

Proposed Framework for Complex MDT Guidelines: Establishing Best Practices in Infectious Diseases and Orthopaedics at an Irish hospital

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Introduction

MDT meetings have become a crucial aspect in patient-centred care, especially in complex cases that require cross-specialty collaboration (Peel & de Steiger, 2020; Moran et al., 2010). These types of cases require tailored MDT guidelines, which resources for are limited, resulting in the specific collaborative needs not being met (Ferry et al., 2019). This study intends to offer a framework for complex MDT collaborations, specifically for the integration of Infectious Diseases and Orthopaedic specialities. Such collaborations are essential in order to improve clinical outcomes, enhance patient-centred care, and reduce treatment variability (Sires et al., 2022; Biddle et al., 2021; Yan et al., 2018). Several countries have implemented MDTs for BJIs, however, there is no framework to guide clinicians on best practises with regards to such meetings. At our Irish Hospital we aim to formalise our already established complex BJI MDT by drawing from our experience and reviewing international models. This paper provides a narrative review of existing BJIs MDT models and proposes an adaptable framework.

Methods and Materials

A narrative review was performed, focusing on published MDT experiences in BJIs which included observational studies, diagnostic algorithms and outcome analyses. Findings were compiled thematically into domains: 1. Referral criteria, 2. MDT composition, 3. Meeting Structure, 4. Outcome monitoring. Through our own institutional experience, we reviewed our current model compared to the findings. This evidence base was used to develop a proposed complex BJI MDT framework.

Results

Studies from Europe, Australia, and the US demonstrated improved diagnostic consistency, reduced treatment failures, and enhanced antibiotic stewardship. Cure rates, defined by the Delphi Consensus, increased following MDT implementation across the comparative studies (Table 1). Post-MDT cure rates ranged from 57% to 96.6% and a study performed in the UK found a substantial reduction in failure rates, falling from 41.4% to 6.7% over a two-year follow-up period.

Study	Cure Rate Pre-MDT	Cure Rate Post-MDT	Failure Rate	Follow-up
Sires et al., 2023	85.2%	85.7%	-	2 years
Biddle et al., 2021	58.6%	96.6%	41.4% pre-MDT to 6.7% post-MDT	≥ 2 years
Hanssen et al., 2025	-	92.1% (1 year)	-	1 year
Rupp et al., 2023	-	88% infection control	-	≥ 1 year
Otto-Lamberz et al., 2021	-	80-85% infection control	-	1 year
Ferry et al., 2019	-	90%	-	Variable
Laurent et al., 2019	-	Diagnostic accuracy improved to >90%	-	-

Table 1: Reported outcomes pre-MDT and post-MDT, and time of follow-up of patients discussed at MDT.

Conclusions

MDTs serve a purpose in the management of complex BJIs with evidence from both European and Australian centres showing such meetings improves patient-centred care and can reduce treatment failure rates. The PHICTOS study noted diagnostic accuracy advantages when MDT discussions took place (Laurent et al., 2019). However, despite these advantages, there remains heterogeneity in the way these MDTs are structured and composed across centres. Our proposed framework combined international best practise with our own institutional experience, emphasising a structured and consistent model. It is important to note that this framework is adaptable to larger and smaller centres, especially where membership may vary. Future studies should aim to analyse the cost-effectiveness of implementing BJI MDTs. The adaptable framework represents a step towards multidisciplinary care for complex BJIs across different institutions. A structured BJI MDT ensures timely and coordinated individual care and regularly auditing these meetings will improve the data needed to refine strategies. Such frameworks can pave the way for national guidelines devoted to infection management in orthopaedic surgery. We hope this research can also pave the way for other inter-specialities that require complex MDT collaboration.

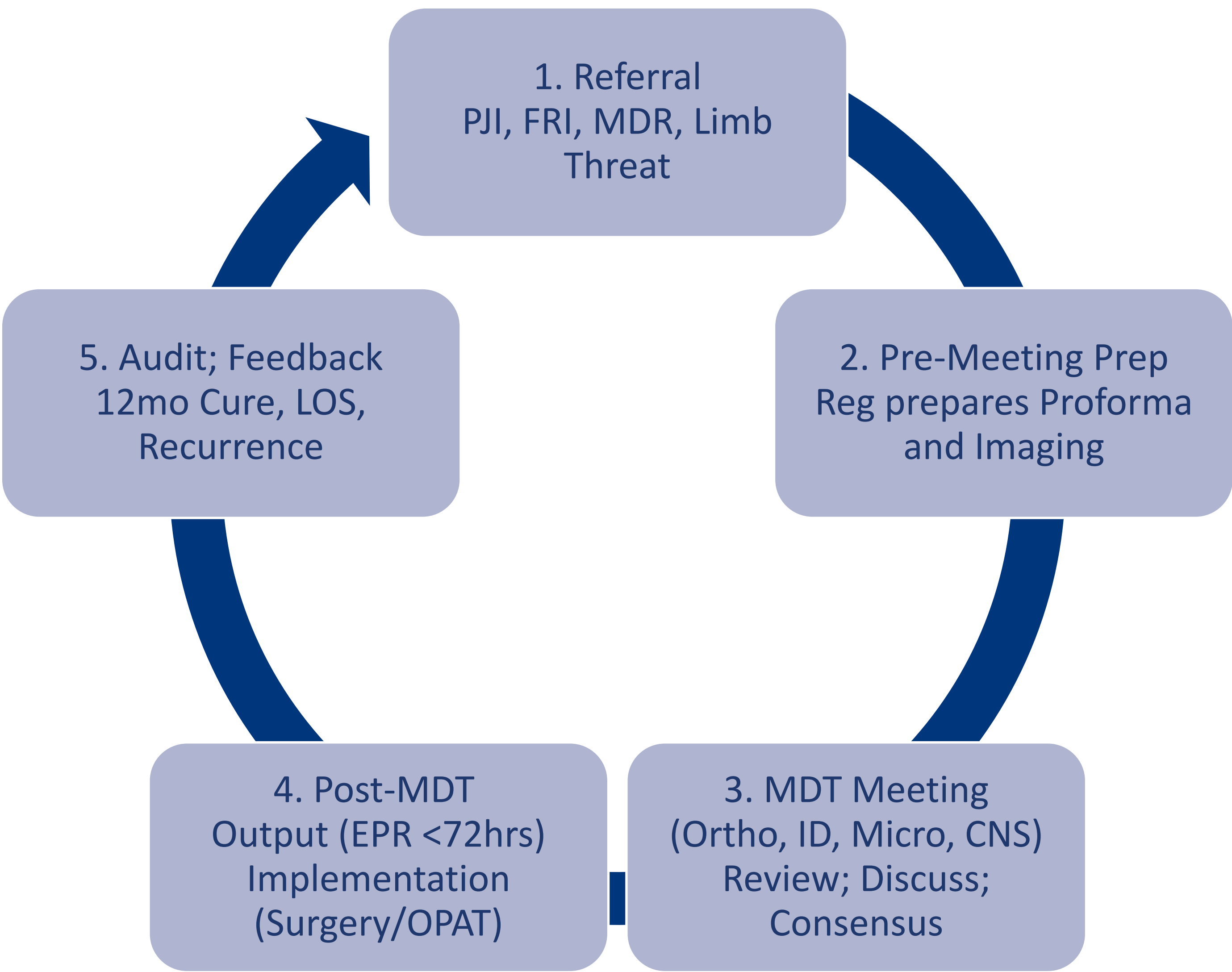


Figure 1: Proposed Complex BJI MDT Framework