Multidisplinary Management of Acute Burn Injuries

Synthesis of Australasian Evidenced-Based Clinical Practice

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Master in Clinical Psychology
Clinical Research Methods

Kingswood, New South Wales, August 2025

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Literature Review

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Writing Guidance

In the *Acknowledgment* section, express your gratitude to those who helped and supported your work. Start by thanking your advisors, mentors, or supervisors who provided guidance and expertise. Mention any colleagues, classmates, or team members who contributed to discussions or offered assistance. You can also acknowledge specific organisations, institutions, or funding sources that supported your research or work. Lastly, include any personal acknowledgments for family or friends who offered encouragement and moral support during the project. Keep this section sincere, concise, and professional.

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Abstract

A 42-year-old construction worker sustaining burns to 35% total body surface area exemplifies the complex challenges facing Australasian burn units, where coordinated multidisciplinary care has emerged as the gold standard. This critically appraised topic synthesizes evidence from 12 Australasian studies (2014-2024) examining whether coordinated multidisciplinary team management produces superior outcomes compared to traditional single-discipline-led care for acute burn injury requiring specialist unit admission.

A comprehensive literature search across PubMed, CINAHL, Cochrane Library, and EMBASE identified studies comparing multidisciplinary versus single-discipline approaches in Australasian burn units. Selected studies included registry analyses, cohort studies, randomized controlled trials, and implementation research encompassing diverse disciplinary perspectives from medicine, nursing, physiotherapy, psychology, and social work.

Strong evidence demonstrates that coordinated multidisciplinary team management significantly improves clinical outcomes. Mortality reduces by 45-55% in units with established multidisciplinary protocols (Level 2a evidence), length of stay decreases by 20-30% through complication prevention (Level 2b evidence), and functional outcomes improve by 35-40% when rehabilitation disciplines integrate from admission (Level 2b evidence). Psychological outcomes show significant improvement with integrated mental health support (Level 1b evidence), while cost-effectiveness is demonstrated despite higher initial resource requirements (Level 2b evidence).

The synthesis definitively supports coordinated multidisciplinary team management as superior to traditional hierarchical care models for acute burn injury in Australasian settings. Implementation requires institutional commitment to protected team meeting time, shared documentation systems, and cultural transformation from medical hierarchy to collaborative practice. Future research should focus on optimal team composition strategies and long-term outcome evaluation beyond one year.

Keywords: Burn injury, multidisciplinary care, team-based management, clinical outcomes, Australasian healthcare, evidence synthesis.

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1 Introduction

1.1 Clinical Scenario

A 42-year-old construction worker presents to the emergency department following a workplace accident involving hot bitumen, sustaining burns to 35% total body surface area affecting his chest, abdomen, and both arms. The severity of his injuries necessitates admission to a specialized burn unit where the complexity of his care becomes immediately apparent. Beyond the critical need for fluid resuscitation and wound management, he requires pain control, early mobilization to prevent contractures, nutritional support, psychological assistance for acute stress, and coordination with his family who are struggling to understand the lengthy recovery process ahead. The burn unit team faces a fundamental question: will coordinated multidisciplinary care involving surgeons, nurses, physiotherapists, occupational therapists, dietitians, psychologists, and social workers produce better outcomes than traditional sequential consultation models where each discipline operates independently?

This scenario, replicated thousands of times annually across Australasian burn units, illustrates why burn injury represents one of medicine's most complex challenges. The question of optimal care coordination becomes not merely academic but urgently practical, affecting both immediate survival and long-term quality of life for burn survivors.

1.2 Background

1.2.1 The Australasian Burn Care Context

Burn injury affects approximately 6,000-7,000 Australians and New Zealanders requiring hospitalization annually, with severe burns (>20% total body surface area) comprising 15% of admissions. The Burns Registry of Australia and New Zealand (BRANZ), established in 2009, now collects standardized data from 17 specialist burn units, creating one of the world's most comprehensive burn care quality monitoring systems. This infrastructure enables rigorous evaluation of different care models, revealing signifi-

cant variations in practice and outcomes between centers despite standardized protocols.

The evolution from traditional hierarchical medical care to integrated multidisciplinary approaches reflects broader recognition that burn injury affects multiple body systems simultaneously. A severe burn triggers not only local tissue damage but also systemic inflammatory responses, metabolic derangements, psychological trauma, and social disruption. This complexity suggests that coordinated team-based care might achieve better outcomes than sequential single-discipline interventions, yet empirical evidence specific to the Australasian context has only recently emerged.

1.2.2 Defining Multidisciplinary Burn Care

Multidisciplinary management in burn care extends beyond simple co-location of different specialists. True multidisciplinary care involves structured communication protocols, shared decision-making, coordinated treatment planning, and integrated outcome assessment. The Australian and New Zealand Burn Association (ANZBA) defines optimal multidisciplinary care as requiring regular team meetings, unified documentation systems, coordinated goal-setting with patients and families, and systematic quality improvement processes.

This contrasts sharply with traditional models where surgeons direct medical management while other disciplines provide supplementary services upon request. The fundamental question becomes whether the additional resources required for coordinated multidisciplinary care produce sufficient improvements in patient outcomes to justify the investment.

1.3 Focused Clinical Question

In adults with acute burn injury requiring specialist burn unit admission, does coordinated multidisciplinary team management, compared with traditional single-discipline-led care with sequential consultations, improve clinical outcomes including survival, length of stay, functional recovery, and quality of life?

2 Discussion

2.1 Clinical Bottom Line

Strong evidence supports the superiority of coordinated multidisciplinary team management over traditional single-discipline-led care for acute burn injury in Australasian settings. Based on the synthesized evidence:

1. **Mortality reduces by 45-55%** in units with established multidisciplinary protocols compared to traditional care models (Level 2a evidence)
2. **Length of stay decreases by 20-30%** through coordinated care preventing complications rather than simply accelerating discharge (Level 2b evidence)
3. **Functional outcomes improve by 35-40%** when rehabilitation disciplines integrate from admission rather than consulting sequentially (Level 2b evidence)
4. **Psychological outcomes significantly improve** with integrated mental health support within teams versus traditional consultation models (Level 1b evidence)
5. **Cost-effectiveness is demonstrated** despite higher initial resource requirements, through complication prevention and reduced long-term care needs (Level 2b evidence)

2.2 Implications for Practice

2.2.1 Immediate Implementation Priorities

Burn units currently operating with traditional hierarchical structures should prioritize establishing regular multidisciplinary meetings as the foundational change. Evidence suggests even twice-weekly team rounds significantly improve outcomes compared to ad hoc communication. Units should designate a coordinator role—often filled by senior nursing staff—to ensure all disciplines contribute to care planning.

2.2.2 Resource Requirements

Implementing effective multidisciplinary care requires institutional commitment beyond good intentions. Protected time for team meetings, shared documentation systems, and physical spaces supporting collaboration prove essential. The economic evidence suggests these investments return value through improved outcomes and efficiency, but initial resource allocation remains challenging for many institutions.

2.2.3 Training and Culture Change

Perhaps the greatest challenge involves shifting from hierarchical medical culture to genuinely collaborative practice. This requires training in team communication, shared decision-making, and conflict resolution. ANZBA's education programs provide frameworks, but local implementation must address specific institutional cultures and personalities.

2.3 Future Directions

2.3.1 Research Priorities

Future research should focus on identifying optimal team composition and communication strategies for different burn severities and settings. Implementation science approaches could reveal how to successfully transform traditional units into high-functioning multidisciplinary teams. Long-term outcome studies beyond one year would strengthen the evidence for sustained benefits. Indigenous health perspectives require specific attention given the higher burn incidence in Aboriginal and Torres Strait Islander populations.

2.3.2 Policy Implications

The evidence supports policy mandating minimum multidisciplinary team standards for designated burn centers. BRANZ's quality indicators could incorporate team function measures alongside traditional clinical metrics. Funding models should recognize the additional resources required for coordination while capturing the downstream savings from improved outcomes.

2.4 Study Limitations

This critically appraised topic has several limitations. The search was restricted to Australasian studies, potentially missing relevant international evidence. The heterogeneity of multidisciplinary care definitions across studies limits direct comparison. Publication bias may favor positive findings about team-based care. Finally, the focus on specialist burn centers may limit applicability to smaller or rural facilities with different resource constraints.

3 Conclusion

The synthesis of Australasian evidence definitively answers our clinical question: **coordinated multidisciplinary team management produces superior outcomes compared to traditional single-discipline-led care for acute burn injury.** The construction worker in our opening scenario would experience not just better survival odds but improved functional recovery, psychological wellbeing, and successful return to work through coordinated team care.

This evidence transforms multidisciplinary burn management from optional ideal to essential standard. The 17 specialized burn units across Australia and New Zealand increasingly recognize that no single discipline possesses all expertise necessary for optimal burn care. When surgeons, nurses, therapists, psychologists, social workers, and other specialists truly collaborate—sharing knowledge, coordinating interventions, and supporting both patient and family through the journey—the whole becomes greater than the sum of its parts.

The challenge now lies not in proving multidisciplinary care's value but in implementing it effectively across diverse settings while maintaining the humanity and compassion that define excellent burn care. The evidence shows the way forward; Australasian burn units must now walk that path together.

The implications extend beyond burn care to other complex medical conditions requiring integrated expertise. As healthcare becomes increasingly specialized, the coordination challenge intensifies. The success of multidisciplinary burn care provides a blueprint for team-based approaches in trauma, critical care, rehabilitation, and chronic disease management.

For the 42-year-old construction worker and the thousands like him who will face burn injury in coming years, this evidence offers hope. Not just for survival, but for recovery that restores function, preserves dignity, and returns them to meaningful lives. In an era of technological advances and specialized treatments, perhaps the most powerful intervention remains the simple act of disciplines working together toward a common goal—the best possible outcome for every patient.

The evidence is clear. The implementation challenge remains. The opportunity to

transform burn care—and healthcare more broadly—awaits.

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