Evidence-Based Journal Article Presentation

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Citation

Interventions to Improve the Quality of Outpatient Specialty Referral Requests: A Systematic Review

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Background

- Outpatient specialty consultations are frequent in medicine but often are of poor quality because of incompleteness.
- Comprising more than half of all outpatient visits in the United States.
- Though variable among countries, health care systems, hospitals, and even within individual practices, the process typically begins with a provider sending a referral request to a consulting specialist.
- Problems arise when either the referring provider does

Background(cont'd)

- In light of the potential consequences of incomplete information on the quality of the initial consultation, there is considerable interest in finding effective interventions to address the problem.

- Most research in the area of improving the quality of referrals focuses on methods to increase the appropriateness of referrals to specialists.

- Multiple studies have documented that referral requests rarely contain adequate details to allow triaging to occur, potentially resulting in delays in scheduling or unnecessary prioritization

Background(cont'd)

- A recent systematic review concluded that active education and "structured referral sheets" were the only strategies shown to affect the appropriateness of referrals.

- wide range of intervention types:
  - Templates, Referral management centers, New software, Education

- Thus, it remains unclear what, if any, types of interventions are consistently effective in improving the quality of specialty referral requests.

Objectives

- In order to help address these uncertainties, the research team performed a systematic review of interventions designed to improve the quality of referral requests to outpatient specialty care, compared to usual practice.

- Although it was anticipated that the interventions and outcome measures would vary across studies, the research team aimed to summarize the current body of literature in order to facilitate evaluation of whether particular types of interventions consistently improve referral quality, specifically the completeness and accuracy of information within referral requests.

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	

ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	

INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	

Methods

- Review Protocol
  - The research team wrote a protocol outlining the research question, outcomes of interest, and planned approach to identifying and selecting studies.
  - The team followed the PRISMA Statement guidelines for reporting the methods and findings.

Methods(cont'd)

- Study Eligibility Criteria
  - Studies were required to meet the following eligibility criteria:
    - the design included a formal comparison group,
    - the issue of interest was a referral request being sent to an outpatient specialty clinic,
    - the intervention was aimed at improving the completeness and/or accuracy of referral requests,
    - the comparison was usual practice,
    - the study reported one or more of the prespecified outcomes.

- Studies published prior to 2000 were excluded in order to maximize applicability to the current health care communication environment.

Methods(cont'd)

- Outcome Measures:
  - Change in the completeness of information relayed in a referral request was prespecified as the primary outcome because the main cause of poor quality in referral information is a lack of necessary details.
  - Additional measures of benefit:
    - change in the accuracy of information relayed
    - change in the ability to triage the referral request

Methods(cont'd)

- Search Methods:
  - With the assistance of a research librarian, Medline, CINAHL, and the Cochrane Library were searched for relevant studies.
  - Variations of the following search terms were utilized: referral, consultation, quality, improve, and impact.

Methods(cont'd)

- Study Selection:
  - A single author (CDH) reviewed the titles and abstracts of the articles identified via the database searches to exclude obviously irrelevant articles.
  - Another author (CAZ) performed an independent review of a 10% random sample to confirm agreement.
  - Two other authors (PCD and SLL) independently reviewed the full text of the remaining articles to determine final eligibility.

Methods(cont'd)

- Data Collection:
  - Using a piloted standardized data collection form, the authors worked in pairs.
  - One with experience in the field, one without;
  - One physician, one nonphysician) to independently extract relevant data from each included study.

Methods(cont'd)

- Data Collection:
  - Given the variation in methods of measuring and reporting outcomes across the included studies, the results were summarized qualitatively.
  - For each outcome, the research team first reviewed the quantitative findings of the individual studies to determine the most fitting qualitative description.

Methods(cont'd)

- Assessment of Methodological Quality:
  - Two tools were employed to assess for methodological quality.
    - For before/after studies, the research team utilized a modified version of a tool developed by the ECRI Institute.
    - For all other study designs, the team used the Cochrane Risk of Bias tool
- As with the data collection, 2 authors independently

Methods(cont'd)

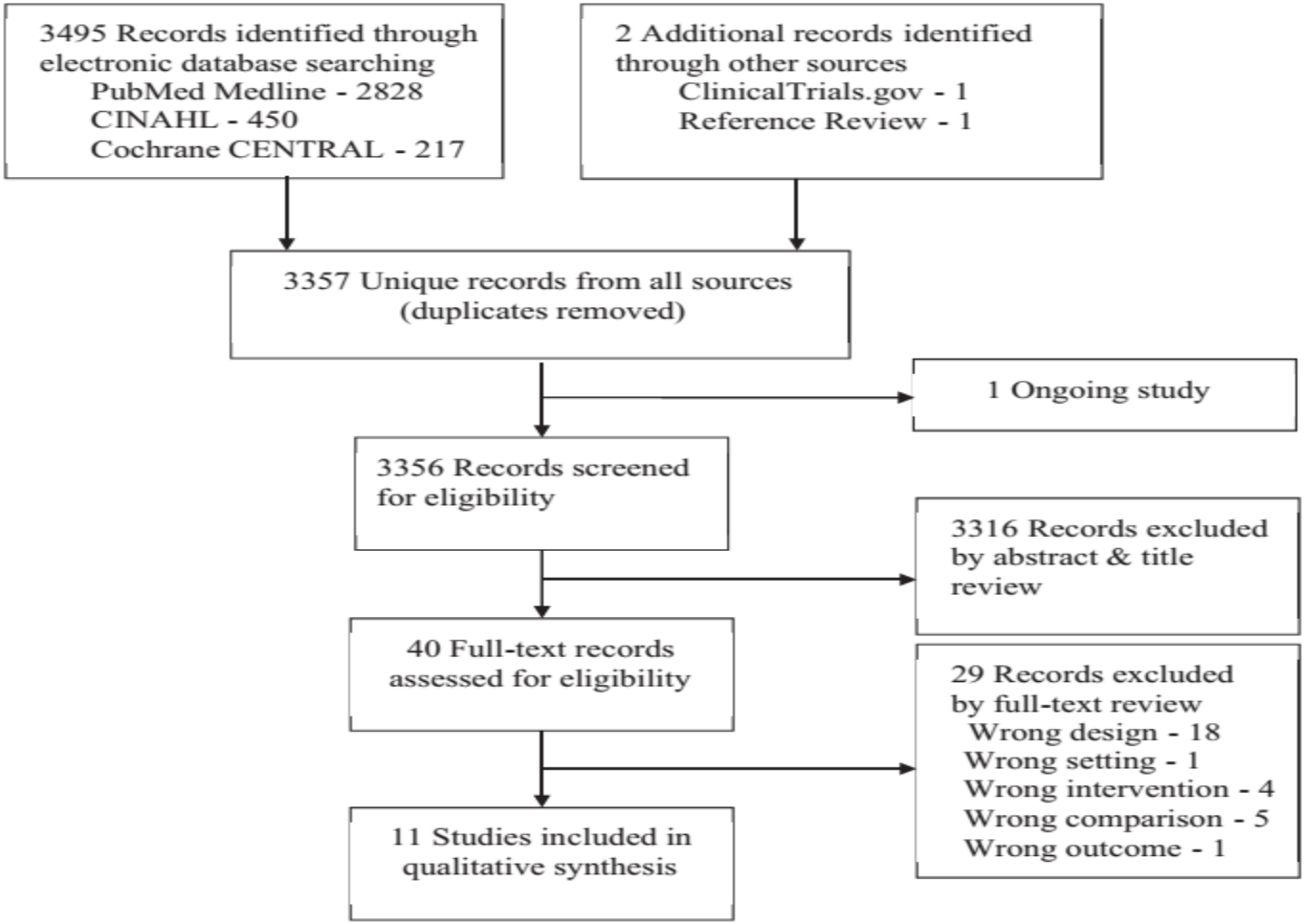
- Analysis:
  - The team prespecified a plan to subgroup studies into naturally emerging categories of intervention type and to compare the overall summary findings.
  - If heterogeneity was encountered, the team reviewed whether differences in the population, intervention, or methodological quality could explain the differing results.
  - Evidence of publication bias was informally assessed by evaluating for any suggestion of an inappropriate relationship between sample size and effect size for the primary outcome.

Methods(cont'd)

METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	

results

- Results of Search



CINAHL=Cumulative Index to Nursing and Allied Health

results(cont'd)

Table 1. Characteristics of Studies Evaluating Interventions to Improve the Completeness and/or Accuracy of Specialty Referral Requests.

Author, Year	Study Design	Sample Size (Patients)	Setting/Location	Study Dates	EHR	Intervention/ Comparison Description	Methodological Quality Summary
Software-based interventions							
Jiwa, 2014[29]	Randomized controlled trial	102	Multiple specialty clinics/ Australia	August 2011 to August 2012	Y	Referral Writer software program/no software program	Low risk
Gandhi, 2008[30]	Two-site nonrandomized trial	430	Multiple specialty clinics/USA	November 2005 to July 2006	Y	Referral Manager software program/no software program	High risk
Jiwa, 2006[31]	Cluster randomized trial, 2 × 2 design	44 (practices)	Colorectal surgery clinic/ UK	August 2003 to September 2004	Y	Electronic interactive pro forma/no intervention	Low risk
Template							
Al-Hashemi, 2013[25a]	Before/after study	140	Urology clinic/ UK	October 2012 to December 2012	NR	Pro forma/no pro forma	Low risk
Rokstad, 2013[27]	Nonrandomized controlled trial	664	Thoracic medicine clinic/Norway	NR (9 months)	Y	Template enhanced with guideline tool/ no tool	High risk
Shaffie, 2012[24]	Before/after study	200	Dental clinic/ UK	January 2011 to NR	NR	Improved pro forma/ previous pro forma	Low risk
Djemal, 2004[26]	Crossover study	100	Dental clinic/ UK	November 2000 to June 2001	NR	Pro forma following inadequate referral/ original inadequate referral	Low risk
Educational interventions							
Jiwa, 2006[31]	Cluster-randomized trial, 2 × 2 design	44 (practices)	Colorectal surgery clinic/ UK	August 2003 to September 2004	Y	Educational outreach/ no intervention	Low risk
Kourkouta, 2006[34]	Before/after study	450	Dental clinic/ UK	1997 to 2005	NR	Dissemination of referral criteria/no dissemination	Low risk
Jiwa, 2004[32]	Nonrandomized controlled trial	76 (providers)	Colorectal surgery clinic/ UK	October 1999 to March 2001	NR	Feedback to referring providers/no feedback	High risk
Rubio Arribas, 2000[33]	Before/after study	510	Multiple specialty clinics/Spain	April 1998 to October 1998	NR	Education outreach/no outreach	Low risk
Referral management							
Xiang, 2013[28]	Before/after study	581	Multiple specialty clinics/UK	October 2008 to July 2009	Y	Referral management/ no referral management	Low risk

Abbreviations: EHR, electronic health record; NR, not reported; Y, yes.
[a]Abstract only.

results(cont'd)

Table 2. Primary Outcome: Change in Completeness of Information Relayed.

Author, Year	Outcome Sample Size	Outcome Measure Reported	Intervention	Comparison	Difference Between Groups	Study Arm Favored	Is Difference Statistically Significant?
Software-based interventions							
Jiwa, 2014[29]	86	Score on necessary information relayed	48.4	29.2	21.6, $P < .001$	Intervention	Yes
Gandhi, 2008[30]	235	Specialist receipt of information prior to consultation	62%	12%	50% (absolute), $P = .0008$	Intervention	Yes
Jiwa, 2006[31]	44 (practices)	Score on 15-point assessment scale	2.4	2.1	0.3, $P < .001$	Intervention	Yes
			Qualitative summary: Intervention arm favored				
Template							
Al-Hashemi, 2013[25]	140	Inclusion of 3 categories of information	40% to 90%	1% to 21%	19% to 77% (absolute)	Intervention	NR
Rokstad, 2013[27]	664	Evaluation score of overall referral	NR	NR	30%	Intervention	Variable
Shaffie, 2012[24]	200	Completeness of each requested domain	NR	NR	0% to 52% (absolute)	Intervention	Variable
Djemal, 2004[26]	100	Completeness of fields and data provided	NR	NR	29.3%	Intervention	NR
			Qualitative summary: Intervention arm favored				
Educational interventions							
Kourkouta, 2006[34]	450	Completeness of clinical information	2% to 51.3%	4.7% to 56.7%	−9.3% to 45.3%	Neither	No
Jiwa, 2006[31]	44 practices	Score on 15-point assessment scale	2.34	2.25	0.08, $P = .18$	Neither	No
Jiwa, 2004[32]	58 (providers)	Mean improvement on 10-point assessment scale	5.3, $P = .008$	0.55, $P = .6$	NR	Intervention	Yes
Rubio Arribas, 2000[33]	510	Inclusion of 8 domains of information	35.9% to 91.5%	50.0% to 96.8%	NR	Intervention	Variable
			Qualitative summary: Variable				
Referral management							
Xiang, 2013[28]	581	Grol criterion for inclusion of clinical information	44.9%	41.1%	3.8% (absolute), $P = .40$	Neither	No
			Qualitative summary: Neither arm favored				

Abbreviation: NR, not reported.

results(cont'd)

RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	

Discussion

- Summary of Main Results
  - This review found that 9 of the 12 interventions evaluated improved the completeness of information relayed in specialty referral requests.
  - Studies utilizing a software- or template-based intervention consistently favored the intervention arm, though incomplete reporting of statistical significance left some uncertainty with regard to the template finding.

Discussion(cont'd)

- Applicability and Generalizability
  - Most of the included studies originated from the United Kingdom and nearly all from non–fee-for-service settings.
  - This study's findings may apply with different degrees of reliability to other health care settings.

Discussion(cont'd)

- Limitations of the Studies and the Review
  - Potentially incomplete understanding of both successful and failed interventions.
  - The completeness of the evidence presented remains uncertain based on the known issue that quality improvement interventions with negative results often go unpublished.
  - With this potentially incomplete understanding of both successful and failed interventions, this review may misattribute the aspects of the interventions that actually led to the changes seen.

Discussion(cont'd)

- Limitations of the Studies and the Review
  - Although the decision to only include studies published since the year 2000 likely restricted the pool of eligible published studies, the research team believes this risk was greatly outweighed by the value of summarizing studies with the greatest applicability to the current health care communication environment.
  - With regard to the outcomes, the team did not prespecify any patient-related outcomes, and none of these studies reported any.

Discussion(cont'd)

- Limitations of the Studies and the Review
  - Although it is possible that an improvement in referral completeness may improve patient outcomes, it must be noted that a recent review failed to find consistent evidence supporting this possibility.
  - With regard to synthesizing the findings of the studies identified, the research team recognizes that the subjective nature of both determining intervention-type subgroups and performing qualitative pooling may have introduced bias.

Conclusions

- Based on this review, current evidence is strongest for software- and template-based intervention to increase the quality of information being relayed in a referral request.

- Those wishing to improve a referral process should therefore consider an intervention built around one or both of these concepts.

- It seems likely that these 2 most promising strategies also would be the most customizable to current workflows, institutional culture, and the investment strategies of an organization.

Conclusions

- This review also identified areas for future research.

- Being able to link improved quality of referral requests to improved quality/efficiency of consultations and/or improved patient outcomes would further bolster the impetus to implement one of these interventions.

- In addition, the referring provider–specialist interaction needs further investigation.

DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	


با تشکر