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Optimizing a magnetic resonance care pathway: A strategy for radiography managers

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ABSTRACT

Purpose: This study reports the optimization of a local MR care pathway. A search of the literature did not result in any studies regarding the optimization of MRI care pathways through a formal research process. Discussions with international MR radiographers indicated that such development is often carried out using informal methods that are highly dependent on local conditions, that are rarely reported in the public domain and the validities of which are therefore not open to scrutiny; in addition, care pathways need to be specific to local healthcare needs and culture. In this study, the authors propose a formal documented methodology for developing a local MRI care pathway based on the well-established nominal group technique.
Methods and materials: A nominal group technique was conducted amongst a multi-professional panel.
Results: 14 participants accepted the invitation to participate: an executive from the principal public general hospital, a manager from the national Ministry for Health, a service development manager from the allied healthcare professional sector, 2 senior physiotherapists, 3 nursing officers, 3 MRI radiographers, 2 medical physicists, 1 radiologist. Ten optimization related issues were identified and ranked in order of decreasing importance. Highest ranking scores were assigned to patient safety, education of referrers and use of quality criteria. The NGT method also brought forward novel themes in particular the need for a radiographer's technical report and the need for referrers to indicate pain levels of patients.
Conclusion: The design of an MR care pathway was successfully optimized using a collaborative multi-stakeholder approach.

Introduction

At the MRI unit level, service quality is contingent on the design of the care pathway through which the MRI service is delivered and experienced by patients.[1,2] Hence, an optimized care pathway design is crucial for the attainment of an effective, safe and efficient service.[3] This study reports the optimization of such a local care pathway as initially perceived and developed by the researchers and based on input from local and international colleagues. A search of the literature did not result in any studies regarding the optimization of MRI care pathways through a formal research process. Discussions with international MR radiographers indicated that such development is often carried out using informal methods that are highly dependent on local conditions, that are rarely reported in the public domain and the validities of which are therefore not open to scrutiny; in addition, care pathways need to be specific to local healthcare needs and culture. In this study, the authors propose a formal documented methodology for developing a local MRI care pathway based on the well-established nominal group technique (NGT). The study forms part of a wider study on continuous professional development for senior radiographers in Malta; the optimized pathway will provide input to curriculum development.

The European Pathway Association (http://www.e-p-a.org) defines a care pathway as: "A complex intervention for the mutual

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decision making and organization of predictable care for a well-defined group of patients during a well-defined period. Defining characteristics of pathways include: an explicit statement of the goals and key elements of care based on evidence, best practice and patient expectations; the facilitations of the communication and coordination of roles, and sequencing the activities of the multidisciplinary care team, patients and their relatives; the documentation, monitoring, and evaluation of variances and outcomes; and the identification of relevant resources". This study focuses on the "the facilitations of the communication and coordination of roles, and sequencing the activities of the multidisciplinary care team". The design of clinical care pathways combines a variety of methods from the quality improvement and operational research literature. Such literature indicates that a critical characteristic to consider with respect to the sequencing of activities of the multidisciplinary care team is the coordination model required. Vanhaecht et al.[4] describe three different coordination models: chain, hub and web models. Chain models are used for relatively highly predictable care processes with a high level of agreement between the team members. Hub models are used for less predictable processes; in this model key persons will lead the organization of the care process and chain models are used for the more predictable sub-processes. Web models are used for highly unpredictable, complex processes.[4] Diagnostic radiology would fit the hub model whilst the MRI care pathway sub-process fits a chain model which permits elements of flexibility as where practice involves a mix of routine and non-routine tasks (as in an MRI setting), employees need to be able to take initiatives in response to incidental findings or to optimize processes beyond the confines of standard operating procedures.[5]

Table 1
The NGT method used in the study.

Step	Comment
1. Introductory statement	The initial care pathway model was projected on a screen and participants requested to confirm or otherwise whether it was suitable to kickstart the process or whether a major modification was required. A set of guiding questions was also presented.
2. Initial generation of issues individually	Participants were asked to silently list issues on the paper provided.
3. Round-robin listing of ideas	The participants were asked to articulate briefly each issue until all issues were exhausted. Issues were recorded on a flip-chart.
4. Clarification of issues	The group was then asked to consider each item on the list to ensure common understanding. No items were omitted or merged so that all ideas were given their due importance.[13]
5. Generation of individual top 10 lists	The participants were asked to individually select and prioritize the 10 issues that they felt were most important and record them on a worksheet.
6. Rating of issues according to relative importance	The worksheets were collected, and the issues and rankings noted.
7. Time out and icebreaker	The rankings for each individual issue were summed to give a total score.
8. Group discuss of most important issues	The top 15 issues were presented to the group for discussion with the facilitator only intervening to ensure focus. These were condensed to 10 issues.
9. Final ranking of issues	Participants were asked to individually rank the 10 issues in order of importance. This time the participants assigned a weighting to each item, with the most important issue receiving a weighting of 100 and the least important a weighting of 1. The eight remaining issues were given a weighting between 1 and 100.
10. Conclusion	The final list of 10 ranked issues was presented for final discussion. Participants were thanked for their participation and subsequently informed of the findings.

Method

Various techniques for the development of the care pathway were considered. A survey of the literature revealed that multi-stakeholder processes require consensus techniques such as the Delphi, nominal group or focus group techniques.[6–8] Four important practical issues were taken into consideration before deciding on the most appropriate technique to use: the approach needed to involve as many of the MRI stakeholders as possible, it needed to be based on a consensus building approach, it needed to ensure that all participants could voice their opinions freely, and finally be efficient in terms of time. These are the defining characteristics and strengths of the NGT technique. NGT methods gather a number of specifically invited experts, commonly 10–15, for a structured meeting on a specific subject.[9] The purpose of the NGT technique is to generate ideas, which are then discussed and ranked by the group.[10] The group is highly controlled, with discussion occurring only in the later stages of the process. A facilitator guides and controls the meeting by collecting ideas from participants, as opposed to leading the discussion.[11] The work of the facilitator is usually complemented by one or two other individuals acting as note-takers and co-ordinators of activities. The technique aims to avoid the known pitfalls of group interviews where some participants can be silent or feel intimidated in the presence of more articulate and dominant personalities. In NGT all members have an equal opportunity to contribute.[11] The nominal group technique as described by Wainwright et al.[12] was adopted for this study. To kick-start the process an initial model of the MR care pathway for adults was developed by the researchers with the help of a small multi-disciplinary group consisting of an MRI radiographer, radiologist and medical physicist and forwarded to the invited participants. This ensured that the participants focus on the actual pathway during the NGT process proper. The NGT method used in this study is summarized in Table 1. The process in this study took approximately 2 h and generated quantitative rankings of key optimization related issues.

17 participants, representing radiologists, radiographers, management, medical physicists, policy makers, physiotherapists and nurses working in orthopaedics, neurosurgery and neurology were selected. The intention was to create a balanced representation of expertise from various sectors of professionals working in collaboration. Ideally the group of participants should also have included patient representatives. Unfortunately patient associations are still very much in their infancy in Malta, hence nurses who have themselves been MRI patients or had close family members referred for MRI were chosen to act as patient advocates. This had the added advantage that bias resulting from power inequalities between patients and healthcare professionals was avoided.[14] Since conduction of the NGT session in a clinical setting may influence participant responses, the session was carried out at a leading hotel. The process was recorded and transcribed verbatim to ensure that no data were lost and to provide a documented record of the proceedings. Ethical approval was received from the ethics committee of the University of Malta. All participants were provided with information regarding the study and consent was obtained before the start of the NGT.

Results

14 participants accepted the invitation to participate: an executive from the principal public general hospital, a manager from the