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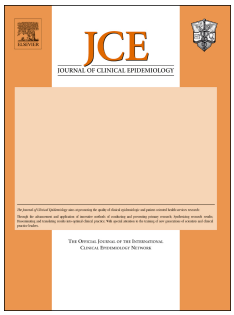

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PII: S0895-4356(19)30292-6

DOI: https://doi.org/10.1016/j.jclinepi.2019.09.004

Reference: JCE 9965

To appear in: *Journal of Clinical Epidemiology*

Received Date: 9 April 2019

Revised Date: 14 August 2019

Accepted Date: 9 September 2019

Please cite this article as: Arevalo-Rodriguez I, Moreno-Nunez P, Nusbaummer-Streit B, Steingart K, Peña LdMG, Buitrago-Garcia D, Kaunelis D, Emparanza JI, Alonso-Coello P, Tricco AC, Zamora J, Rapid reviews of medical tests used many similar methods to systematic reviews but key items were rarely reported: a scoping review, *Journal of Clinical Epidemiology* (2019), doi: https://doi.org/10.1016/j.jclinepi.2019.09.004.

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Rapid reviews of medical tests used many similar methods to systematic reviews but key items were rarely reported: a scoping review

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ABSTRACT

Background: Rapid reviews provide an efficient alternative to standard systematic reviews in response to a high priority or urgent need. Although rapid reviews of interventions have been extensively evaluated, little is known about the characteristics of rapid reviews of diagnostic evidence.

Study design and setting: We performed a scoping review for rapid reviews of medical tests published from 2013 to 2018. We extracted information on review characteristics and methods used to assess the evidence.

Results: We identified 191 rapid reviews. All reviews were developed within a short time (less than 12 months) and were relatively concise (less than 10 pages). The reviews involved multiple index tests (44%), multiple outcomes (88%), and several test applications (29%). Well-known methodological tailoring strategies were infrequently used. Although reporting of several key features was limited, we found that, in general, rapid reviews have similar characteristics to broader knowledge syntheses.

Conclusion: Our scoping review is the first to describe the characteristics and methods of rapid reviews of diagnostic evidence. Future research should identify the most appropriate methods for performing rapid reviews of medical tests. Standards for reporting of rapid reviews are needed.

Keywords

Medical tests, rapid reviews, health-technology assessment, knowledge synthesis

Running title: A scoping review for rapid reviews of medical tests published from 2013 to 2018

What is new?

Key findings

- Our scoping review identified 191 rapid reviews of medical tests from 15 countries published between 2013 and 2018.
- Most rapid reviews were broad in scope and assessed multiple index tests, outcomes, and test applications. In general, well-known methodological tailoring strategies, such as setting limits for literature searching by date or language or searching a single database, were rarely used.
- Information about parallelisation of tasks and the use of automated approaches was infrequently reported.

What this adds to what was known?

- Rapid reviews of medical tests have many of the same characteristics and use similar methods as those of standard systematic reviews. However, we found that several critical items for rapid reviews were infrequently reported.

What is the implication and what should change now?

- Standards for reporting of rapid reviews are needed. Those standards would cover the essential items that should be included in every rapid review.
- Further research should inform the most appropriate methods for performing rapid reviews of medical tests.

INTRODUCTION

The accurate and unbiased assessment of the value of healthcare-related tests and diagnostic strategies (i.e. medical tests) in existing clinical pathways has emerged as a critical issue for healthcare decision-making, mostly driven by the pace of technological advancement in recent years (1, 2). Standard systematic reviews (SR) have been the leading approach for the formal evaluation of the quality, extent and effects of healthcare evidence (3-5), and evidence regarding the use of medical tests is no exception (6-8). The process of performing and maintaining systematic reviews on diagnostic tests has been developed and standardised in past years, including methods for searching for studies, study selection, quality assessment, and data synthesis (2, 9-11).

The conduction of SR involves considerable time and resources which might not be available in sensitive clinical scenarios, such as emergencies or disease outbreaks (12). Recently, Beese et al. estimated that the probability of completing an SR of diagnostic test accuracy in 24 months was less than 10%, increasing to 33% if reviewers invested twice the time in its development (13). In such situations, rapid reviews (RR) have emerged as a pragmatic and efficient alternative to speed-up the evidence synthesis process. In comparison to SR, RR take less time to perform by increasing the intensity of work using methodological tailoring (review shortcuts) and by automating review tasks to streamline the process (6, 14-16). Two examples of RR developed within time constraints are the RR performed by Ismail et al on the challenges to disease surveillance in the context of the crisis in Syria, and the RR developed by Banbury et al on the impact of e-health for rural residents developed in Australia, both developed in less than seven weeks (17, 18).

At present, there is no commonly accepted definition for RR (14, 19, 20). In their analysis of rapid assessment products, Hartling et al. concluded that a RR is "true" when evidence synthesis is carried out to provide an answer about the direction of the evidence collected, and, if possible, the strength of these findings, while meeting important time constraints (14, 19, 21). Methods to enhance the timeliness of these knowledge syntheses can be classified into four categories: a) those limiting the range of populations, interventions and outcomes assessed (narrow the scope); b) those increasing the intensity of the work on review processes (parallelisation of tasks); c) those focusing on methodological tailoring of SR steps according to the needs of decision-makers (review shortcuts) and; d) those using new technologies to fast-track SR steps (automated steps) (1, 12).

The assessment of diagnostic evidence to inform policy decisions presents some particular

challenges in comparison with intervention evidence. Reviews for diagnostic test accuracy should specify the purpose (application) and role of the test and its placement in the clinical pathway. In comparison with intervention reviews, the statistical aspects of diagnostic accuracy reviews are more challenging, often requiring hierarchical models for meta-analysis. To our knowledge, a comprehensive review of RRs for medical tests has not yet been performed. Hence, as a first step, this article will map the methods currently used to produce RR of diagnostic research.

In this scoping review, we aimed to identify recently published RR of medical tests and to describe their characteristics and methods. This exploration may also help to identify shortcomings of current RR and needs for future research.

METHODS

PROTOCOL AND REGISTRATION

The protocol for this review was published on the Open Science Framework platform for public consultation (22). Authors of the review drafted, revised and approved this document for publication.

ELIGIBILITY CRITERIA

We included reports fulfilling all of the following criteria:

- Reports defined by the review authors as a "rapid review" of the evidence. In the case of reports defined only as a rapid product or a rapid assessment, we applied the definitions of Hartling et al. and selected as eliglble those classified as "True Rapid Review" (14, 21).
- Reports that evaluated a healthcare-related test or diagnostic test strategy for any purpose and in any setting.
- Reports published from 2013 to 2018 to reflect methods in current use by RR developers.

We searched for RR without language restriction. We excluded states of the art, evidence inventories, or rapid responses (following the definition of Hartling et al. (14, 21)), original versions of updated RR, and manuscripts unavailable as full-text articles when requested by our review team.

INFORMATION SOURCES

We searched for eligible RR as follows:

Searching institutional websites and repositories: We conducted a manual search of public repositories belonging to members of the International Network of Agencies for Health Technology

Assessment (INAHTA), World Health Organization (WHO) Collaborating Centres on Health Technology Assessment (HTA) and Health Technology Assessment International Network (HTAi; non-profit members). In addition, we screened the Regional Database of Health Technology Assessment reports in Americas (REDETSA/BRISA) and the EUnetHTA's Assessment Rapid Relative Effectiveness Assessments (REA) repositories and archives. This manual search was conducted in September 2018.

Searching electronic databases: We searched MEDLINE-OVID 1946 to present, EMBASE (Elsevier), the Cochrane Library and LILACS in September 2018. An experienced librarian developed the search strategies for each indexed database, including a combination of controlled vocabulary and other related search terms and filters in order to retrieve RR (Appendix 1).

SELECTION OF SOURCES OF EVIDENCE

One review author examined institutional repositories for RR, and those that were deemed potentially eligible were downloaded for further assessment. When these documents were unavailable due to restrictions, we requested permission to access them from their respective institutions. Four review authors confirmed the final eligibility for each RR. In addition, for the electronic searches, two review authors first screened records based on title and abstract and then confirmed eligibility after reviewing full-text articles. We resolved all disagreements by discussion.

DATA CHARTING PROCESS

One review author extracted data in a standardised format for each RR on the following features: general characteristics of the review, the research question, index test(s), target condition(s), application(s) of the test, and pre-planned outcome(s). In addition, we extracted information on key RR strategies reported in the literature: narrowing the scope, parallelisation of tasks, review shortcuts, and automated approaches (16, 20, 23). Four different review authors confirmed data extraction for 10% of the included reviews. We resolved all disagreements by discussion. We used operational definitions of variables to standardise data extraction (Appendix 2). Since no RR reported the length of time to develop the review, we estimated the duration using either a) the date of the last search strategy and the publication date for reviews published on public repositories; or b) the date of the last search strategy and the submission date for reviews published in peer-reviewed journals (24).

SYNTHESIS OF RESULTS

We analysed the information descriptively using STATA 15.0.

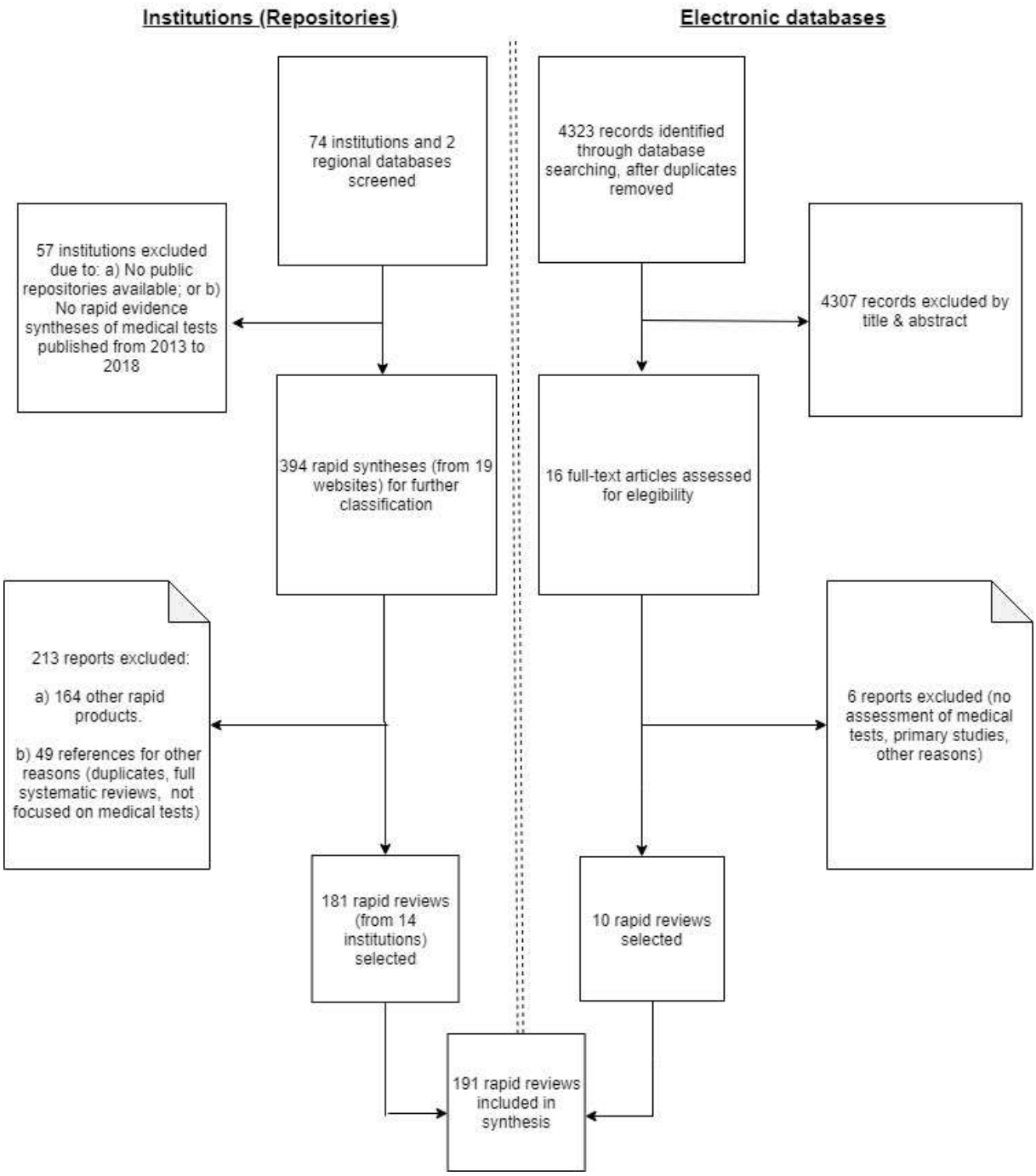
RESULTS

SELECTION OF SOURCES OF EVIDENCE

Institutional websites and repositories: We screened 74 institutional repositories and two regional databases/archives. We found no information on RR of medical tests in 57 institutional repositories. The remaining 19 institutional archives provided 394 rapid evidence syntheses for further classification. After applying the selection criteria, we included 181 RRs of medical tests from 14 institutions (Figure 1).

Electronic databases: We identified 4,323 citations after removing duplicates. After screening by title and abstract, we selected 16 full-text articles for review, of which 10 met the criteria for inclusion. We did not identify any additional duplicates after combining information from all sources. In total, we included 191 unique RR in the review (Figure 1).

Figure 1. Study flow diagram: manual search of institutional repositories + electronic databases search



SYNTHESIS OF RESULTS

Characteristics of included rapid reviews

RR were developed by teams in 15 countries on four continents (three countries in America, 10 in Europe, one in Asia and one in Australia). In three countries (Argentina, Australia and Canada), more than two teams/institutions were involved in developing RR. Forty-seven RR (24.6%) were published in 2014. Review authors used different terms to describe the RR including "Rapid review", "Rapid assessment", "Rapid systematic review", "Rapid report", "Valutazione rapida" (Italian), "Rapid HTA report", "Brief report", "Revisión sistemática rápida" (Spanish), "Informe de respuesta rápida" (Spanish), "Scoping report" and "revisões rápidas de avaliação tecnológica em saúde" (Portuguese).

The number of review authors involved in the development of RR ranged from 1 to 17. For RR published in institutional repositories, the median number of authors was seven (Interquartile range (IQR) 3 to 9 authors), similarly for those published in journals (median of authors, 7; IQR, 3 to 8). Forty-three RR (22.5%) were developed by nine authors, while 30 (15.7%) were produced by seven authors. For RR published in a public repository, the estimated median production time was two months (IQR, 1 to 6.8 months), and for 41 RR (21.4%) was one month. For RR published in journals, the estimated median production time was eight months (IQR, 2.8 to 12.5 months). We were unable to estimate the production time for 96 RR.

The composition of the review team was generally poorly reported. Twelve reviews (6.2%) reported a review coordinator or head of the team and 26 reviews (13.6%) reported the involvement of one or two information specialists. No review explicitly reported the participation of methodologists specialised in diagnostic evidence, statisticians, or patients. Nineteen RR (9%) reported that the intended audience was decision-makers belonging to their local healthcare system. The person commissioning the review was mentioned in 46 reviews (24%). However, no review explicitly reported involving the person commissioning the RR in its development.

RR ranged in length from 2 to 120 pages (median length, 8 pages; IQR, 6 to 12 pages). The main findings (excluding the cover page, references and appendices) were reported in 10 pages or less for 122 reviews (63.8%). In addition, 48 RR (25.1%) reported an external peer-review process involving two or more experts, while 37 reviews (19.3%) explicitly reported asking for comments and suggestions from the public to incorporate in the final report.

Issues regarding the scope of the RR

Only 81 RR (42%) provided explicit information about the population, index test, comparisons and outcomes in a structured format (i.e. a PICO question) (Table 1). Most reports concerned information about patients with a specific target condition or disease. The target conditions most commonly reported were cancer and blood disorders (n=25), neurological disorders (n=21) and gastrointestinal diseases (n=20).

Thirty-five reviews (18.3%) assessed the evidence for two or more index tests and 50 reviews (26.1%) for an unclear number of tests, described as a set of tests or tools (e.g. genetic panels, biomarkers, screening tools. The most commonly intended outcome was resource requirements (n=139; 72.7%), followed by effectiveness and safety (n=134; 70.1%), accuracy (n=124; 64.9%) and guideline recommendations (n=124; 64%). Sixty-eight reviews (35.6%) assessed more than three outcomes. Forty-nine RR (25.6%) appraised evidence on accuracy, effectiveness and safety, resource requirements and recommendations in the same report (Table 1).

None of the included RR described the clinical pathway, in particular, the role of the test, reference standard, or prior tests. Fifity-six RR (29.3%) evaluated more than one application for the index tests; the most frequently reported were diagnosis (ruling in), followed by treatment monitoring, and screening or surveillance (Table 1).

Table 1. Characteristics of the scope of included rapid reviews

Rapid reviews 'scope	Count (%)
PICO question	81 (42.0)
Target conditions	
Cancer & Blood	25 (13.0)
Neurology	21 (10.9)
Digestive disorders & gastrointestinal diseases	20 (10.4)
Index test	
Single test	106 (55.5)
Two tests or more	35 (18.3)
Unclear (set of tests)	50 (26.2)
Pre-planned outcomes	
Resource requirements	139 (72.7)
Effectiveness/Safety	134 (70.1)
Accuracy	124 (64.9)
Recommendations	124 (64.9)
Prediction/prognosis	31 (16.2)
Values and preferences	9 (4.7)
Number of outcomes to be assessed	
1	21 (11.0)
2	38 (19.9)
3	63 (33.0)
More than 3	68 (35.6)
Combination of outcomes	
Accuracy + Effectiveness/Safety + Resource requirements + Recommendations	49 (25.6)
Accuracy + Resource requirements + Recommendations	17 (8.9)
Effectiveness/Safety + Resource requirements + Recommendations	16 (8.3)
Accuracy + Effectiveness/Safety + Resource requirements	10 (5.2)
Effectiveness/Safety + Resource requirements	10 (5.2)
Application of the test	
Diagnosis (ruling in)	120 (62.8)
Treatment monitoring	33 (17.2)
Screening or surveillance	28 (14.6)
Grading and staging	23 (12.0)
Risk assessment and classification	20 (10.4)
Determining prognosis	18 (9.4)
Treatment triage	13 (6.8)
Ruling out disease/condition	1 (0.5)

Note: Rapid reviews could have more than one pre-planned outcome or application.

Issues regarding parallelisation of tasks

A considerable number of reviews did not provide information about the methods or researchers performing study selection or data extraction (Table 2). Of those reviews reporting information (n=68), 57 RR involved a single review author for citation screening and study selection. Only 10 reviews reported the number of authors involved in data extraction (Table 2).

In addition, 182 RR (95%) did not provide information about the process used to assess the methodological quality of included studies, although 77 reviews (40%) reported that they used a risk of bias checklist (Table 2). The quality appraisal tool most frequently reported was the Assessing the Methodological Quality of Systematic Reviews (AMSTAR-I) checklist (25, 26) (n=31), followed by the Appraisal of Guidelines Research and Evaluation (AGREE) checklist (27) (n=22) and the Quality Assessment of Diagnostic Accuracy Studies (QUADAS I/II) tool (28, 29) (n=19). Fifty-four RR also used other alternative quality assessment tools, including the Scottish Intercollegiate Guidelines Network (SIGN) checklists, the tools developed by the Critical Appraisal Skill Programme (CASP), and the Drummond's checklist for assessing economic evaluations.

Issues regarding rapid review shortcuts

Seventy-two percent of the reviews included evidence from an existing SR to answer the review question. Other common sources of evidence were clinical practice guidelines and observational studies (e.g. case series, concordance studies or cohorts estimating risk) (Table 2). Thirty-four RR (17.8%) based their conclusions only on a previous evidence synthesis (i.e. systematic reviews, clinical practice guidelines, economic studies or health technology assessment reports).

Regarding the literature search, 76 reviews (39.7%) did not limit their searches. For the remaining RR, the most frequently applied limit was language, English-only (Table 2). For those reviews limiting by date (n=72), thirty-two (50%) limited the search to the last five years, while 22 (32%) limited it to the previous 10 years. Focused internet searches and checking of reference lists were additional resources frequently used by review authors (n=145; 75.9%). In addition, 133 RR (69.6%) used specialised search engines, such as the Centre for Reviews and Dissemination (CDR) database, the Cochrane Library or TripDatabase.

Most RR (n=184; 96.3%) reported their findings in a narrative summary. Thirty-three reviews (17.2%) explicitly mentioned the use of the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach to assess the certainty of the evidence.

Issues regarding automated approaches

No reviews reported the use of new technologies, such as machine learning or algorithms, for any of the steps involved in the development of the RR.

Table 2. Rapid review methods identified from data sources

Rapid review method	Count (%)
Nature of the evidence included under findings	
Systematic reviews	139 (72.7)
Clinical practice guidelines	118 (61.7)
Observational studies (other than accuracy studies)	93 (48.6)
Health Technology Assessment (HTA) reports	73 (38.2)
Primary accuracy studies	68 (35.6)
Randomised controlled trials	63 (32.9)
Economic studies	49 (25.6)
Qualitative studies	5 (2.6)
Unclear	3 (1.5)
Limits on the search	
Limit by language (English-only)	84 (43.9)
Limit by date	72 (37.6)
Limit by database (MEDLINE or PUBMED)	45 (23.5)
Limit by using filters	27 (14.1)
Update of an existing full systematic review	10 (5.2)
Limit by outcome	5 (2.6)
Limit by country	2 (1.0)
No supplementary searches	10 (5.2)
Selection of studies	
One reviewer	57 (29.8)
Two reviewers, non-independent	2 (1.0)
Two reviewers, independent	9 (4.7)
Not reported	123 (64.3)
Data extraction	
One reviewer	4 (2.0)
Two reviewers, non-independent	2 (1.0)
Two reviewers, independent	4 (2.0)
Not reported/Not applicable	181 (94.7)
Quality appraisal	
One reviewer	2 (1.0)
Two reviewers, independent	3 (1.5)
Not reported/NA	182 (95)
Type of synthesis	
Narrative summary	184 (96.3)
Meta-analysis	7 (3.6)
GRADE approach	33 (17.2)

DISCUSSION

To our knowledge, this is the first review that attempts to explore the characteristics and methods used in the production of RR of medical tests. We aimed to analyse whether well-known mechanisms to enhance the timeliness of RR (i.e. narrowing the scope, parallelisation of tasks, using review shortcuts and automating review steps) are being used in the development of RR of medical tests. We identified a considerable number of RR (n = 191), mostly published on institutional websites and developed by different teams globally. Previous reviews of RR identified a small proportion of reviews on diagnostic evidence, of which most included only accuracy outcomes (16, 24).

We found that RR were typically developed by large teams (median 7 authors), produced relatively quickly (in less than 12 months), and concisely written (less than ten pages). These findings are consistent with the requirement of timeliness and feasibility of a rapid product (1, 5). However, due to poor reporting, we were unable to assess whether the team composition and its dynamics affected the development of these RR, specifically whether the project involved highly trained staff, a feature for developing RR that has been previously suggested (19).

Beyond the description of the main characteristics of RR, our scoping review aimed to assess the use of mechanisms and strategies recommended for the development of RR (12). One of these strategies is limiting the extent of the review scope since a broader scope requires comprehensive and consistent review methods (i.e. a standard full systematic review) (21). However, we observed that RR addressed multiple elements in their scope, such as several index tests and different scenarios for test application. Moreover, we expected that authors of RR would consider only a limited number of outcomes (e.g. accuracy) (30), but instead, we found that they commonly included multiple outcomes. We also found that **narrowing the scope of the review** was infrequently used in the development of RR of medical tests.

Using review shortcuts to abbreviate steps in the review process is another suggested method for streamlining development of RR, including the use of a single database, limiting electronic searches and omitting a search of the grey literature (16, 20, 23). However, we found that these **review shortcuts** were not generally applied in our set of RRs, including setting limits by date and language. (16, 20, 23). The narrative report of findings (i.e. the omission of a meta-analysis) was the only shortcut widely used, which is in agreement with previous assessments of rapid synthesis products (16, 20, 23).

Unfortunately, we found a lack of reporting of key methods, including study selection, data collection and quality appraisal. Thus, we were unable to assess whether mechanisms such as **parallelisation of tasks or automated approaches** were put into practice to speed preparation of these reviews.

Despite shortfalls in reporting, we observed that RR of medical tests have characteristics similar to those in SR, such as searching multiple electronic databases, the inclusion of evidence from primary studies and the use of additional sources of evidence. Despite this, most RR included in our scoping review explicitly alerted the reader to the limitations of their review owing to the rapid approach used.

Strengths of our review include the large number of RR of medical tests identifed and published in different countries and continents. We also used a strict definition of RR (i.e. True Rapid Review), which excludes other rapid products of knowledge synthesis, but is the most comparable synthesis to a SR (21). Our methodological approach has been previously used in other reviews assessing methods for the development of RR (16, 20). However, our review has several limitations. Selection of RR was limited to reports available in the public domain, and we cannot guarantee that we found all RR of medical tests. We also did not attempt to contact institutions without public repositories to collect additional information. Moreover, most of our findings came from five institutions that published 87% of the RR assessed in our study. It is also important to note that most RR were developed for Health Technology Assessment agencies. This might explain the broad scope previously described, which frequently included an extensive assessment of resource requirements.

One conclusion of our study is the need for the standardisation of RR reporting in order to enhance transparency of methods employed for these rapid products. In 2016, Kelly et al. found that several key issues were poorly reported in a selection of RR, including protocol registration, the process of data collection, methods used for assessing the risk of bias, time for completion and the reporting of individual risk of bias assessment (24). Standardised guidelines for adequate reporting of RR would be helpful to determine the adequacy of the methods and the extent of the limitations on the review conclusions. We are aware that some efforts to develop the PRISMA for RR of interventions are currently underway (https://osf.io/t54fv/).

Our scoping review also shows the need for additional research regarding which methods are appropriate for RR of medical tests. One example is the suitability of a narrow scope. If a mixture of evidence is needed to fulfill stakeholder needs and narrowing the scope is not an option, the

remaining mechanisms suggested to streamline the review process need to be carefully assessed. For a more in-depth investigation, our team will be conducting an international survey to investigate stakeholders' and developers' views on RRs of medical tests. In addition, we will explore potential challenges and discuss the implications for further development of RR of diagnostic tests with experts in the field (31). This information will be used in a research programme to identify the most appropriate methodological framework for conducting RR for diagnostic evidence, to be used by developers, stakeholders and decision-makers in the future.

DECLARATIONS

Ethics approval and consent to participate: Not applicable

Consent for publication: Not applicable

Availability of data and material: The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Differences between the protocol and review: Additional co-authors were included in the authorship of this manuscript, according with the ICMJE policies. Data extraction was confirmed only for a sample of 10% of included RR due to resource constraints. Subgroup analysis by institutional guidelines/handbook was not performed due to scarce information about the availability of such documents.

Competing interests: The authors declare that they have no competing interests.

Funding: This study was funded by the Fundación para la Investigación Biomédica (FIBIO)-Hospital Universitario Ramon y Cajal (Internal grant IMP 18-05/2018). The funder did not have a role in the study design, data collection, analysis or interpretation, or in writing the final manuscript.

Authors' contributions: All authors contributed to developing, reading and approval of the final manuscript.

Acknowledgements: We thank Raquel Sosa-Callejas for her assistance in checking of data extraction. Ingrid Arevalo-Rodriguez is funded by the Instituto de Salud Carlos III through the “Acción Estrategica en Salud 2013-2016 / Contratos Sara Borrell convocatoria 2017/CD17/00219” (Co-funded by European Social Fund 2014-2020, "Investing in your future"). Andrea C. Tricco is funded by a Tier 2 Canada Research Chair in Knowledge Synthesis. Pablo Alonso-Coello is supported by a Miguel Servet investigator contract from the Instituto de Salud Carlos III (CPII15/0034).

Appendix 1. Search strategies in major databases

Ovid MEDLINE(R) ALL <1946 to September 14, 2018>

1 rapid review.mp.
2 rapid review.ti,ab.
3 (abbreviated adj review?).tw.
4 (abbreviated adj synthes?s).tw.
5 (accelerated adj2 review?).tw.
6 (accelerated adj2 review?).tw.
7 (brief adj synthes?s).tw.
8 (expedited adj2 review?).tw.
9 (expedited adj2 synthes?s).tw.
10 (meta adj method$).tw.
11 (meta adj evaluat$).tw.
12 (rapid adj2 review?).tw.
13 (rapid adj2 assess$).tw.
14 "rapid health technology assess$".tw.
15 (rapid adj HTA?).tw.
16 (rapid adj approach$).tw.
17 (rapid adj search$).tw.
18 (realis$ adj approach$).tw.
19 (realis$ adj evaluat$).tw.
20 (realis$ adj synthes?s).tw.
21 (speed$ adj2 review?).tw.
22 (speed$ adj2 review?).tw.
23 (streamline$ adj2 synthes?s).tw.
24 (fast$ adj2 review?).tw.
25 (fast$ adj2 synthes?s).tw.
26 rapid report.ti,ab.
27 rapid response.ti,ab.
28 evidence brief.ti,ab.
29 exp Animals/ not (exp Animals/ and Humans/)
30 or/1-28
31 30 not 29
32 limit 31 to yr="2010 -Current"
33 Diagnosis, Differential/
34 Diagnostic Tests, Routine/
35 diagnos*.mp.
36 diagnostic tool.ti,ab.
37 (Sensitivity and Specificity).mp.
38 diagnostic tool.ti,ab.
39 (Sensitivity and Specificity).mp.
40 sensitivit*.ab.
41 specificit*.ab.
42 accuracy*.ti,ab.
43 false positive*.ti,ab.
44 false negative*.ti,ab.
45 accura*.ti,ab.
46 (likelihood adj3 (ratio* or function*)).ab.

47 ((positive* or negative* or false or true) adj3 rate*).ti,ab.
48 likelihood.ti,ab.
49 reproducibility.ti,ab.
50 or/33-49
51 32 and 50
52 case report.ti,ab.
53 Case Reports/
54 or/52-53
55 51 not 54

EMBASE ELSEVIER
#1 'rapid review*/exp
#2 abbreviated NEAR/2 review*
#3 abbreviated NEAR/2 synthes*
#4 accelerated NEAR/2 review*
#5 brief NEAR/2 synthes*
#6 expedited NEAR/2 review*
#7 expedited NEAR/2 synthes*
#8 meta NEAR/2 method*
#9 meta NEAR/2 evaluat*
#10 rapid NEAR/2 review*
#11 rapid NEAR/2 asess*
#12 'rapid health technology assess*
#13 rapid NEAR/2 hta
#14 rapid NEAR/2 approach*
#15 rapid NEAR/2 search*
#16 realis* NEAR/2 approach*
#17 realis* NEAR/2 evaluat*
#18 realis* NEAR/2 synthe*
#19 speed NEAR/2 review*
#20 streamline NEAR/2 'synthes*
#21 fast NEAR/2 review*
#22 fast NEAR/2 synthes*
#23 'rapid report':ti,ab
#24 'rapid response':ti,ab
#25 'evidence brief':ti,ab
#26 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25
#27 'animals' NOT 'humans'
#28 #26 NOT #27
#29 #28 AND (2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py)
#30 'differential diagnosis':ti,ab,kw
#31 'diagnostic test':ti,ab,kw
#32 'diagnostic accuracy':ti,ab,kw
#33 diagnos*:ti,ab,kw
#34 'diagnosis':ti,ab,kw
#35 sensitivity AND specificity:ti,ab
#36 'sensitivity and specificity':ti,ab,kw

#37 'sensitivit*':ti,ab
#38 'specificit*':ti,ab
#39 'accuracy*':ti,ab
#40 'false positive':ti,ab
#41 'false negative':ti,ab
#42 'accurac*':ti,ab
#43 'likelihood ratio':ti,ab,kw
#44 'likelihood function':ti,ab,kw
#45 reproducibility:ti,ab
#46 #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41 OR #42 OR #43 OR #44 OR #45
#47 #29 AND #46
#48 #47 AND [embase]/lim NOT ([embase]/lim AND [medline]/lim)

COCHRANE LIBRARY
#1 rapid review
#2 abbreviated adj review*
#3 abbreviated adj synthes*
#4 accelerated adj2 review*
#5 brief adj synthes*
#6 expedited adj2 review*
#7 expedited adj2 synthes*
#8 meta adj method*
#9 meta adj evaluat*
#10 rapid adj2 review
#11 rapid adj2 assess*
#12 rapid health technology assess*
#13 rapid adj HTA*
#14 rapid adj approach*
#15 rapid adj search*
#16 realis adj approach*
#17 realis$ adj evaluat*
#18 speed$ adj2 review*
#19 streamline$ adj2 synthes*
#20 fast$ adj2 review*
#21 fast$ adj2 synthes?s
#22 rapid report
#23 rapid response
#24 evidence brief
#25 #1 or #2 or #3 or #4 or #5 or #6 or #7 or #8 or #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24
#26 MeSH descriptor: [Diagnosis] explode all trees
#27 diagnos*
#28 MeSH descriptor: [Diagnostic Tests, Routine] explode all trees
#29 diagnostic test*
#30 diagnostic tool
#31 MeSH descriptor: [Sensitivity and Specificity] explode all trees
#32 Sensitivity and Specificity
#33 sensitivit*
#34 specificit*

#35 accuracy*
#36 false positive*
#37 false negative*
#38 accura*
#39 likelihood
#40 reproducibility
#41 #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40
#42 #25 AND #41

LILACS
(tw:((tw:((tw:(revision rápida)))) OR (tw:(revision rapida de la literatura)) OR (tw:(sintesis abreviada)) OR (tw:(sintesis corta)) OR (tw:(evaluacion* de tecnologia en salud)) OR (tw:(busqueda rapida)) OR (tw:(evaluacion rapida)) OR (tw:(sintesis rapida)))) AND (tw:((tw:(diagnos*)) OR (tw:(prueba diagnostica)) OR (tw:(herramienta diagnostica)) OR (tw:(sensibilidad)) OR (tw:(especificidad)) OR (tw:(falso* positivo)) OR (tw:(falso* negativo)) OR (tw:(reproduciblidad)) OR (tw:(likelihood)))) AND (instance:"regional") AND (db:("LILACS" OR "IBECS" OR "BRISA" OR "CUMED" OR "BINACIS" OR "BDENF" OR "BBO" OR "PAHO") AND year_cluster:("2016" OR "2014" OR "2017" OR "2015" OR "2013" OR "2012" OR "2011" OR "2010"))

Appendix 2. Data extraction: List of variables and operational definitions

Name of variable	Definition
Year	Year of publication
Country	Country of publication
Index test	Name of index test(s) assessed in the report
Number of index tests	Number of index tests assessed, including an unclear number
Target condition	Target condition(s) assessed in the report
Applications of healthcare-related tests/ Purpose	See operational definitions below. Extracted from the background, rationale and objective of the review
Number of purposes assessed	Number of index test applications/purposes intended to be assessed in the review
Data search	If available, date of the information search reported by the authors of the review (including year and month)
Publication date	If available, date of the publication date reported by the authors of the review (including year and month)
Time for development	Timespan reported for review development. If no reported, estimated amount of time in months from the data search until the publication date
Commissioner of the review	If available, name or type of commissioner of the rapid review
Intended audience	If available, the intended audience of the report
Involvement of commissioner	If available, report if the commissioner has any role in the development of the rapid review
Pre-planned outcomes	Report the nature of the outcomes intended to be assessed in the rapid review. See operational definitions below.
Number of predefined outcomes	Number of predefined outcomes intended to be assessed in the rapid review.
Team composition	Report members of the team and roles, including review coordinator, review methodologist (specialist in diagnostic questions), information specialist, statistician, content expert and stakeholder.
Type of studies included in findings	Report the type of studies included under Results. See operational definitions below
PICO question	Report if a formal PICO question was provided (e.g. in a table).
Issues about search of evidence	Report strategies to expedite the search of information, including the following: update of a systematic review, limit by language, limit by outcome, limit by country, limit by date, limit by study design, limit by database, limit using filters, use of meta-searchers, limit trial registries, limit additional searches.
Selection of studies	Report how the study selection was conducted: one reviewer only, two reviewers/independently, two reviewers/checking, unclear selection.
Collection of data	Report how the data collection was conducted: one reviewer only, two reviewers/independently, two reviewers/checking, unclear collection.
Quality appraisal	Report how the methodological assessment of studies were conducted: one reviewer only, two reviewers/independently, two reviewers/checking, unclear assessment.
Tools for quality assessment	Report the tools/checklists applied in the assessment of the evidence (e.g., AMSTAR, QUADAS, AGREE, Cochrane RoB, other methods)
Synthesis of evidence	Report how the synthesis of information was performed (e.g., narrative synthesis, a meta-analysis of data)
GRADE approach	Report if the GRADE approach was used to evaluate the quality of the evidence. Check the findings and conclusions of the report.
Peer-review process	Inform if there was a peer-review process (internal/external) before the publication of the review
Public consultation	Inform if there was an open public consultation to receive comments and

	suggestions before the publication of the final report
Length of the report	Number of pages of the rapid review (excluding cover, references and appendixes)

Operational definitions

Rapid products (Adapted from Hartling 2015 and Hartling 2017)	
Evidence inventories (EI)	EI list what evidence is available and often other contextual information needed for making decisions but do no synthesis and do not attempt to present conclusions or recommendations.
Rapid responses (RResp)	RResp organise and evaluate the literature to present the end user with an answer based on the best available evidence but do not attempt to formally synthesise the evidence into a new conclusion
True rapid review (TRR)	TRR perform evidence synthesis (qualitative, quantitative, or both) to provide the end user with an answer about the findings from the evidence and possibly the strength of the evidence
Automated approaches (AA)	AA use databases of extracted study elements that use computer programming or algorithms to generate meta-analyses in response to user-defined queries.
Applications of healthcare-related tests/ Purpose (Adapted from Mustafa 2017)	
Screening or surveillance	Monitor the general population or a high-risk group for early detection of a disease/condition
Risk assessment and classification	Determine pre-test probability, the existence of specific risk groups and the need for close monitoring for a disease/condition
Diagnosis/Ruling In	Confirm the presence of a disease/condition
Ruling out disease/condition	Exclude presence of a disease/condition
Treatment triage	Determine appropriateness of starting treatment or type of treatment
Treatment monitoring	Follow-up for regression of a disease, possible recurrence, or appropriateness of continuing treatment or titrating it during and/or post-treatment
Grading and staging	Determine the severity of disease or phase of disease progression
Determining prognosis	A prediction of the probable course and subsequent outcome of a disease/condition
Type of studies/Designs (Adapted from Porta 2008 and Cochrane Glossary (https://community.cochrane.org/glossary)	
Accuracy studies	Studies focused on the ability of a diagnostic test to correctly classify the presence or absence of the target condition
Observational studies	A study that does not involve any intervention on the part of the investigator. We included all primary studies not focused on accuracy in this category, including risk cohorts, concordance studies, case series, among others
Randomised controlled trials	An epidemiological experiment in which subjects in a population are randomly allocated into groups to receive or not an experimental preventive or therapeutic procedure, manoeuvre, or intervention.
Systematic reviews	The application of strategies that limit bias in the assembly, critical appraisal, and synthesis of all relevant studies on a specific topic.
Clinical practice guidelines	Documents compiling formal statements about a defined task or function. For our study, we included in this category all reviews searching for recommendations.
Economic studies	The comparison of the relationship between costs and outcomes of alternative

	healthcare interventions
Qualitative studies	Any type of research that employs non-numerical information to explore individual or group characteristics, producing findings not arrived at by statistical procedures or other quantitative means.
HTA reports	The formal evaluation of technologies used in health care, including medicine, and in public health. It explicitly involves not only efficacy, but also cost-effectiveness, cost-utility, and all other aspects of technology that may be important for society.
Pre-planned outcomes (Adapted from Porta 2008)	
Accuracy	The ability of a diagnostic test to correctly classify the presence or absence of the target condition
Effectiveness/Safety	Effectiveness = A measure of the extent to which a specific intervention, procedure, regimen or service, when deployed in the field in the usual circumstances, does what it is intended to do in a specified population Safety = A measure of the negative results associated with an action/intervention, as well as the quantification of adverse effects that may result from exposure to specified health hazards or from the absence of beneficial influences
Use of resources	All costs, supplies and other assets incurred in producing a set quantity of service
Values and preferences	Concepts used to explain what we believe in, what we hold dear about the way we live, and how and why things matter. They are strong influences on the health of individuals and populations.
Prediction/Prognosis	The assessment of an attribute or exposure that is associated with an increased probability of a specified outcome.
Recommendations	Formal statements about a defined task or function

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What is new?

Key findings

- Our scoping review identified 191 rapid reviews of medical tests from 15 countries published between 2013 and 2018.
- Most rapid reviews were broad in scope and assessed multiple index tests, outcomes, and test applications. In general, well-known methodological tailoring strategies, such as setting limits for literature searching by date or language or searching a single database, were rarely used.
- Information about parallelisation of tasks and the use of automated approaches was infrequently reported.

What this adds to what was known?

- Rapid reviews of medical tests have many of the same characteristics and use similar methods as those of standard systematic reviews. However, we found that several critical items for rapid reviews were infrequently reported.

What is the implication and what should change now?

- Standards for reporting of rapid reviews are needed. Those standards would cover the essential items that should be included in every rapid review.
- Further research should inform the most appropriate methods for performing rapid reviews of medical tests.

Conflict of Interest

Author	**COI**
Ingrid Arevalo-Rodriguez	Nothing to declare
Paloma Moreno-Nunez	Nothing to declare
Barbara Nussbaummer-Streit	Nothing to declare
Karen Steingart	Nothing to declare
Laura del Mar Gonzalez Peña	Nothing to declare
Diana Buitrago-Garcia	Nothing to declare
David Kaunelis	Nothing to declare
Jose Ignacio Emparanza	Nothing to declare
Pablo Alonso-Coello	Nothing to declare
Andrea C Tricco	ACT is an associate editor for the Journal of Clinical Epidemiology
Javier Zamora	Nothing to declare