offer the opportunity to discuss any mistakes.

The introduction of 1PWD during the Phase III Audit allowed a simple wound regime to be trialled. All dressing changes used the “1PWD plus wadding compress/absorbent” regime. The regime was successfully used during the entire Phase III Audit, and showed not only a cost saving per treatment day of 19% (in comparison with the Phase II Audit) but also a clear reduction in the number of treatment stages necessary during the dressing change (cleaning, debridement).

The simple treatment protocol was equally effective on all wounds. This is shown through the wide spectrum of application of 1PWD. The layer of oil formed by 1PWD provides semi-occlusion, which produces a balanced, moist wound milieu (Sharman, 2003 1 PWD also prevents the secondary dressing from sticking (Bell & McCarthy, 2010) and works antimicrobially (Desbois & Smith 2010). Cell growth is stimulated and the microbial burden remains under control despite the moist wound milieu. The newly forming granulating tissue and the regenerating epithelium were not damaged during the dressing change. This led to an improved re-epithelialisation and a reduction in pain during the dressing change.

As a consequence of the Audit we have decided to carry on documenting specific aspects of the dressing change, to put more emphasis on wound cleansing and painless dressing change in our training programme and to include the 1 PRIMARY WOUND DRESSING® product in our dressing formulary. We can therefore simplify our wound care regime leading to significant cost savings.

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