CASE STUDY

Developing a national micro-credentialled wound debridement course in Aotearoa New Zealand

Amanda N J Pagan[1]*, Wendy L White[2], Rebecca A Aburn[3]
[1]Health New Zealand, Te Whatu Ora, Southern District, Invercargill, New Zealand
[2]TALKING WOUNDS® & WOUNDed® Learning Centre, NSW, Australia
[3]Health New Zealand, Te Whatu Ora, Southern District, Dunedin, New Zealand
*Corresponding author email mandy.pagan@southerndhb.govt.nz

Abstract
Wound debridement is a critical component to advance healing for those at risk of or living with hard to heal wounds. Conservative sharp and sharp wound debridement (CSSWD) methods expediate healing but require advanced knowledge and skills to perform. In 2022, New Zealand (NZ) launched the first national micro-credentialed wound debridement course to provide theoretical knowledge and technical skills, enabling and empowering healthcare providers, organisations and clinicians to improve healing outcomes.

Keywords conservative sharp wound debridement, education, healthcare professionals, micro-credentialled.

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Introduction
Wound debridement is an essential component in wound bed preparation and biofilm based wound care, undertaken to optimise healing and minimise the clinical risk of delayed healing, and chronic inflammation and infection, in hard to heal wounds.[1–8] Debridement and biofilm prevention and management, play a key role in antimicrobial stewardship by reducing antibiotic reliance and resistance risk, while addressing fiscal and human costs (physical, emotional, social, cultural, and spiritual) when managing or living with non-healing, healable wounds.[1–6,9] As providers and clinicians, we should not underestimate the profound negative effect of hard to heal wounds on the person and their whānau (family and extended family) quality of life and their need for coping strategies and support.[5,10–12]

Wound debridement can be comprehensively defined as "the act of removing necrotic material, eschar, devitalised tissue, serocrusts, infected tissue, hyperkeratosis, slough, pus, haematomas, foreign bodies, debris, bone fragments or any other type of bioburden from a wound with the objective to promote wound healing".[1(pS4)] Debridement does not only relate to wound bed bioburden "but also the liberation of wound edges, as well as of peri-wound skin".[1(pS4)] The 2024 International Consensus for Wound Debridement best practice affirms "It is vital that all health professionals involved in the care of people with wounds receive education on debridement".[4(pS26)]

Prior to debridement, a holistic assessment inclusive of client, family and whānau concerns and expectations, identifying aetiology and barriers to healing (such as uncontrolled pain, medications, co-morbidities, nutrition, smoking) are determined to ensure safe and appropriate individualised plans of care.[4,7,8,13]

Debridement is part of a multimodal approach to advance wound healing incorporating Wound Hygiene™ principles and practice steps, which include skin, periwound and wound therapeutic cleansing, wound bed and periwound debridement, refashioning non-advancing wound edges, and selecting appropriate skin care and dressing regimes.[2,4,6,14] Conservative sharp and sharp wound debridement (CSSWD) procedures require the use of surgical instruments, such as a scalpels, scissors or curettes. Conservative sharp debridement is the removal of loose devitalised tissue and disruption of superficial biofilm without causing pain or bleeding. Sharp wound debridement requires local anaesthetic in sensate wounds, removes devitalised tissue and disrupts shallow and deeper biofilm. It may result in superficial bleeding.[6]

There are multiple methods of debridement (Table 1) that require a level of knowledge and experience with some modalities requiring advanced knowledge and practice skills.[1,3,15] In New Zealand (NZ), wound management is commonly performed in the community by nurses and is within their scope of practice, hence advanced learning to perform a variety of debridement methods is advantageous to the wounded person, healthcare providers and organisations.[4,7] Although timely initial and maintenance bedside-CSSWD may be clinically indicated, it can often be inconsistently or infrequently performed in clinical practice. This variability can be related to gaps in organisational policy and support, limited access to appropriate resources and equipment, and insufficient clinician knowledge and skills. These barriers can result in missed opportunities to promote wound healing and reduce wound burden in a timely manner.[16–18] This clinical reality can have a direct impact on the person, their carers, family and whānau. When CSSWD debridement is provided by trained and competent clinicians, wound healing can be advanced, but when not performed consistently, as an essential component to a multimodal approach, healing can be stalled and/or lead to wound deterioration.

Prior to implementing this NZ Debridement course, there was no national consistency or qualification, for performing CSSWD procedures. As a result, healthcare organisations faced significant challenges in defining and implementing appropriate competency standards. The NZ Wound Care Society (NZWCS) incorporated CSSWD debridement workshops at bi-annual conferences, but this did not provide the learner with competence in CSSWD debridement. Recognising the need for national consistency and safety in debridement practices, the NZWCS prioritised the development of a micro-credential course. Micro-credentialed courses provide learners the opportunity to gain knowledge and transferable skills to advance their practice in a condensed academic period with a focus on quality and patient safety.[9,19,20] The development of this debridement course was made possible in 2020 through an industry educational grant gifted to the Society. In NZ, micro-credentials are recognised in the national qualifications framework, these must be relevant, needs-based, focused on outcomes with transferable skills, offer flexible delivery and learning modes and be developed with key stakeholders, demonstrating inclusion and collaboration.[9]

Methods – course development

In 2021, the NZWCS partnered with Otago Polytechnic, a NZ tertiary education institute and an Australian Independent Consultant and Educator (WOUNDed® Learning Center) to assist in the development and customisation of a NZ wound debridement course based on the NZ Qualifications and Credentials Framework.[9]

A working group was formed consisting of Otago Polytechnic representatives, three NZWCS nurses (including the two authors), a podiatrist and a subcontracted wound consultant. Regular meetings were conducted to determine course logistics, fees, roles and responsibilities and course content with course approval required by the NZ Qualifications Authority. A national consultation document for key stake holders was developed to gauge support and value for the course. In June 2021, circulated materials invited feedback on the proposed course content and its anticipated benefits. The intended learners included registered health professionals; such as registered and enrolled nurses, nurse specialists, consultants, practitioners, podiatrists, and doctors. The inclusion of enrolled nurses was highlighted as essential, reflecting their frequent autonomous practice within community district nursing and aged care settings across NZ. Key stake holders included the Nursing Council of NZ, National Enrolled Nurses Section, Podiatry NZ, the aged care sector, general practices, public hospitals, academics, wound specialists, nurses, podiatrists, doctors and industry.

The feedback was invaluable and highlighted the need for skilled mentors, maintaining safety and competency, diabetic foot education, and the potential impact on private podiatry businesses. This led to robust interdisciplinary conversations and the engagement with a podiatrist to develop specific diabetic foot modules within the course. In addition, the CSSWD competency includes removal of wound callus and hyperkeratosis, but does not include nail or foot callus management without a wound.

After the consultation and programme adjustments, the Otago Polytechnic application to the NZ Qualifications Authority and Tertiary Education Commission was approved in November 2021 for the first micro-credentialed Level 7 (15 Credits) Certificate in Wound Debridement, providing competency in CSSWD for NZ registered health professionals. The course was advertised on the Otago Polytechnic and NZWCS websites.

The Polytechnic subcontracted the NZWCS to self-fund the academic development and delivery, provide course

Table 1. Debridement methods relative to clinician knowledge and skill level

Knowledge and skill level		
Beginner (novice)	**Intermediate**	**Advanced to expert**
Autolytic, Enzymatic, Mechanical, such as debridement pad, foam or wipe, therapeutic cleansing	Chemical Biosurgical Mechanical: such as negative pressure wound therapy with instillation	Surgical: including hydrosurgical CSSWD: scalpel, iris scissor or curette Mechanical: such as low-frequency ultrasonic

tutors and undertake learner assessments. The Polytechnic facilitated enrolment and provided services inclusive of library access, IT support, the on-line learning platform (Moodle™), assessment moderation and awarding of certificates. The NZWCS licensed learning resources (including Course 1—3 content) and administrative service. The NZWCS is responsible for developing Course 4 and facilitating the two-day practicum.

Course content and practicum

The overall course consists of four courses, below, which are conducted over 26 weeks equating to 150 hours of learning.

1. What and why of wound debridement (3 weeks)
2. Debridement modalities (3 weeks)
3. Pain management (2 weeks)
4. Clinical assessment and skills: Lower leg and foot assessment, including cultural models of care (8 weeks)

The course is conducted via on-line self-directed learning with scheduled live tutorial group activities, along with a two-day face-to-face practicum. Ten weeks are then allocated for learners, post-attending the practicum, to gain five CSSWD competencies with their mentor/s in clinical practice.

In courses 1–3 the '10 steps' conceptual framework (unpublished White© 2009)[21] incorporates identification of wound and tissue types, inclusive of seen and unseen barriers to healing, where debridement risk-versus-benefit and clinical reasoning is required.

This educational model considers the person, the wound, the healthcare professional, the setting and resource risk assessment along with identified goals of care, guiding the learner in their clinical decision-making to debride (or not), and debridement modality selection.

The learning content considers the clinical indications, precautions, contraindications, setting, resources and knowledge and skill requirements for all available debridement modalities including surgical (SWD), conservative sharp and sharp (CSSWD), dressing (DWD), biosurgical (BWD), and enzymatic (EWD) wound debridement. Chemical wound debridement (CWD) at the time of publication was not available in NZ, but learners are informed of this emerging debridement option. The risk for background, procedural or operative wound-related pain is considered for all debridement modalities, along with recommended best practice assessment and management options.

The learner is introduced to a unique course terminology using the '10 steps' framework, including Procedural (Primary) and Background (Secondary) wound debridement© such as purposeful dressing or device selection. The clinical decision to combine complimentary debridement modalities versus use in isolation at the time of, and between wound dressing procedures (WDPs), addresses not only the speed at which debridement is required, but also overall debridement effectiveness.

When CSSWD is a selected debridement option, the learner is guided theoretically to consider the 3Ds© (to deroof, detach and or disrupt) and the 3Ts© (the tissue, tools and techniques) required. Differentiation of conservative sharp from sharp wound debridement is essential, and guides what surgical instruments (+/- topical local anaesthetic) and techniques are most suitable for the wound bed, edge or periwound tissue characteristics.

The 10 Steps educational resource, guides not only assessment and planning (incorporating person–focused approach, patient preference and informed consent), but procedural preparation, implementation, documentation and evaluation processes required.

At the two-day practicum, Day One overviews professional scope of practice, competency and patient consent, with case study group work applying the Wound Hygiene™ principles.[2] The practical debridement session includes infection control principles, tissue identification, pain and bleeding management, with techniques simulated on pig trotters and potatoes using curettes, forceps, iris scissors and scalpels. These skills are then assessed individually by the tutors using a competency assessment form to ensure safe and correct instrument handling and debridement techniques.

Day Two focuses on the lower limb (leg and foot) bedside vascular and diabetic foot assessment and interpretation of findings prior to CSSWD procedures, modified compression techniques, hosiery application, pneumatic compression and clinical reasoning group work considering complex real-life case studies. Learners are permitted, with patient consent, to present clinical cases for discussion. After attendance at the practicum learners are then expected to commence their portfolio and undertake CSSWD competencies with their mentor/s in the workplace (Image 1).

Formative and summative assessment

Formative assessments include quizzes and self-directed workbooksbased on the video lessons and reading resources. Group tutorials are delivered and recorded via the Teams platform and provide opportunities for course-related questions, networking, and sharing expertise and resources.

Summative assessments must show evidence of critical reflection that is central to course requirements. This includes a 2500-word case study of a patient, client or resident requiring debridement to meet the learning objectives in courses 1–3, attending the two-day practicum, and a portfolio submission consisting of a workbook specifically on the lower leg and foot. In addition, five CSSWD competencies are completed with the learner's mentor. To achieve competency in foot debridement, at least one of the five competencies must be conducted on the foot (see CSSWD Competency Assessment).

CSSWD competency assessment

The eight-page competency assessment tool includes screening to assess precautions and contraindications to CSSWD debridement and a safety checklist for wounds located on the lower leg and foot. The learner is assessed by their mentor on 16 criteria. Examples include: debridement rationale; consent gained; cultural considerations; pain assessment; equipment choice; identifying viable versus non-viable tissue; debridement techniques; recognising skill limitations; adhering to infection control principles; product selection; and documentation. While not mandatory, pre- and post-debridement photographs are encouraged to support clinical documentation and enhance learning. Critical reflective comments, by learner and mentor, include whether procedure goals were met, new skills were applied, confidence levels and how techniques could be improved.

Novice learners may need to complete more debridement procedures until they are deemed competent by their mentors. On submission, if there is inadequate information on the competency assessment form, they are returned to the learner for resubmission.

Learner prerequisite and application process

To enrol in the course, it is a prerequisite that learners must be working with adults and performing wound care procedures at least weekly and enrolled nurses must have three years clinical experience. Annual enrollments for up to 44 learners can be accommodated; the course runs from April to October and at the time of publication, is in its fourth year, with course numbers for 2022 n=26, 2023 n=24, 2024 n=37 and 2025 n=43.

The application process requires the learner's organisation to sign a letter of support for them to undertake the course. This agreement includes providing the learner with the correct equipment, support and protected time to perform debridement procedures. Each learner is assigned a tutor for support. This assists those who have not recently studied and require guidance with assignment writing and navigating the learning platform. The learners are required to provide their mentor/s role and contact details, and, if required, tutors can assign mentor/s or provide a mentoring role. The mentor role is on a volunteer basis with learner and mentor agreements provided to ensure role clarification and expectations. Mentors include registered health professionals — registered nurses, doctors and podiatrists who undertake CSSWD procedures regularly.

Image 1. Course contributor and tutor mentoring a learner

Results

After the completion of each course and the practicum, the Polytechnic sends email notifications, with a link to the evaluation forms, prompting learners to complete these. Additionally, the evaluation links are located within the Moodle platform after each course. Evaluation questions include whether video lessons and readings met learning expectations, whether test questions helped to measure knowledge, whether course workbooks provided reflective learning, whether learners could share or gain new knowledge from group tutorials, whether the assignment and portfolio contributed to increased knowledge and understanding of the subject. Free text options are provided to list the most beneficial course elements and areas where the course could be improved. At the completion of the course a further evaluation is sent asking learners if the course was well organised to aid learning, whether instructions and requirements were clear, if it was well structured, if they felt supported by tutors, workload was appropriate and sufficient time to complete, and if they would recommend the course to colleagues. Again, free text options are provided for listing the most beneficial course elements, strengths of the course and areas where the course could be improved. This feedback is essential to continual course improvements and to meet learners' needs and expectations.

The activities learners identified that best support their learning include self-directed video lessons, the two-day practicum, performing competencies with mentor/s, discussing clinical cases and observing first-hand improved wound healing outcomes post-CSSWD procedures in the workplace.

Course evaluations are provided from 2022 to 2024. Low return rates in 2022 led to increasing electronic reminders to learners which improved response rates, with 2024 providing a >80% response. Most learners agreed or strongly agreed that the course workload and requirements are appropriate (Figure 1). From learner feedback, course adjustments have occurred each year. One example is in the first year three assignments were required to meet Course 1–3 learning objectives; since the second intake, this is now one assignment showing evidence of learning from these three courses. Most learners agreed or strongly agreed the course increased learning and met their expectations (Figure 2) and they would recommend the course to colleagues (Figure 3). Learners advised CSSWD clinical videos assisted with their understanding of debridement techniques. A video library of real-life debridement procedures has been developed as

an educational resource to support theoretical and practical learning.

Learner evaluation comments have shown how the course has advanced knowledge and skills along with developing more collaborative interdisciplinary team relationships. These include:

"The course does not only teach you CSSWD but gives you a very good background about wounds and wound healing."

"I have learnt how to hold instruments correctly and had the opportunity to use tools, such as a curette which I have never used before."

"I have since made big improvements in my confidence with diabetic foot wounds, learnt more about the structures of the feet, taking extra care, improving healing outcomes … I now work alongside the podiatrist … to provide CSSWD and assessment in the community for patients who cannot make podiatry outpatient appointments."

"I have a better understanding of the wound aetiology and if I have any concerns, I feel confident in asking my mentors for continued support and advice."

"It is wonderful to have a robust framework and guidelines to protect and guide us within our practice. I will be encouraging my colleagues to complete this course … to provide better outcomes for our patients."

Access to the course content is available to learners for an additional 3-months post completion, this allows learners time to reflect on their learning and obtain additional resources if required.

Annual meetings are held with all contributors to review evaluation feedback and to determine course updates.

Discussion

Overall, learner feedback has been very positive, but it is acknowledged two learners (1/10 learners in 2022 and 1/30 learners in 2024) 'disagree' or 'neither agree or disagree'

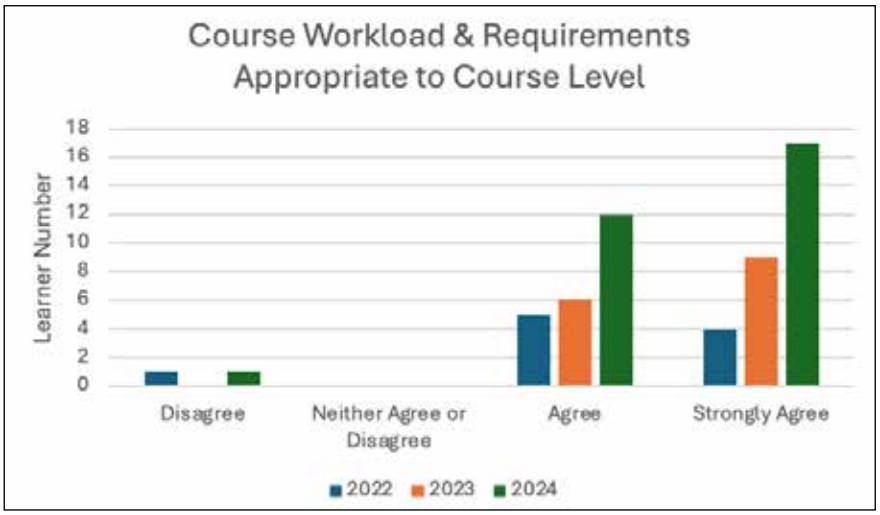

Figure 1. Course requirements and workload
Evaluation return rate 2022=38.5%, 2023=62.5%, 2024=81.1%

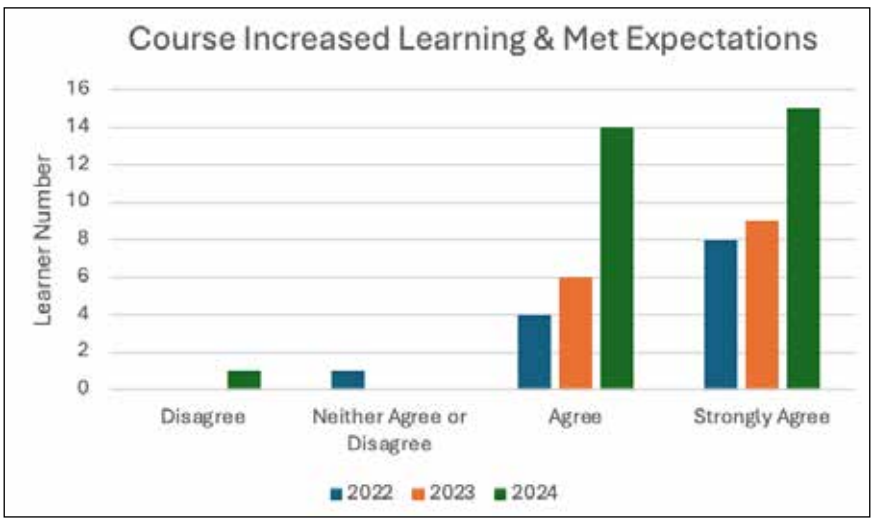

Figure 2. Course learning and learner expectations
Evaluation return rate 2022=50%, 2023=62.5%, 2024=81.1%

that the course workload and requirements were appropriate and that the course increased learning and met their expectations. It is possible that Course 4 content (lower leg focus inclusive of diabetic foot disease) may not be relevant or an area of clinical practice for all learners.

Written and verbal feedback from course evaluations also showed that learners say they now collaborating more with interdisciplinary teams, especially with podiatrists when managing complex diabetic foot wounds. In NZ, skilled podiatrists trained in CSSWD usually work in secondary and tertiary institutions, whereas in the community, people with diabetic foot wounds are predominantly managed by the district nursing service. Two community podiatrists have completed the course and reflected that the course was valuable and provided new knowledge and skills. As tutors and mentors, we are also seeing the benefits in clinical practice, especially in our community district nursing service where nurses work autonomously. A district nurse manager observed positive outcomes associated with the practice of CSSWD in both patient homes and nurse-led clinics and subsequently articulated her endorsement for all nurses within her team to undertake and complete the course. Challenges, such as pain management, remain for services provided in the community, home-based situations and rural settings. The course provides learners with pharmacological and non-pharmacological pain management strategies and emphasises the importance of patient education and collaborating with patients' nurses or general practitioners to facilitate the prescription of oral and topical analgesics. Furthermore, the course emphasises early consultation and referrals when wound healing does not progress as expected or when debridement cannot be performed safely.

In response to trained nurses using topical analgesia for wound debridement procedures author Pagan has developed an online learning package, for nurses working in her region that is accessible to healthcare professionals in the South Island of NZ. The package, that is required to be completed every two-years, incorporates safety-netting that provides patient information sheets and guidance to aid their understanding and when to seek help, a patient screening tool and procedural guidance designed for nurses working in outpatient and rural or community settings where prescribers are not available. This has been formally approved by the author's hospital's regional Medicines Management Committee and District Chief Nurse, enabling nurses to apply topical analgesia for wound debridement procedures.[22]

Many course learners have increased their professional support networks by maintaining tutor contact for ongoing support and advice, have become mentors, joined the Society, pursued further study, provided education gained from the course to their colleagues, attended national wound conferences (Image 2), and presented at international conferences showcasing CSSWD case study outcomes.

To date, the course fee has been funded by the learners' organisations for most learners, though a small minority have self-funded, perceiving the course as essential to professional development and advancing their scope of practice. NZ was one of the first countries to incorporate micro-credentials in their national qualifications framework,[9,19] but to further understand how this micro-credentialed course has influenced learning and confidence in debridement requires research.[9,20] We are committed to and excited about future course developments and expanding the pool of CSSWD knowledge and expertise to continually improve care and healing outcomes across Aotearoa NZ.

Conclusion

A nationally recognised micro-credentialled debridement course provides professional support and networking, promotes best practice, and expands knowledge and skills to ensure safe, timely and effective debridement procedures to improve healing outcomes and reduce the human, clinical and fiscal costs and the burden of hard-to-heal wounds. Future research to measure the impact of this course

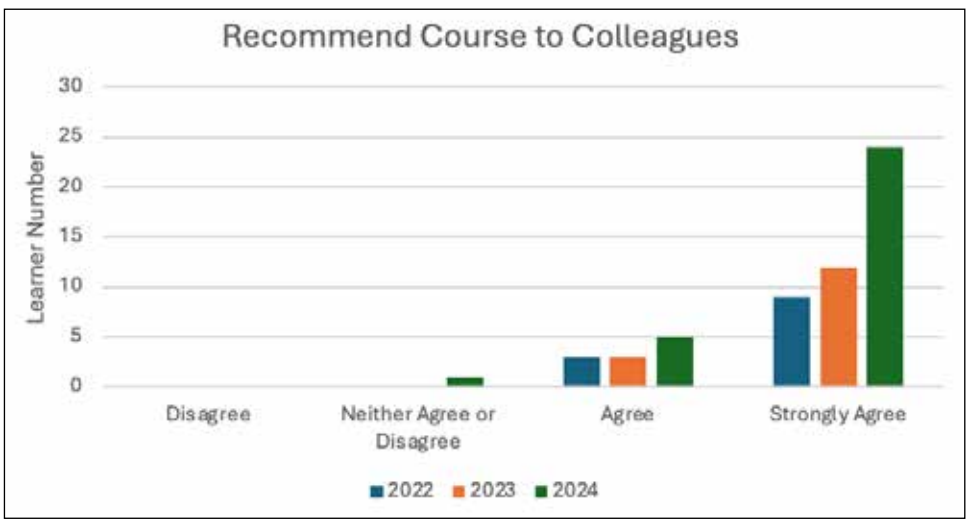

Figure 3. Learners recommend course to colleagues evaluation return rate 2022=46.5%, 2023=62.5%, 2024=81.1%

Image 2. 2023 NZWCS National Conference attendees including Debridement Course learners, mentors, tutors and course contributors and developers.

in clinical practice would add to the body of evidence supporting skilled-based learning.

Author contribution

The first author drafted the content and contributing authors added content.

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Conflict of interest

NZ authors are course contributors and tutors contracted by the NZWCS

Ethics statement

An ethics statement is not applicable.

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