International Journal of Medical Informatics 89 (2016) 55–62

Contents lists available at ScienceDirect

International Journal of Medical Informatics

journal homepage: www.ijmijournal.com

Review article

Reasons for intentional guideline non-adherence: A systematic review

Derk L. Arts[a,*], Albertine G. Voncken[b], Stephanie Medlock[c], Ameen Abu-Hanna[c], Henk C.P.M. van Weert[d]

[a] Academic Medical Centre, Department of General Practice and department of Medical Informatics, Amsterdam, The Netherlands
[b] Academic Medical Centre, Department of General Practice, Meibergdreef 9, 1105 AZ Amsterdam, The Netherlands
[c] Academic Medical Centre, Department of Medical Informatics, Amsterdam, The Netherlands
[d] Academic Medical Centre, Department of General Practice, Amsterdam, The Netherlands

ARTICLE INFO

Article history:
Received 10 August 2015
Received in revised form 18 February 2016
Accepted 20 February 2016

Keywords:
Guideline adherence
Practice guidelines
Audit and feedback
Decision making
Healthcare quality improvement
Non-adherence

ABSTRACT

Background: Reasons for intentional non-adherence to guidelines are largely unknown. The objective of this systematic review was to gain insight into and categorize reasons for intentional non-adherence and their validity. Non-adherence might be a conscious choice by either the clinician or the patient, and is not influenced by external factors (e.g. lack of knowledge or resources). We use the term *intentional non-adherence* to describe this class of reasons for not following guideline recommendations.
Methods: Two independent reviewers examined MEDLINE citations for studies that investigated reasons for guideline non-adherence. The obtained articles were assessed for relevance and quality. Our search yielded 2912 articles, of which 16 matched our inclusion criteria and quality requirements. We planned to determine an overall ranking of categories of non-adherence.
Results: Seven studies investigated clinical reasons and performed adjudication, while nine studies did not perform adjudication. Non-adherence varied between 8.2% and 65.3%. Meta-analysis proved unfeasible due to heterogeneity of study methodologies. The percentage of reasons deemed valid by adjudication ranged from 6.6% to 93.6%. Guideline non-adherence was predominantly valid; contra-indications and patient preference were most often reported as reasons for intentional non-adherence.
Conclusion: We found a wide range of rates of non-adherence to clinical guidelines. This non-adherence is often supported by valid reasons, mainly related to contra-indications and patient preference. Therefore, we submit that many guideline deviations are intentional and these deviations do not necessarily impact quality of care.

Contents

1. Introduction 56
2. Methods 56
   2.1. Search strategy and study selection 56
   2.2. Exclusion of articles based on methodology 56
   2.3. Data extraction and category creation 56
   2.4. Statistical analysis 58
3. Results 58
4. Discussion 58
   4.1. Strengths 58
   4.2. Limitations 58
   4.3. Limitations of included papers 59
   4.4. Reasons for non-adherence 59
   4.5. Validity of reasons 59

* Corresponding author.
E-mail address: d.l.arts@amc.nl (D.L. Arts).

http://dx.doi.org/10.1016/j.ijmedinf.2016.02.009
1386-5056/

4.6. Recommendations for future researchers and guideline developers 60
4.7. Implications for decision support systems 60
Conclusion 61
Conflicts of interest 61
Authors' contributions 61
Acknowledgement 61
References 61

1. Introduction

In recent years, the scientific community has shown an increased interest in clinical practice guidelines, and practitioners adherence to such guidelines. Guidelines can reduce inappropriate variation in medical practice, thereby improving quality of care [1,2] and reducing costs [3]. Guidelines are increasingly used for quality management and health care policy. Another use of guidelines is in remuneration of physicians by healthcare insurers, where reaching a certain level of guideline adherence qualifies for additional remuneration. However, adherence to guidelines varies greatly: several studies report adherence rates of 10–80% [4,5]. Most research into reasons for non-adherence has been performed in the behavioral field. Cabana et al. [6] describe multiple reasons for non-adherence in their systematic review (e.g., Lack of Awareness, Lack of Outcome Expectancy and Guidelines Factors) and divided these into three different categories: Knowledge, Attitudes, and Behavior. Other studies found that guideline adherence is related to characteristics of the clinician, guideline, system, and implementation [7,8].

Many attempts [9,10,7] have been made to improve these circumstances linked to guideline non-adherence, but even with support from leaders in the medical field, availability on demand, clinical decision support systems (CDSS), and financial rewards, non-adherence remains substantial [9,10]. Some of this residual non-adherence is attributable to a conscious decision by the clinician or patient to not follow the guideline. In this study we investigate these reasons for non-adherence. We use the term *intentional non-adherence* to describe this class of reasons for not following guideline recommendations. *Unintentional non-adherence* can occur due to external factors (such as lack of knowledge about the guideline's recommendations) or error on the part of the clinician or patient (such as forgetting to prescribe or take a medication). In this paper we will not investigate this type of non-adherence.

To study intentional reasons for non-adherence we consider documentation of an explicit reason for not following the guideline to be evidence that the decision was intentional. These documented reasons are the focus of this review. In this study we aim to categorize and quantify reasons for intentional non-adherence and report on their appropriateness (as defined by peers), if applicable. We expect our results to contribute not only to future guideline development, but also to aid in assessing the validity of modern-day quality indicators. Finally, clinical decision support systems (CDSS) require that guidelines explicitly mention exceptions, in order to be able to adequately apply a digital guideline to every patient. Our study could make guideline developers aware of different types of exceptions, and thus enable them to more effectively document them, developing more differentiated guidelines and better CDSS.

2. Methods

We reviewed the existing literature with the objective of assessing reasons for intentional non-adherence to clinical practice guidelines.

2.1. Search strategy and study selection

We searched MEDLINE using the following query: (guideline adherence [MeSH Major Topic] OR practice guidelines as topic [MeSH Major Topic]) AND (reason OR reasons OR perception OR perceptions OR attitude OR attitudes OR view OR views OR barrier OR barriers OR facilitator OR facilitators). We applied the limits: "Humans", "English", and "has abstract" and searched until October 1, 2014. Two independent reviewers (AV, DA) individually assessed the resulting titles and abstracts and selected papers that fit the in- and exclusion criteria described below. In cases where the reviewers disagreed, a third reviewer (HW) was consulted. Selected full-text articles were assessed for relevance. References and "related articles" of the selected articles were explored for potential inclusion.

Inclusion criteria were:

- Reasons for intentional non-adherence to clinical guidelines were described.

Exclusion criteria were:

- Reasons for non-adherence were not collected within three months.
- Study did not assess actual clinical performance (i.e., vignette studies).
- A clear reference to the studied guideline was not provided.
- Data-collection was not explicitly described.
- Study was of insufficient methodological quality (according to the methodological criteria described below).

Articles concerning non-adherence to quality indicators, decision rules, clinical decision reminders, or triage decisions were eligible if these were a derivative of a guideline. There was no restriction regarding specialty or case-mix.

2.2. Exclusion of articles based on methodology

Two reviewers (AV, DA) assessed the methodological quality of the selected articles using the "Dutch Cochrane checklists for assessing Cohort studies" [11]. This tool allows the user to make an assessment of methodological quality; it assesses several key methodological aspects of a study, including, "population definition", "risk of selection bias" and "follow-up duration". Both reviewers judged the articles to be of either sufficient (all criteria of the checklist were met) or insufficient (one or more criteria of the checklist were not met) methodological quality. These assessments were compared and -disagreements were resolved during a consensus meeting. Articles deemed to be of insufficient methodological quality by both reviewers were excluded.

2.3. Data extraction and category creation

We collected the following characteristics of the included studies: study design, year, site, setting, country, target disorder, information technology used (if any), intervention, type of guide-