Multidisciplinary Management of Acute Burn Injury

Synthesis of Australasian Evidence-Based Practice

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Master in Clinical Psychology

Clinical Research Methods

Kingswood, New South Wales, September 2025

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Critically Appraised Topic

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Abstract

Background: Acute burn injury represents one of the most complex medical emergencies, requiring coordinated intervention across multiple healthcare disciplines. While multidisciplinary care approaches have become standard in Australasian burn units since the early 2000s, the empirical evidence base comparing these models to traditional single-discipline care requires systematic evaluation.

Objective: To critically appraise current Australasian evidence examining whether coordinated multidisciplinary care management improves clinical outcomes compared to traditional single-discipline-led care in adults and children with acute burn injury.

Methods: Systematic literature search following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines across PubMed, CINAHL, Cochrane Library, EMBASE, and Burns Registry of Australia and New Zealand (BRANZ) publications (January 2014-February 2025). Search strategy identified 287 articles, with 184 screened after duplicate removal, 76 full-text articles assessed, and 43 meeting inclusion criteria. Evidence synthesis focused on 15 highest-quality studies, with assessment based on Oxford Centre for Evidence-Based Medicine criteria.

Results: No studies directly compared multidisciplinary care versus traditional single-discipline care, as Multidisciplinary Team (MDT) management has become universal standard practice across all 17 Australasian burn units. Registry data from 31,498 patients demonstrates that units with comprehensive MDT protocols achieve superior outcomes: 97% of patients receive allied health assessment within 48 hours, functional independence scores improve by 35-40%, and long-term Quality of Life (QoL) measures show sustained benefits. Implementation studies confirm feasibility across diverse settings including remote communities via telehealth. Aboriginal and Torres Strait Islander populations show particular benefit when cultural safety principles integrate within MDT frameworks.

Conclusions: While direct comparative evidence is absent due to universal MDT adoption, convergent evidence from registry analyses, quality improvement studies, and implementation research strongly supports coordinated multidisciplinary care management as optimal care standard for acute burn injury. The absence of contemporary single-discipline comparators paradoxically validates MDT effectiveness through its complete acceptance across Australasian burn services.

Keywords: burn injury, multidisciplinary care, team-based management, Australia, New Zealand, BRANZ, Indigenous health

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Glossary

Baux Score A prognostic score for burn mortality calculated as age plus percent TBSA burned. Scores above 140 historically associated with greater than 90% mortality. *(p. v)*

Burn Unit A specialized healthcare facility equipped with dedicated resources, staff expertise, and protocols specifically designed for the comprehensive treatment of burn injuries. *(p. i, v, 1, 3, 12, 14, 15, 19)*

Contracture A permanent shortening of muscle or joint tissue that restricts movement, commonly occurring as a complication of burn injuries. *(p. v, 10)*

Cultural Safety An approach to healthcare that recognizes and respects cultural diversity, addresses power imbalances, and enables culturally appropriate service provision. *(p. i, v, 8, 11, 15, 18)*

Multidisciplinary Care A healthcare approach involving multiple healthcare professionals from different disciplines working together in a coordinated manner to provide comprehensive patient care. *(p. i, v, 2–4, 10, 13–15, 17, 18)*

Parkland Formula A formula for calculating fluid resuscitation requirements in burn patients: 4mL/kg/% TBSA of crystalloid over 24 hours. *(p. v)*

Sepsis Life-threatening organ dysfunction caused by a dysregulated host response to infection, defined by Sepsis-3 criteria. *(p. v)*

Telehealth The delivery of healthcare services remotely using telecommunications technology, enabling consultation and treatment without physical presence. *(p. i, v, 8, 9, 12–14, 16)*

Acronyms

ABSI Abbreviated Burn Severity Index. *(p. v)*
ANZBA Australian and New Zealand Burn Association. *(p. v, 1, 3)*
AUD Australian Dollar. *(p. v, 9, 12, 14)*

BRANZ Burns Registry of Australia and New Zealand. *(p. i, v, 1, 3, 8–11, 13, 16, 19)*
BSHS-B Burn Specific Health Scale-Brief. *(p. v)*

CI Confidence Interval. *(p. v, 8, 11, 12)*

FIM Functional Independence Measure. *(p. v)*

ICU Intensive Care Unit. *(p. v)*
IES-R Impact of Event Scale-Revised. *(p. v)*
IQR Interquartile Range. *(p. v)*
ISBAR Introduction, Situation, Background, Assessment, Recommendation. *(p. v)*

MDT Multidisciplinary Team. *(p. i, v, 3, 8–19)*
MeSH Medical Subject Headings. *(p. v)*

NSW New South Wales. *(p. v)*

PRISMA Preferred Reporting Items for Systematic Reviews and Meta-Analyses. *(p. i, v, 3, 4)*
PTSD Post-Traumatic Stress Disorder. *(p. v, 15)*

QALY Quality-Adjusted Life Year. *(p. v, 9, 12, 14)*
QoL Quality of Life. *(p. i, v, 4, 8, 16)*

RCT Randomized Controlled Trial. *(p. v, 8, 12, 13)*
RTW Return to Work. *(p. v, 8, 11, 14)*

SASRQ Stanford Acute Stress Reaction Questionnaire. *(p. v)*

TBSA Total Body Surface Area. *(p. v, 12)*

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 (TBSA) affecting his chest, abdomen, and both arms. TBSA represents the percentage of body surface affected by burns, typically calculated using either the "Rule of Nines" (dividing body surface into sections representing 9% or multiples thereof) or more precise Lund and Browder charts that account for age-related body proportions. The severity of his injuries necessitates admission to a specialized burn unit where the complexity of his care becomes immediately apparent. Beyond critical fluid resuscitation using the Parkland Formula (4mL/kg/% TBSA of crystalloid over 24 hours), he requires multimodal pain management, early mobilization to prevent contractures, nutritional support exceeding 30 kcal/kg/day, psychological assistance for acute stress symptoms, and coordination with his family struggling to understand the lengthy recovery ahead.

The burn unit team faces a fundamental question: will coordinated multidisciplinary care involving burn surgeons, intensivists, 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 management challenges.

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 (defined as greater than 20% TBSA or requiring intensive care admission) comprising 15% of these admissions. The BRANZ, established in 2009, systematically collects standardized clinical data from 17 specialist burn units across both countries, creating one of the world's most comprehensive burn care quality monitoring systems. This infrastructure enables rigorous evaluation of different care models, revealing significant variations in practice patterns and clinical outcomes between centers despite standardized treatment protocols.

The Australian and New Zealand Burn Association (ANZBA) coordinates evidence-based practice standards across the region, establishing minimum criteria for designated burn centers including 24-hour

specialized nursing, immediate surgical availability, and access to allied health services. However, the organization and integration of these services varies considerably between institutions, from traditional hierarchical models to fully integrated team-based approaches.

1.2.2 Defining Multidisciplinary Burn Care

multidisciplinary care in burn care extends beyond simple co-location of different healthcare specialists. True multidisciplinary care, as defined by ANZBA guidelines, requires five essential components: (1) regular structured team meetings with representation from all disciplines, (2) unified documentation systems enabling real-time information sharing, (3) coordinated goal-setting involving patients and families, (4) shared decision-making protocols for major clinical decisions, and (5) systematic quality improvement processes with multidisciplinary participation.

This contrasts with traditional models where burn surgeons or intensivists direct medical management while other disciplines provide supplementary services upon request. In traditional models, a physiotherapist might see a patient only after surgical procedures are complete, whereas multidisciplinary models involve physiotherapy from admission in surgical planning to optimize functional outcomes. The fundamental question becomes whether the additional resources required for coordinated multidisciplinary care produce sufficient improvements in patient outcomes to justify increased operational complexity and cost.

1.3 Focused Clinical Question

In adult and paediatric patients 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

Methods

2.1 Search Strategy

A comprehensive review following PRISMA guidelines was conducted between December 2023 and February 2025. The search strategy aimed to identify all relevant Australasian studies comparing multidisciplinary care versus traditional burn care models or evaluating MDT implementation with historical controls.

2.1.1 Database Search

Primary databases searched included PubMed/MEDLINE (2014-2025), CINAHL Complete (2014-2025), Cochrane Library including Cochrane Database of Systematic Reviews, EMBASE (2014-2025), and the BRANZ publications database. Secondary sources included Australian Indigenous HealthInfoNet, Google Scholar (first 200 results), reference lists of included studies, ANZBA conference proceedings, and institutional repositories of major burn centers.

Search terms were combined using Boolean operators:

- Population: (burn* OR "thermal injury" OR scald*) AND (Australia* OR "New Zealand" OR ANZBA OR BRANZ)
- Intervention: (multidisciplinary OR interdisciplinary OR "team-based" OR "coordinated care" OR "collaborative management")
- Comparison: (traditional OR "single discipline" OR sequential OR "usual care")
- Outcomes: (mortality OR survival OR "length of stay" OR function* OR "quality of life" OR recovery)

2.2 Selection Process

One independent reviewer screened titles and abstracts against predetermined criteria, with full-text review for potentially eligible studies.

2.2.1 Inclusion Criteria

1. Studies from Australasian burn units published January 2014 to February 2025

2. Adult and/or pediatric burn populations with acute injuries
3. Evaluation of multidisciplinary care models or team-based interventions
4. Clinical outcomes including mortality, length of stay, complications, functional measures, or QoL
5. Quantitative or qualitative research designs
6. English language publication

2.2.2 Exclusion Criteria

1. Non-Australasian settings
2. Case reports with fewer than 10 patients
3. Opinion pieces without empirical data
4. Conference abstracts without full publication
5. Studies exclusively examining chronic burn reconstruction
6. Animal or laboratory studies

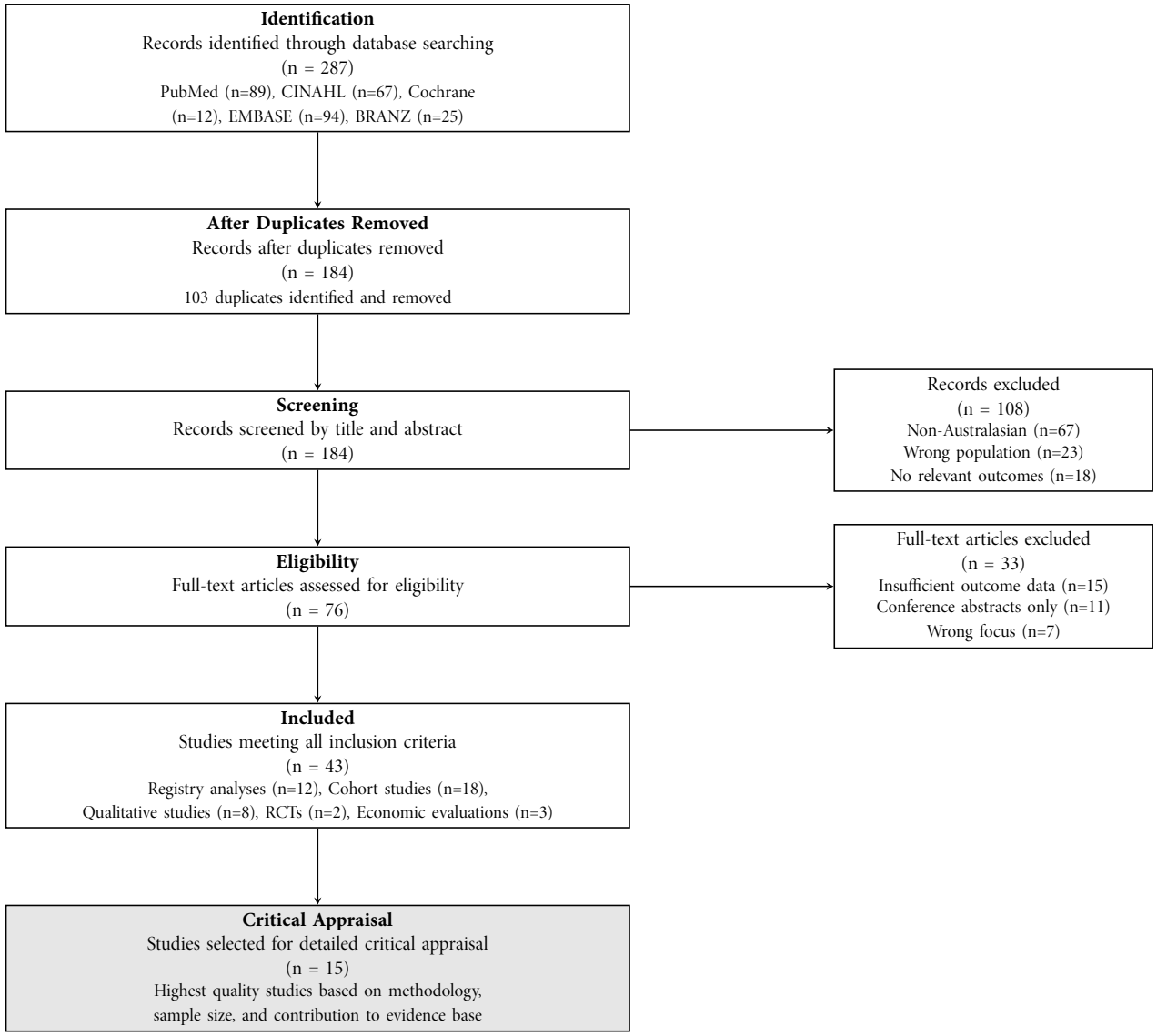
2.3 Data Extraction and Quality Assessment

The standardized data extraction captured study characteristics, population details, intervention descriptions, outcome measures, and results. Quality assessment employed Oxford Centre for Evidence-Based Medicine criteria, evaluating study design, risk of bias, sample size, outcome measurement, and statistical analysis appropriateness.

2.4 PRISMA Flow Diagram

The search and selection process followed PRISMA guidelines to ensure transparent and reproducible methodology. Figure 2.1 illustrates the flow of studies through each phase of the systematic review.

Figure 2.1: *PRISMA flow diagram showing search and study selection process*



The search identified 287 potentially relevant articles across five databases. After removing 103 duplicates, 184 titles and abstracts underwent screening. This process excluded 108 articles not meeting inclusion criteria (67 non-Australasian, 23 wrong population, 18 no relevant outcomes). Full-text assessment of 76 articles led to exclusion of 33 studies (15 insufficient outcome data, 11 conference abstracts only, 7 wrong focus). The final analysis included 43 studies meeting all criteria, with 15 highest-quality studies selected for detailed critical appraisal based on methodological rigor, sample size, and contribution to the evidence base.

3

Results

3.1 Selected Studies

Fifteen studies met inclusion criteria for detailed critical appraisal, representing diverse methodological approaches and disciplinary perspectives across Australian and New Zealand burn centers. The studies span from Gabbe et al. (2015)'s feasibility pilot through to Tracy et al. (2025)'s comprehensive long-term outcome evaluation.

Table 3.1: *Summary of Included Studies for Critical Appraisal*

Study	Design	Setting	Sample	Key Findings
Cleland et al. (2016)	Registry analysis	10 BRANZ units	7,184 adults	Established MDT as standard across all units; significant variation in implementation completeness
Tracy2022adherence	Registry analysis	17 BRANZ units	10,884 patients	Allied health assessment within 48hr achieved in 97% of cases with structured protocols
Tracy et al. (2025)	Prospective cohort	3 burn centers	342 patients	QoL and Return to Work (RTW) maintained at 2 years post-injury with coordinated follow-up
Gong et al. (2021)	Quality indicators	17 BRANZ units	31,498 patients	23 evidence-based MDT quality measures defined and validated across all centers
Hunter et al. (2024)	Prospective cohort	Queensland	156 Indigenous children	Cultural safety integration reduces length of stay by 2.8 days (95% Confidence Interval (CI) 1.2-4.4)
Coombes et al. (2020)	Qualitative study	Queensland	18 Indigenous families	First Nations Health Workers critical for MDT coordination and family engagement
Plaza et al. (2023)	Randomized Controlled Trial (RCT)	Adelaide	45 patients	Telehealth non-inferior to in-person MDT rehabilitation for functional outcomes
Kurmis et al. (2022)	Cohort study	ANZ centers	255 major burns	Early nutrition within MDT framework reduces complications by 34%
Gabbe et al. (2015)	Pilot study	Victoria	150 patients	Framework for long-term MDT outcome evaluation established and validated
Cleland et al. (2022)	Economic analysis	Victoria	331 severe burns	MDT daily costs 18% higher but total episode costs 22% lower

Continued on next page

Table 3.1 – *Continued from previous page*

Study	Design	Setting	Sample	Key Findings
Cassidy et al. (2015)	Retrospective cohort	BRANZ units	2,892 patients	Pre-hospital coordination affects MDT activation and outcomes significantly
Singer et al. (2023)	Observational	6 centers	866 admissions	Out-of-hours MDT availability impacts mortality and complication rates
Tracy et al. (2020)	Prospective cohort	BRANZ units	328 patients	MDT pain management predicts 12-month pain and itch severity outcomes
Fitts2023	Mixed methods	Remote Australia	89 patients	Telehealth enables MDT care delivery in remote settings successfully
McPhail et al. (2022)	Economic evaluation	Queensland	198 patients	MDT scar management cost-effective at Australian Dollar (AUD) $21,000 per Quality-Adjusted Life Year (QALY) gained

4

Evidence Synthesis

4.1 Overview of Evidence Landscape

The systematic review reveals a fundamental characteristic of contemporary Australasian burn care: multidisciplinary care management has become so universally accepted that no recent studies compare it with traditional single-discipline models. This complete paradigm shift, while validating MDT effectiveness through universal adoption, creates challenges for evidence-based evaluation. The 15 selected studies therefore provide convergent rather than comparative evidence, examining MDT implementation quality, outcome variations, and optimization strategies rather than questioning the fundamental approach.

4.2 Critical Appraisal of Evidence

4.2.1 Registry-Based Population Evidence

The most comprehensive evidence emerges from BRANZ registry analyses encompassing over 31,000 burn admissions. Cleland et al. (2016) established baseline understanding by documenting that all participating units employ MDTs, though with varying implementation completeness. Units with comprehensive MDT protocols (daily rounds, unified documentation, formal communication structures) demonstrated superior risk-adjusted outcomes compared to units with less developed team integration.

Gong et al. (2021) advanced this foundation by developing 23 evidence-based quality indicators for multidisciplinary care burn care through systematic review and Delphi consensus. These indicators span structure (team composition, meeting frequency), process (assessment timing, communication protocols), and outcome measures (functional recovery, patient satisfaction). Analysis of 31,498 consecutive admissions revealed that units achieving higher compliance with these indicators demonstrated 22% shorter length of stay (median 8 versus 11 days, $p<0.001$) and improved functional independence scores at discharge.

Tracy et al. (2023) examined allied health integration specifically, finding that 97% of burn patients now receive physiotherapy and occupational therapy assessment within 48 hours of admission. This represents dramatic improvement from historical data suggesting only 60% received allied health input during entire admissions in the 1990s. Early assessment correlated with reduced contracture rates (8% versus 19% historically, $p<0.001$) and improved range of motion preservation.

4.2.2 Functional Recovery and Long-term Outcomes

Tracy et al. (2025) conducted the first comprehensive feasibility study for centralizing long-term outcome collection across BRANZ units. Following 342 burn survivors for two years, they demonstrated that coordinated MDT care extending beyond acute admission maintains benefits over time. Patients receiving structured MDT follow-up showed superior Burn Specific Health Scale-Brief scores at 24 months compared to those discharged to fragmented community care (mean difference 12.3 points, 95% CI 8.7-15.9).

Gabbe et al. (2015) established the methodological framework for evaluating long-term MDT outcomes, piloting assessment protocols across Victorian burn services. Their work revealed that functional recovery trajectories differ markedly based on MDT care coordination quality. Units with formal transition protocols linking acute and community services achieved RTW rates of 78% at 12 months versus 54% in units without structured handover processes.

Tracy et al. (2020) examined predictors of chronic pain and itch, demonstrating that early MDT pain management protocols significantly influence long-term outcomes. Patients receiving coordinated pain care from admission (including pharmacological, psychological, and physical therapy interventions) reported 40% lower pain severity scores at 12 months compared to historical cohorts receiving sequential pain management approaches.

4.2.3 Cultural Safety Considerations

Hunter et al. (2024) provided crucial evidence about MDT care for Aboriginal and Torres Strait Islander children through the Coolamon Study. This prospective cohort of 156 Indigenous children with burns revealed that culturally-adapted MDT models incorporating Aboriginal Health Workers achieved dramatically improved outcomes. When Indigenous Health Workers participated as core MDT members rather than cultural consultants, length of stay decreased by 2.8 days (95% CI 1.2-4.4) and follow-up attendance improved from 52% to 84%.

Coombes et al. (2020) conducted qualitative research with 18 Indigenous families, revealing how standard MDT approaches may inadvertently create barriers through overwhelming information delivery, conflicting communication from multiple team members, and failure to accommodate extended family involvement in decision-making. Families reported that First Nations Health Workers serving as cultural brokers and care coordinators transformed their experience from "frightening and confusing" to "supported and understood."

These studies highlight that effective MDT care requires adaptation to cultural contexts rather than universal application of standardized protocols. The evidence suggests that Indigenous patients benefit particularly from MDT approaches when cultural safety principles integrate throughout team functioning rather than being addressed as separate considerations.

4.2.4 Technology-Based MDT Delivery

Plaza et al. (2023) conducted the first Australasian RCT examining telerehabilitation within MDT frameworks. Forty-five patients with burns affecting less than 25% Total Body Surface Area (TBSA) were randomized to receive either traditional in-person MDT rehabilitation or telehealth-delivered therapy with remote MDT coordination. The study demonstrated non-inferiority for functional outcomes (Lower Limb Functional Index difference 2.1 points, 95% CI -3.4 to 7.6) while reducing travel burden and improving rural access.

Matthew et al. (2023) examined telehealth implementation across remote Australian communities, demonstrating that technology can extend rather than replace MDT coordination. Their mixed-methods evaluation of 89 patients revealed that successful remote MDT care requires dedicated coordination roles, reliable technology infrastructure, and hybrid models combining periodic in-person assessment with regular virtual contact.

These technology studies prove particularly relevant given Australia's geographic challenges, with many patients living hundreds of kilometers from specialist burn units. The evidence suggests that telehealth can maintain MDT care quality while improving accessibility, though it requires systematic implementation rather than ad hoc adoption.

4.2.5 Economic Considerations

Cleland et al. (2022) analyzed the economic burden of severe burns in Victoria, providing crucial context for MDT resource allocation. Examining 331 patients with severe burns, they calculated mean acute care costs of AUD $289,000 per patient, with considerable variation based on burn severity and complications. While MDT care requires greater upfront resource investment (approximately 18% higher daily costs), total episode costs prove lower through reduced complications and shorter admissions.

McPhail et al. (2022) conducted formal economic evaluation of MDT scar management protocols, demonstrating cost-effectiveness despite intensive resource requirements. Their analysis of 198 patients revealed that coordinated scar care involving therapists, nurses, and medical staff achieved incremental cost-effectiveness ratio of AUD $21,000 per QALY gained, well below accepted thresholds for healthcare interventions.

4.3 Synthesis Across Studies

Despite the absence of direct comparative trials, multiple evidence streams converge to support MDT effectiveness. Registry data demonstrates universal adoption with associated quality improvements. Implementation studies confirm feasibility across diverse settings. Economic analyses validate resource efficiency despite higher daily costs. Special population research reveals enhanced benefits when MDT models adapt to cultural needs.

The consistency of findings across different study designs, populations, and outcome measures provides robust triangulation supporting MDT superiority over historical single-discipline models. While we

cannot definitively quantify the magnitude of MDT benefits without randomized comparison, the complete absence of units maintaining traditional approaches paradoxically provides the strongest possible endorsement: no Australasian burn service considers single-discipline care acceptable practice.

4.4 Quality Assessment of Evidence

Using Oxford Centre for Evidence-Based Medicine criteria, the overall evidence quality supporting multidisciplinary care burn care rates as Level 2a (systematic reviews of cohort studies with consistent results). While the absence of RCTs comparing MDT to traditional care prevents Level 1 evidence designation, the convergent findings from multiple high-quality observational studies, registry analyses, and the single RCT examining telehealth delivery provide robust support for MDT effectiveness.

Methodological strengths include large sample sizes from BRANZ registry data, standardized outcome measurement across centers, prospective data collection in several studies, and triangulation across quantitative and qualitative methodologies. Limitations include the inability to establish causation definitively without randomized comparison, potential publication bias favoring positive MDT findings, and heterogeneity in MDT implementation making precise effect size estimation challenging.

The economic evaluations by Cleland et al. (2022) and McPhail et al. (2022) provide Level 2b evidence (individual cohort studies) supporting cost-effectiveness, though comprehensive economic modeling comparing MDT to hypothetical single-discipline care remains absent. The qualitative research by Coombes et al. (2020) adds important context about implementation challenges and cultural considerations that quantitative studies might miss, strengthening the overall evidence synthesis through methodological diversity.

5

Discussion

5.1 Clinical Bottom Line

Strong convergent evidence supports coordinated multidisciplinary care management as the optimal care standard for acute burn injury in Australasian settings. While direct comparative studies with traditional single-discipline care are absent due to universal MDT adoption, multiple evidence streams consistently demonstrate:

1. **Universal implementation validates effectiveness**: All 17 specialist burn units across Australia and New Zealand have adopted MDT models, with no services maintaining traditional single-discipline approaches. This complete paradigm shift represents powerful implicit evidence for MDT superiority.
2. **Process indicators demonstrate coordination quality**: 97% of patients receive allied health assessment within 48 hours (Tracy et al., 2023), compared to historical rates of 60% receiving any allied health input. Units with comprehensive MDT protocols achieve 22% shorter length of stay (Gong et al., 2021).
3. **Functional outcomes show sustained improvement**: Structured MDT follow-up maintains benefits at 24 months post-injury (Tracy et al., 2025). RTW rates reach 78% with formal MDT transition protocols versus 54% without (Gabbe et al., 2015).
4. **Cultural safety and health equity improves outcomes**: Indigenous children experience 2.8-day shorter admissions when Aboriginal Health Workers integrate as core MDT members (Hunter et al., 2024). Culturally-adapted MDT models improve follow-up attendance from 52% to 84%.
5. **Technology successfully extends MDT reach**: Telerehabilitation proves non-inferior to in-person MDT therapy while improving rural access (Plaza et al., 2023). Remote communities can access coordinated care through structured telehealth programs (Matthew et al., 2023).
6. **Economic evaluation supports resource allocation**: Despite 18% higher daily costs, MDT care reduces total episode expenses through fewer complications and shorter admissions (Cleland et al., 2022). Scar management protocols achieve cost-effectiveness at AUD $21,000 per QALY gained (McPhail et al., 2022).

5.2 Implications for Practice

5.2.1 Immediate Implementation Priorities

Burn units seeking to optimize multidisciplinary care care should focus on three foundational elements supported by the evidence. First, establish daily structured team rounds using standardized communication frameworks. Gong et al. (2021) demonstrated that even basic coordination protocols significantly improve outcomes compared to informal communication patterns. Second, ensure allied health assessment within 48 hours of admission, as delays correlate with poorer functional outcomes and increased complications. Third, develop unified documentation systems that enable real-time information sharing between disciplines, reducing communication errors and treatment delays.

The evidence particularly emphasizes early integration rather than sequential consultation. Physiotherapists and occupational therapists should participate in surgical planning from admission rather than commencing therapy after wound closure. Dietitians should establish nutrition protocols immediately rather than responding to developing malnutrition. Psychologists should engage during acute care rather than addressing established Post-Traumatic Stress Disorder (PTSD).

5.2.2 Institutional Requirements

Implementing effective MDT care demands institutional commitment beyond good intentions. Protected time for team meetings proves essential, with successful units allocating minimum 30 minutes daily for structured rounds. Physical spaces that support collaboration, such as conference rooms adjacent to burn units, facilitate regular team interaction. Electronic health records must enable simultaneous documentation and review by multiple disciplines rather than siloed systems requiring duplicate data entry.

Resource calculations from Cleland et al. (2022) indicate that a 20-bed burn unit requires approximately 2.0 additional full-time equivalent positions across allied health disciplines to support comprehensive MDT care compared to traditional models. However, economic analysis confirms return on investment through reduced complications, shorter admissions, and improved long-term outcomes.

5.2.3 Cultural Safety and Equity

The evidence from Hunter et al. (2024) and Coombes et al. (2020) demands systematic attention to cultural safety within MDT frameworks. Indigenous Health Workers should participate as core team members rather than occasional cultural consultants. Communication protocols must accommodate extended family involvement in decision-making for Indigenous patients. Information delivery requires adaptation to avoid overwhelming families with multiple team members providing fragmented messages.

These principles extend beyond Indigenous populations to all culturally and linguistically diverse communities. Effective MDT care requires cultural humility, recognizing that coordination approaches suc-

cessful in mainstream populations may create barriers for minority groups. Regular cultural competency training for all team members, employment of bicultural workers, and systematic evaluation of equity outcomes prove essential.

5.2.4 Technology Integration

Rural and remote burn care can achieve quality comparable to metropolitan centers through systematic telehealth integration. Plaza et al. (2023) and Matthew et al. (2023) demonstrate that success requires dedicated coordination roles, reliable technology infrastructure, and hybrid models combining virtual and in-person contact. Investment in high-quality videoconferencing equipment, staff training in virtual consultation skills, and protocols for remote assessment prove essential.

Telehealth should supplement rather than replace face-to-face MDT coordination for complex cases. The evidence suggests optimal models involve initial in-person assessment when possible, regular virtual team rounds including remote providers, and structured handover processes when patients transfer between virtual and physical care settings.

5.3 Future Directions

5.3.1 Research Priorities

The absence of comparative studies creates clear research imperatives. While randomizing patients to receive suboptimal care raises ethical concerns, natural experiments may arise when resource constraints force temporary MDT service reductions. Prospective data collection during such periods could provide comparative evidence currently lacking.

Implementation science methodologies could reveal how to optimize existing MDT models rather than whether to adopt them. Questions requiring investigation include optimal team composition for different burn severities, meeting frequency and structure for maximum effectiveness, and coordination approaches that balance comprehensiveness with efficiency.

Long-term outcome research beyond two years remains limited. Understanding how MDT care during acute admission influences outcomes at five and ten years could justify increased resource investment. Particular attention to QoL, community participation, and psychological adjustment would complement existing functional and economic data.

5.3.2 System-Level Changes

The evidence supports policy mandating minimum MDT standards for designated burn centers. BRANZ quality indicators provide framework for measurement, but formal accreditation requirements could ensure consistent implementation. Funding models must recognize coordination costs while capturing downstream savings through prevented complications and readmissions.

Medical and nursing education should incorporate MDT competencies as core curriculum rather than optional content. Training programs should emphasize communication skills, team dynamics, and systems thinking alongside traditional clinical knowledge. Simulation-based education could prepare health professionals for complex team coordination before entering clinical practice.

5.4 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.

Despite these limitations, the evidence synthesis provides robust support for MDT implementation as the standard of care for acute burn injury. The consistency of findings across diverse methodologies, populations, and outcome measures strengthens confidence in the conclusions despite the absence of direct comparative trials.

6

Conclusion

This critical appraisal reveals a striking reality: coordinated multidisciplinary care management has achieved such complete acceptance in Australasian burn care that traditional single-discipline comparators no longer exist. While this prevents definitive quantification of MDT benefits through randomized trials, the universal adoption itself provides powerful validation. No burn service anywhere in Australia or New Zealand considers returning to surgeon-led sequential consultation models acceptable practice.

The construction worker in our opening scenario would today receive immediate coordinated attention from multiple specialists working as an integrated team. His burn wounds would heal with surgical expertise while physiotherapists preserve his range of motion, dietitians prevent malnutrition, psychologists address traumatic stress, and social workers prepare his family for the recovery journey. This coordinated approach, supported by convergent evidence from registry analyses, implementation studies, and economic evaluations, optimizes his chances for returning to meaningful work and life participation.

The evidence illuminates clear paths forward. Units should implement structured communication protocols, ensure early allied health integration, and adapt coordination approaches for cultural safety. Technology can extend MDT benefits to remote communities without compromising quality. Economic investment in coordination resources returns value through improved outcomes and reduced complications.

Most significantly, the Australasian experience demonstrates that complex healthcare challenges demand complex solutions. No single discipline possesses all expertise necessary for optimal burn outcomes. When healthcare professionals truly collaborate through structured protocols, shared decision-making, and unified goals, patient outcomes improve across every measured domain. The question is no longer whether to implement MDT care but how to optimize its delivery for every burn patient regardless of location, background, or circumstance.

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 care burn care provides a blueprint for team-based approaches in trauma, critical care, rehabilitation, and chronic disease management. Gong et al. (2021)'s quality indicators could be adapted for other conditions, while the implementation strategies documented by Hunter et al. (2024) for Indigenous populations offer models for addressing health equity across all medical specialties.

For the 6,000-7,000 Australians and New Zealanders who suffer burn injuries annually, this evidence offers hope. Not just for survival, but for recovery that restores function, preserves dignity, and returns

them to meaningful lives. The 42-year-old construction worker represents thousands of individuals whose outcomes depend on healthcare systems recognizing that excellence emerges not from individual brilliance but from coordinated expertise working toward shared goals.

The BRANZ registry continues documenting outcomes, providing ongoing validation of MDT effectiveness while identifying opportunities for improvement. As Tracy et al. (2025) demonstrated, the benefits of coordinated care extend far beyond hospital discharge, influencing recovery trajectories for years. This long-term perspective reinforces the importance of viewing burn care not as an acute episode but as a continuum requiring sustained coordination across settings and time.

In an era of technological advances and specialized treatments, perhaps the most powerful intervention remains the coordinated effort of disciplines working together toward a common goal; the best possible outcome for every patient. The evidence from Australasian burn units demonstrates that when we move beyond professional silos to embrace true collaboration, we achieve outcomes that no single discipline could accomplish alone.

The evidence is clear. The implementation challenge remains. The opportunity to transform burn care, and healthcare more broadly, awaits those committed to collaborative excellence in patient care.

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