GPs' perceptions of managing chronic heart failure in primary care: a qualitative evidence synthesis

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Abstract

Ervaringen van huisartsen met de aanpak van chronisch hartfalen in eerste lijn: een kwalitatief literatuuronderzoek

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Context: De meeste patiënten met hartfalen presenteren zich in eerste lijn. Huisartsen kunnen een centrale rol spelen in de aanpak van chronisch hartfalen. De zorg voor deze patiënten in eerste lijn verloopt echter suboptimaal.

Onderzoeksvraag: Wat zijn de ervaringen van huisartsen met de aanpak van chronisch hartfalen in eerste lijn? Wat zijn de barrières en facilitatoren voor optimale zorg? En hoe willen huisartsen deze zorg verbeteren?

Methode: De databanken MEDLINE, EMBASE, Web of Science en CINAHL werden doorzocht tot 20/12/2015. De "Critical Appraisal Skills Program's checklist for qualitative research" werd gebruikt voor kwaliteitsbeoordeling van geïncludeerde studies. Thematische analyse werd gebruikt voor data-analyse.

Resultaten: Achttien artikelen werden geïncludeerd. De onzekerheid van huisartsen in de aanpak van chronisch hartfalen in al zijn facetten werd aangetoond. Deze onzekerheid ontstond reeds bij het stellen van de diagnose, hetgeen ook leidde tot moeilijkheden in communicatie, behandeling en vroegtijdige zorgplanning. Beperkte toegang tot gespecialiseerde zorg en gebrek aan kennis werden erkend als belangrijke bijdragende

factoren tot deze onzekerheid. Hoewel richtlijnen over hartfalen reeds bestaan, wilden huisartsen bijgeschoold worden om meer vertrouwen te krijgen. Daarnaast werd het verwijspatroon en multidisciplinair engagement van huisartsen beïnvloed door vroegere ervaringen, zowel in positieve als negatieve zin.

Conclusie: Om de onzekerheid bij huisartsen te overwinnen, moeten de huisartsen beter ondersteund worden om de huidige richtlijnen over hartfalen te kunnen implementeren in de dagdagelijkse praktijk. Bij de ontwikkeling van een zorgmodel dient men rekening te houden met context en invloed van interprofessionele relaties.

GPs' perceptions of managing chronic heart failure in primary care: a qualitative evidence synthesis

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Abstract

Background and aim: Most patients with heart failure (HF) present in primary care. General practitioners (GPs) can have a key role in HF management. However, management of patients with HF in primary care is suboptimal. Therefore, all qualitative evidence concerning GPs' perceptions of managing chronic heart failure (CHF) in primary care was synthesized to identify the barriers and facilitators for optimal care, and to explore their ideas for improvement.

Methods: Searches of MEDLINE, EMBASE, Web of Science and CINAHL databases were conducted until 20/12/2015. The Critical Appraisal Skills Program's checklist for qualitative research was used for quality assessment. Thematic analysis was used as method of analysis.

Results: Eighteen qualitative articles were included. GPs' uncertainty in all areas of HF management was highlighted. HF management started with an uncertain diagnosis, leading to difficulties with communication, treatment and advance care planning. Lack of access to specialized services and lack of knowledge were identified as important contributors to this uncertainty. To overcome this uncertainty, GPs expressed a need for education despite the availability of guidelines. Furthermore, working experiences – negative as well as positive – influenced referral and inter-professional collaboration.

Conclusion: Strategies to improve translation of HF guidelines into practice are needed to deal with GPs' uncertainty and to create a locally adaptive care model which values the importance of inter-professional relations.

Keywords: General Practitioners, Primary Care, Chronic Heart Failure, Qualitative Research

Introduction

Chronic heart failure (CHF) is a highly prevalent disease, affecting the elderly in particular (1;2). Heart failure (HF) impairs the quality of life and became one of the leading causes of morbidity and mortality in the Western world (3). High admission and readmission rates contribute to the heavy demands on healthcare resources (4). The key to reducing mortality, morbidity and costs associated with HF is early, accurate diagnosis and appropriate treatment (1;5). In Europe, most patients first present in primary care (6;7). Evidence-based clinical guidelines for diagnosis and management of HF have been published (1;5). These recommendations include appropriate investigations to confirm diagnosis and to offer effective treatment.

However, primary care studies show that patients with HF are often incorrectly diagnosed and incorrectly treated (6-13). For example, there is evidence to suggest that in elderly patients a diagnosis of HF may be missed in up to half of cases (10-12). The Cardiac Awareness Survey and Evaluation (CASE) study has highlighted the underuse of echocardiography, and under-prescribing of angiotensin-converting enzyme inhibitors (ACE-I) and β-blockers (13). Reasons behind this evidence-practice mismatch have been addressed in qualitative studies exploring the barriers and facilitating factors primary care professionals experience in the management of CHF. Special interest goes to the perceptions of the general practitioner (GP) who has a key role in the coordination of care for patients with long-term conditions in primary care (14). Much qualitative research has been undertaken to respond to this issue, but to date, there is no review article that synthesized previous research.

Therefore, this article synthesizes the GPs' perspectives on current management of CHF in primary care. We conducted a qualitative evidence synthesis to understand how GPs experience diagnosis and management of CHF in daily practice, to identify the barriers and facilitators for optimal care, and to explore their ideas to overcome the identified obstacles.

Methods

Design

The synthesis, or 'bringing together' of the findings of primary qualitative studies is emerging as an important source of evidence for healthcare and policy (15;16). A qualitative evidence synthesis can pull together data across different contexts, generate new theoretical or conceptual models, identify research gaps, and provide evidence for the development, implementation and evaluation of health interventions (15). The ENTREQ statement recommendations were followed to report the synthesis (15).

Search strategy

A systematic search of the literature was undertaken in four databases: MEDLINE, EMBASE, Web of Science and CINAHL, all from inception to 20th December 2015. Search terms were categorized into three groups:

Group 1: Heart failure

Group 2: General practitioners

Group 3: Qualitative research

These groups were combined with 'AND' to complete the search (see Appendix 1 for search strategy). A cited reference search of selected studies was conducted (in the database Web of Science) and reference lists of selected articles were manually searched for identification of additional sources.

Study selection

The following definition was used to select studies: 'papers with a focus on GPs' experiences and/or perceptions of CHF and its management in primary care'. For inclusion in the review a study had to use qualitative methods of data collection and analysis, as either a

stand-alone study or a discrete part of a larger mixed-method study. Studies using mixed methods were included only if qualitative findings were presented separately from quantitative results. Descriptive papers, editorials, and opinion papers were excluded. To be included in our analysis, at least one study participant had to be a GP. If a study used a mixed sample of participants (for example, patients, family caregivers, nurses, GPs and cardiologists), it had to allow clear extraction of the GP's opinion: if data were not illustrated by a direct quotation of a GP, the study was excluded. Only qualitative research performed in outpatient settings was included. Hospital settings were excluded. Studies that focused on different conditions (for example, heart failure, dementia and cancer) were included if the results related to CHF were reported separately from the other conditions. Because our research question concerned the GPs' perspectives on current management of CHF, we excluded evaluation studies of interventions that were not yet implemented in usual care. Articles in languages other than English were considered if the English translation of the abstract met the above stated inclusion criteria.

The first reviewer (SVR) divided the resulting articles into three categories (definitely excluded, included and in doubt) based on title and abstract. All studies in the last two categories were checked by the second reviewer (MS). Disagreements were resolved by consensus or by a third reviewer (BV). Full texts of all included articles and all articles in doubt were retrieved. Two reviewers (SVR and BV) read the articles and checked the inclusion criteria. A third person (MS or MV) considered studies on which there was a lack of agreement, and a final decision was made through discussion. A log of the excluded articles, with the reasons for exclusion, was kept.

Critical appraisal

The Critical Appraisal Skills Program's (CASP) checklist was used to assess the quality of the included studies (Appendix 2). This instrument is easily accessible online and clearly defines what is meant by each individual criterion listed (17). Two independent reviewers (SVR and MS) assessed the quality of included articles and results were discussed to reach consensus. Only moderate to high quality studies were included to insure validity of the included results (18).

Data extraction

Background information of each study (study aim, origin, study setting, participants, methods used for data collection and analysis) was extracted from each paper. Two approaches were used to extract qualitative evidence from the included studies. If only GPs participated in the study and HF was the only condition studied, all themes or other qualitative data identified in the primary study and relevant to the research questions of the review were extracted, regardless of whether they were illustrated by a direct quotation (19). If other groups than GPs participated or other conditions than HF were targeted, only data illustrated by a direct quotation from a GP, or by a direct quotation related to HF respectively, were extracted. The first author (SVR) extracted these data for each paper, which were checked by a second reviewer (MS).

Data analysis and synthesis

Thematic analysis was used as a method for analysis and synthesis of the selected studies. Thematic analysis is a tried and tested method that preserves an explicit and transparent link between conclusions and text of primary studies; as such, it preserves principles that have traditionally been important to systematic reviewing (20). Thematic

synthesis has three stages: the coding of text ‘line-by-line’; the development of ‘descriptive’ themes; and the generation of ‘analytical’ themes. While the development of descriptive themes remains ‘close’ to the primary studies, the analytical themes represent a stage of interpretation whereby the reviewers ‘go beyond’ the primary studies and generate new interpretive constructs, explanations or hypotheses (20).

We entered all the results of the studies verbatim into QSR’s Nvivo 11 software for qualitative data analysis. After familiarization with the data, two reviewers (SVR and MS) independently coded each line of text according to its meaning and content. Codes were created inductively. After reading and coding the findings of four studies, the two researchers discussed and compared the codes for similarities and differences until a primary coding framework was constructed. Subsequently, the findings of the other studies were independently read and coded. On various occasions the two reviewers discussed their respective coding frameworks to reach consensus. Codes were added, modified or merged where necessary. This process resulted in a tree structure with several layers to organize the descriptive themes. From these, a set of analytical themes emerged which were tested using diverse accounts within and between cases to challenge and define the integrity of the theme boundaries. The whole research team subsequently discussed findings.

Results

Results of the database searches

A PRISMA flow diagram (21) of study selection is presented in Figure 1. Out of 5427 records, twenty-three articles met the inclusion criteria. One article was identified through citation searching (22). This article was not retrieved by the database searches.

Critical appraisal

The quality of all included studies was evaluated by using the CASP checklist for qualitative research (Table 1) (17). Five studies were recognized as low quality studies and were excluded (23-27). Eventually, eighteen articles were included in this qualitative evidence synthesis. Appendix 3 summarizes the characteristics of the included studies.

Data analysis and synthesis

Three overarching themes were identified in order to synthesize GPs' perceptions of managing patients with CHF in primary care: (a) uncertainty about clinical practice; (b) interdisciplinary collaboration; and (c) ideas for improvement. Findings were organized in HF specific factors, patient factors, physician factors and contextual factors (see thematic matrix of study results in table 2).

Theme 1: Uncertainty about clinical practice

Subtheme 1.1: Value of clinical guidelines

Existing guidelines about the diagnosis and management of HF were not familiar to most physicians (28-32). Underuse of guidelines could be partly explained by GPs' feeling that they were overloaded with information and experienced "*guideline fatigue*" (28;31). Additionally, GPs felt that guidelines were often not applicable to real-world practice (28;31).

They *"rarely cover options in polypharmacy"* and *"a lot of people don't fit into them, the little boxes"* (31).

On the other hand, some GPs recognized and worried about the *"rapidity of change in all fields"* and believed that *"[they] owe it to [their] patients"* to be in touch (28). They expressed the view that using guidelines led to more confident decision-making (28;31).

Subtheme 1.2: Difficult diagnosis

Throughout all studies GPs expressed the feeling that HF was a difficult diagnosis. The main difficulties in accurately diagnosing HF were the masking of the disease by other conditions and the lack of specificity of the symptoms, particularly in the early stages (28;29;32-34). This was especially the case in elderly patients with comorbid conditions (28;29;32;33).

> *"... the biggest problem is that it's always inevitably older people who get it. It's a co-pathology intermingled with other things, and that makes it often quite difficult to disentangle." (28)*

GPs attached great importance to a clinical assessment in diagnosing HF (28;29;32;33). To the extent that for some GPs HF was a purely clinical diagnosis, other GPs did use additional tests but a wide variety was noted in their choices (28;29;32;33). Many GPs mentioned that they would arrange a chest X-ray and some would arrange a 12 lead electrocardiogram (29;32). Only a few GPs reported sending a patient for an echocardiography to confirm a diagnosis of HF (28;29;32;33). Several reasons were given why echocardiography isn't more commonly used in assessing suspected HF patients: difficulties in accessing echocardiography services (28;29;32;33); a lack of confidence in interpreting test results when using open-access echocardiography (28;31); unawareness of

the diagnostic benefits of echocardiograms (28;29;32;33); and a view that echocardiography is not always warranted, especially in obvious cases (29;32;33).

> *"Usually the diagnosis is made – at least by myself – clinically, because I, I don't think I sent anybody for … an echo. That's how you would theoretically make the diagnosis." (32)*

Another obstacle for diagnosing HF in general practice was not having enough time to deal with patients suspected of having HF, even if GPs were aware of the evidence about the validity of signs or investigations (28;29;33).

Finally, not all GPs were confident in diagnosing CHF (28;30;31) and for some, the diagnosis could only be made by cardiologists (28;30).

> *''Well, you know, we GPs… can't diagnose CHF… After referral to a cardiologist, we write down that diagnosis, control those maintaining medications." (30)*

Subtheme 1.3: Difficulties in communication with patients

Since GPs were uncertain about the diagnosis and prognosis of HF, they found it difficult to relay information back to patients (34). Additionally, all GPs felt that the term 'heart failure' was unhelpful in explaining the diagnosis and prognosis to patients. GPs regarded it as a *"loaded"* term (35), having an effect on patients that was similar to being told they had cancer (28;34-36). To avoid upsetting patients and extinguishing hope, some clinicians talked about HF in euphemistic terms, such as having an *"ageing heart"*, *"stiff heart"* or *"heart not pumping efficiently"* (34;36).

GPs recognized a conflict in balancing prognostic information with symptom treatment: while patients may live with HF for a long time, they saw it was necessary to emphasize the importance of taking appropriate medication (28;34). Some GPs spoke about

addressing the question of prognosis over time in response to changing circumstances, particularly where patients might be approaching the end of their life (35).

> *"... it could be another 10 years before they progress and something else would kill them first, so you don't want to give undue alarm, but at the same time... in order to entice them to take their medications, you probably do need to explain the gravity of the situation. It's a very fine balance." (34)*

Subtheme 1.4: Treatment issues

Uncertainty about diagnosis also casted doubts on the development of treatment strategies (28;29). Additionally, GPs encountered difficulties associated with comorbidities and polypharmacy, especially in elderly patients (28;31;33;35;36). Moreover, several GPs saw ageism as a consideration for a less aggressive approach (28;29;32;33;37).

> *"I think there is an ageist agenda with it as well because you know somebody of 60 who has got heart failure you're going to be much more aggressive with than someone who is 78, not just in terms of making the diagnosis but the investigations and treatment."(28)*

And again, GPs recognized that they lacked the time needed to ensure efficient and effective follow-up and accurate monitoring of HF patients (31;38;39).

A feeling predominated in some practices that HF should be managed in secondary care (28;31;38): *"Can we adequately manage heart failure in general practice, given the modern advances that we are all unsure about?" (28).* Indeed, most GPs were not fully aware of possible treatment options (28;29;31-33;40). Some GPs were happy to keep patients taking diuretics alone, possibly unaware of potential benefits of ACE-I and beta-blockers (28;29;32;33;40). Other reasons for not prescribing ACE-I or beta-blockers in newly diagnosed HF patients, were: concerns about possible side effects (28;29;31;33;35); worries

about starting treatment in primary care as opposed to in hospital, partly because of previous teaching and a fear that patients might collapse in the community setting (28;31;33); and the burden of monitoring when titrating the medications (28;29;31). Even when ACE-I were initiated, general practitioners were cautious in using high doses (28;29;33).

> *"The danger of impaired renal function with high doses of not only the diuretics but the ACE inhibitors as well juggling doses of ACE inhibitors against diuretics, up and down, checking potassium. I do find some of those conflicts difficult to resolve." (31)*

Not all GPs shared these views (28;29;32;33), offering comments such as: *"The evidence for their [ACE-I] use is very good, and if there is a side effect then I will look for an alternative" (33)*; and *"Getting them on an ACE inhibitor and beta-blockers are fairly simple things to do" (32).*

Most GPs had little knowledge of the place of agents other than diuretics, ACE-I and beta-blockers (28;31;32). And some GPs still treated HF as an acute illness (32;38).

> *"I think one thing that may be lost here, and this may be part of the overall management: you make them better by treating the acute symptoms but maybe there's something lost there that you don't go on to manage the heart failure itself ... because you make them better, you think you've done what you need to do, but maybe you should be looking at, you know: is this person on an ACE, and if not, should you be starting one?" (32)*

Subtheme 1.5: Advance care planning is not (timely) initiated

The majority of GPs acknowledged that the stage of advanced illness was too late to initiate advance care planning (ACP), but, in practice, end-of-life care issues were generally raised when the patient's condition was obviously declining after numerous acute hospital admissions (35;40). The timing of ACP was experienced as difficult by many GPs, because:

unlike cancer, the diagnosis of HF does not start with bad news; the path of CHF is unpredictable without clear key moments; and less attention is paid to ACP in chronic diseases (31;34;35;40-42).

> *"... [T]he prognosis is so variable with mild heart failure, and often, the people are very old anyway and something else is going to get them first, and you know, you just address it on a pragmatic level rather than spelling out exactly what the course is likely to be." (34)*

Theme 2: Interdisciplinary collaboration

Subtheme 2.1: Limited access to specialized care with long waiting lists for referral

Waiting lists and the poor local availability of specialized care, such as cardiology services, open access echocardiography, HF clinics and HF nursing teams, had a negative influence on GPs' decisions to refer suspected HF patients (28;29;31-33;36). These barriers to service utilization were allocated to the organization of healthcare systems, varying from country to country.

> *"... the mammoth wait makes using this service [HF clinic] impractical" (31)*

Subtheme 2.2: GPs' attitudes towards multidisciplinary collaboration

Some GPs feared that the organization of care, with an emphasis on specialist HF services and task delegation, might lead to deskilling GPs (31). A few practitioners already perceived that other healthcare providers did not fully trust their clinical competence (29;36). A particular concern among GPs was the fear of losing patients to specialists (39;41): "… *there are some specialties where the specialist basically takes over the care of the patient, and the patient disappears" (39).*

The feeling predominated that specialist assistance led to fragmented care instead of integrated care, and that the involvement of multiple specialists, each with a narrow clinical focus, might paradoxically further complicate the management of HF patients (22;32).

> *"So we really do sometimes need a person who specializes in one or another field to try to build things on, because sometimes a patient is going [to a specialist] and a cardiologist will take over initially. Then he [cardiologist] passes on to the diabetologist. Then he passes on to the renal specialist. So sometimes one [specialist] fixes one thing and gets them [residents] stabilized, then passes on to the next." (32)*

GPs also regretted the variability in clear reports and inter-professional communication (28;32;39). These experiences influenced referral and effective collaboration.

On the other hand, many GPs also had positive experiences in working with other healthcare providers. In these situations the attitude of GPs and other professionals influenced inter-professional collaboration positively (32;39;43).

> *"Yeah, he [specialist] called this morning, I called him on my cell phone and he called back by lunch." (32)*

> *"I trust the PSWs [personal support workers] more than anybody, more than the nurses, more than myself, because they see them [residents of care homes] all the time; they are the ones doing care." (32)*

Theme 3: Ideas for improvement

Subtheme 3.1: Need for education and locally drawn up guidelines

The majority of GPs acknowledged the need for education for GPs to overcome their uncertainty about clinical practice (31;34;38).

"If primary care physicians were taught and educated and encouraged to seek these things out (signs of fluid retention) we may be able to do a better job at avoiding hospital visit with frank failure." (38)

"I think I need to understand more about the natural history and the prognosis so that I can inform patients more clearly about what they can expect, and I probably need a bit of practice and support in finding the right words to use." (34)

Some GPs suggested the development of locally drawn up guidelines to ensure a locality based, contextualized approach to overcome local organizational factors around the provision of specialized services and professional interactions between primary and secondary care (28).

Subtheme 3.2: Promoting a holistic and chronic care approach

Some GPs emphasized the active role that community-based healthcare providers, including GPs, nurses and community pharmacists, should play in HF care. The paradigm shift from episodic diabetes treatment and management to a chronic care approach was alluded to as an example for HF (38). The need for more specialist HF nurses was expressed, particularly as a means of supporting the primary healthcare team through collaborative working (43).

"I really think that the cardiologist have to press upon the primary care physicians saying "Listen you can prevent emergency room visits in heart failure […] by just taking a little extra time to check over your patients. Just like we do for Diabetes […] the heart failure patient should have dedicated visit specifically for heart failure." (38)

"Having maybe specialist nurses in the management of heart failure who would do house calls and help monitor these patients would help us." (43)

Discussion

This evidence synthesis highlights GPs' uncertainty about managing CHF patients in general practice. The non-discriminating symptoms and signs, and the difficulties associated with elderly patients and comorbidities, made HF difficult to diagnose. GPs were unfamiliar with the natural history of CHF, lacked expertise to diagnose and manage CHF, and were not fully aware of relevant research evidence and guidelines. The need for education is expressed by GPs, as well as the importance of a holistic and chronic care approach.

Variable access to diagnostic services and specialized care shaped practice and decision-making processes among GPs. They expressed their concerns about interdisciplinary collaboration with the fear of getting deskilled and losing patients to specialists, and admitted that interdisciplinary collaboration was influenced by previous positive or negative experiences. The idea of locally drawn up guidelines came up to overcome these obstacles.

This qualitative evidence synthesis is the first to collect and review the existing qualitative research about GPs' perceptions of managing CHF in primary care. Knowledge in this area is recent: all of the included articles were published after 2001, with a majority of studies published after 2011 (13/18). The synthesis of qualitative research is an expanding and evolving methodological area. ENTREQ statement recommendations were followed in order to enhance maximum transparency in reporting the synthesis (15).

However, a few limitations of the present study should be noted. First, devising a search strategy was challenging. Initially, methodological filters were tested, but found unhelpful as the Medical Subject Heading (MeSH) 'Qualitative Research' was only introduced in 2003, and even after 2003 papers were not identified appropriately as qualitative (44). Therefore, the search was expanded and backward and forward citation searching was done, to be as inclusive as possible (Appendix 1).

Second, quality assessment of qualitative research is contentious. An approach was chosen to exclude low quality studies to avoid unreliable conclusions. A potential risk of this approach is losing valuable insights from the excluded studies, however the Cochrane Qualitative Research Methods Group recommends this method emphasizing methodological soundness of studies (18).

Third, the results of this synthesis are based largely on studies undertaken in the UK (9 articles) and Canada (4 articles), which may impact the transferability of findings. Additionally, since 2001, HF research, guidelines and resources have evolved. Consequently, some of the findings in older studies may not reflect the current situation. Therefore, context of the included studies was provided to enable readers to judge for themselves whether or not the context of the included studies is similar to their own.

The main challenges identified in this synthesis, is how to deal with GPs' uncertainty about clinical practice, and how to work together as a multiprofessional team to provide good-quality coordinated care. Identified obstacles were organized in HF specific factors, patient factors, physician factors and contextual factors. The majority of influenceable factors are contextual and physician related: these factors could be seen as possible targets for implementation strategies to improve HF management.

First, uncertainty about clinical practice starts with uncertainty about HF diagnosis. Echocardiography is needed to objectify the diagnosis of HF, however GPs experienced several barriers to refer patients for echocardiography such as a lack of availability of echocardiography. Indeed, in most European countries, echocardiography was not available to more than half of the primary care physicians within 1 month, or not available at all (9). In response, efforts have been made in the last decade to improve access to echocardiography services, among others in the UK by introducing open access echocardiography (31).

However, recent qualitative studies showed that open access echocardiography not always covered the need because many GPs still preferred to refer the patient to a cardiologist or specialist HF clinic because of a lack of confidence in interpreting test results (28;31). Additionally, guidelines advocate the use of natriuretic peptides as a rule-out test to limit the number of cases needing echocardiography (1;5). However, surprisingly, in our synthesis not one GP commented on his or her experiences with the use of this biomarker. Hancock et al did cover this subject in their survey showing that 20-30% of GPs used natriuretic peptides in the diagnosis of HF and the same proportion would use it if they had access to it (31). It would be interesting to investigate the GPs' experience with the use of natriuretic peptides for the diagnosis and management of HF in daily practice.

Second, it was remarkable that many GPs expressed the need for education to overcome this uncertainty, despite widespread availability of evidence-based HF guidelines. Indeed, published research evidence does not automatically diffuse into clinical practice (45). Based on the barriers to guidelines usage identified in this synthesis, there is no need for additional guidelines as GPs already felt 'overloaded with information' (28;31). Some GPs did express the need to translate existing HF guidelines to the local situation, with input from primary and secondary care professionals (28). Another way to improve translation of guidelines into practice could be the implementation of a clinical decision support system (CDSS). Previous research suggested that guidelines combined with expert advice via a CDSS represent a way of providing tailored management and increases GPs' confidence in diagnosis and management of CHF (46-48). However, there were also barriers identified to the CDSS implementation: lower computer literacy among GPs, a lack of complexity within CDSS in addressing non-medical needs of patients and a reluctance among medical staff to consult guidelines during patient consultations (47). Implementation of a CDSS with focus on a more holistic approach to patient care, combined with strategies for improving computer skills,

could be an interesting solution to enhance GPs' knowledge and confidence in managing HF patients.

Third, a multidisciplinary approach to HF management is promoted by research results and HF guidelines (1;49;50). GPs agreed with the need of a multidisciplinary chronic care approach for HF, however they acknowledged difficulties in interdisciplinary collaboration and communication. GPs expressed the fear of losing their central role and getting deskilled, and were concerned that specialist assistance led to fragmented care instead of integrated care (22;31;32;39;41). On the other hand, ease of access and former positive experiences, influenced collaboration positively (32;39;43). This is in line with previous studies that also emphasized the importance of contextual tensions and inter-professional relationships that can have both positive and negative influences on effective collaboration (39;51). When establishing new initiatives for HF improvement programs, these tensions and relationships should be taken into account since a positive attitude towards multidisciplinary collaboration is a prerequisite to succeed.

In conclusion, this evidence synthesis highlighted GPs' uncertainty in all areas of HF management starting with diagnostic uncertainty. Lack of access to specialized care and lack of knowledge were identified as important contributors to this uncertainty. To overcome this uncertainty, GPs expressed a need for education despite the availability of guidelines. Locally drawn up guidelines or CDSS could be possible solutions to meet their needs. Additionally, mixed experiences are noted with inter-professional collaboration. When establishing new initiatives for HF improvement programs the barriers and facilitators found in this evidence synthesis, should be taken into account.

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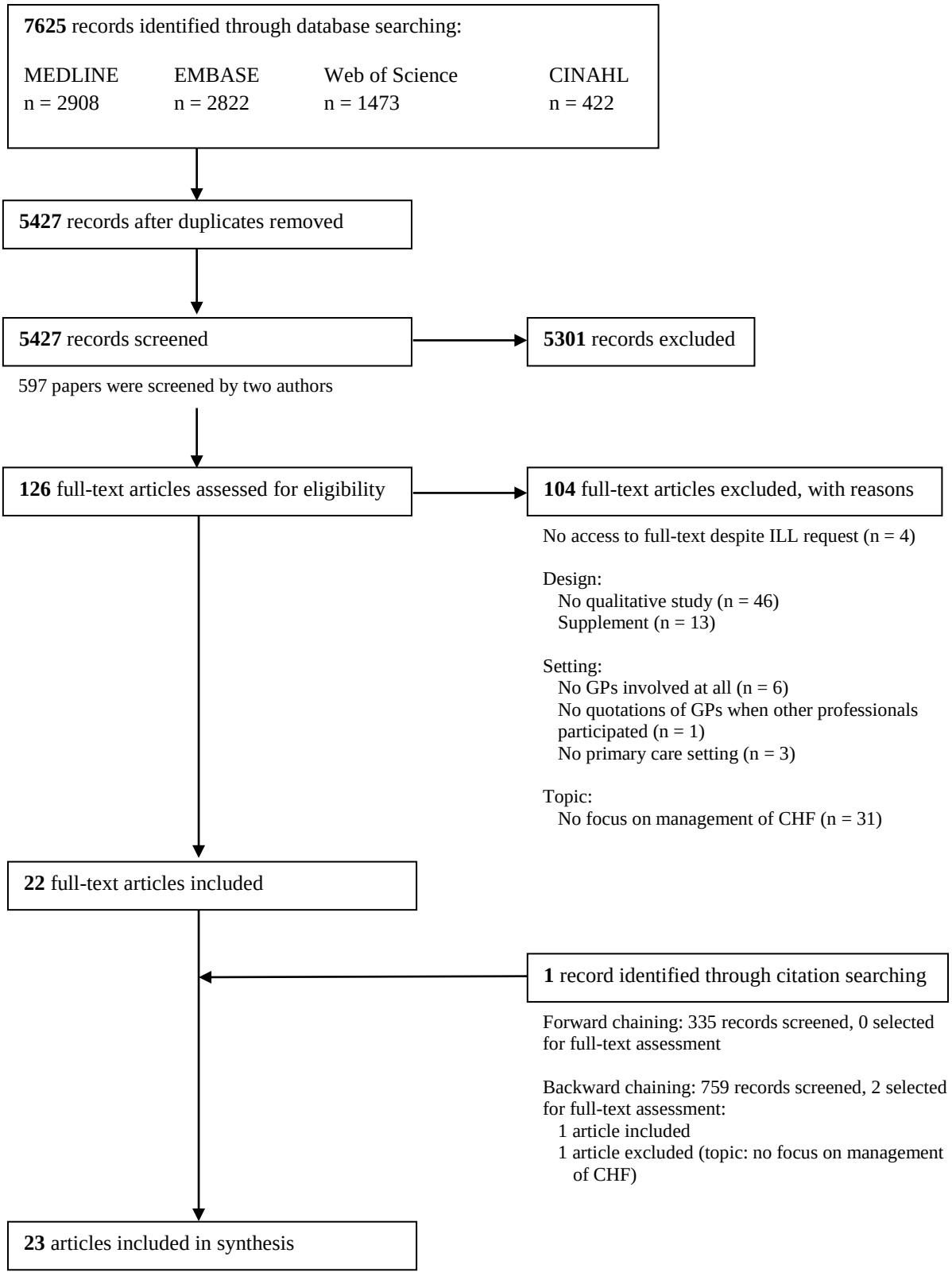
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Figure 1. PRISMA flow diagram of study selection



ILL: interlibrary loan; CHF: chronic heart failure

Table 1. Critical appraisal using the CASP checklist for qualitative research

Study	**CASP questions** x = yes / = no ? = can't tell										**Quality rating** H = high M = moderate L = low	**Comments**
	1	**2**	**3**	**4**	**5***	**6**	**7**	**8***	**9***	**10**		
De Vleminck et al (40)	x	x	x	x	x	?	x	x	x	x	H	
Fuat et al (28)	x	x	x	x	x	x	/	x	x	x	H	
Kasje et al (23)	x	x	/	/	/	/	/	x	/	x	L	Exclusion
Khunti et al (29)	x	x	x	x	x	x	x	x	x	x	H	
Peters-Klimm et al (24)	x	x	x	x	/	/	/	x	/	/	L	Exclusion
Phillips et al (33)	x	x	x	x	x	/	x	/	x	x	M	
Waterworth et al (43)	x	x	x	x	x	/	x	x	/	x	M	
Ahmedov et al (30)	x	x	x	x	x	x	x	x	x	x	H	
Barnes et al (34)	x	x	x	x	x	/	x	x	x	x	H	
Boyd et al (25)	x	x	x	x	/	/	x	/	/	/	L	Exclusion
Browne et al (52)	x	x	x	x	x	?	x	x	x	x	H	
Close et al (37)	x	x	x	x	x	/	x	x	x	x	H	
Glogowska et al (35)	x	x	x	x	x	x	x	x	x	x	H	
Hancock et al (31)	x	x	x	x	x	x	x	x	x	x	H	
Hanratty et al (41)	x	x	x	x	x	x	/	x	x	x	H	
Hayes et al (38)	x	x	x	x	x	x	x	x	x	x	H	
Heckman et al (32)	x	x	x	x	x	x	x	x	x	x	H	
Kavalieratos et al (42)	x	x	x	x	x	/	x	x	x	x	H	
MacKenzie et al (26)	x	x	/	/	/	/	/	/	/	x	L	Exclusion
Newhouse et al (22)	x	x	x	x	/	?	x	x	x	x	M	
Simmonds et al (36)	x	x	x	x	x	x	x	x	x	x	H	
Tait et al (39)	x	x	x	x	x	x	x	x	x	x	H	
Toal et al (27)	x	x	x	x	/	/	/	/	/	x	L	Exclusion

*Questions that were given more weight by the reviewers: No. 5 'Was the data collected in a way that addressed the research issue?'; No. 8 'Was the data analysis sufficiently rigorous?'; and No. 9 'Is there a clear statement of findings?'

Table 2. Thematic matrix: GPs' perceptions of managing chronic heart failure in primary care

USE OF GUIDELINES	Heart failure specific factors	Patient factors	Physician factors	Contextual factors
Barriers			• Overload of information • Not useful in patients with comorbidities and polypharmacy • Influence of dated medical training	• Not applicable to the local situation
Facilitators			• Motivated by a sense of duty towards patients • Feeling more confident when using guidelines	
Ideas for improvement			• Education of GPs	• Need for locally drawn up guidelines
DIAGNOSIS	**Heart failure specific factors**	**Patient factors**	**Physician factors**	**Contextual factors**
Barriers	• Non discriminating HF symptoms and signs	• Difficulties in older patients with comorbidities • Patient's reluctance to be referred	• Lack of confidence in diagnosing HF and interpreting test results • Doubts about value of diagnostic tests • Unawareness of the importance of HF classification (HF-REF, HF-PEF) • Inertia or fear of initiating an intensive course of action	• Lack of availability of diagnostic tests • Long waiting lists for echocardio-graphy • Time constraints • No imaging modalities in LTC homes
Facilitators		• Younger patients		• Rapid access to echocardiography by direct referral to consultants
Ideas for improvement			• Education of GPs	• Improving access to diagnostic tests and services • Access to portable imaging devices in LTC homes
COMMUNICATION WITH PATIENTS	**Heart failure specific factors**	**Patient factors**	**Physician factors**	**Contextual factors**
Barriers	• Uncertainty about diagnosis • The gradual drift to diagnosis • Anxiety-laden terminology	• Patient's lack of understanding HF	• The challenge of balancing prognostic information	• Involvement of different parties, disrupting the flow of communication
Facilitators				
Ideas for improvement			• Education of GPs	
TREATMENT	**Heart failure specific factors**	**Patient factors**	**Physician factors**	**Contextual factors**
Barriers	• Uncertainty about diagnosis	• Difficulties associated with	• Lack of confidence in managing HF	• Time constraints

	• No effective treatment for HF-PEF	comorbidities and polypharmacy • Reluctance in treatment of older patients • Immobility	in general practice • Unawareness of the place of other agents than ACE-I and beta-blockers • Unawareness of indications for electrical therapy • Still treating HF as an acute illness *Use of ACE-I and beta-blockers* • Fear of side effects • Fear of initiating drugs outside the hospital • Burden of monitoring • Unawareness of potential benefits of ACE-I and beta-blockers *Use of optimal doses of ACE-I* • Fear of side effects • Reluctance to increase dosage if patients were asymptomatic or stable • Lack of knowledge of target dose	• Cost of treatment
Facilitators		• Younger patients • A connection between patient and physician that transcended the professional relationship	• A good understanding of treatment options	• Possibility of home visits for frail and immobile patients
Ideas for improvement			• Promoting a holistic and chronic care approach • Education of GPs	
ADVANCE CARE PLANNING	Heart failure specific factors	Patient factors	Physician factors	Contextual factors
Barriers	• Lack of key moments • Unpredictable disease progression	• Patient's belief that heart disease can be fixed	• Lack of familiarity with the terminal phases of HF • Fear of giving bad news too soon • Lack of attention for ACP in chronic diseases • Lack of knowledge of palliative care and its functional organization	• Unequal access to palliative care compared with cancer
Facilitators			• Recognizing the importance of timely initiating ACP	• Availability of hospice care for HF patients • End-of-life care pathways for HF patients
Ideas for improvement			• Education of GPs	

INTERDISCIPLINARY COLLABORATION	Heart failure specific factors	Patient factors	Physician factors	Contextual factors
Barriers			• Fear of getting deskilled because of task delegation • Perception that others do not trust GPs' clinical competence • Fear of losing patients to specialists • Specialist assistance leads to fragmented care instead of integrated care • Lack of clear reports and interdisciplinary communication • Negative attitude towards collaboration with nurses	• Limited access to specialized care with long waiting lists for referral *Specific context of care homes* • Concerns about staffing, continuity of care, and variable quality of nurses • Lack of trust in other health professionals' competences • Perception of hierarchical boundaries, compromising communication • Lack of role clarity – *"it's somebody else's responsibility"* • Lack of specialist availability in LTC homes
Facilitators			• Close relationship with specialists and mutual respect • Positive previous experiences with specialist HF nurses • Motivation to invest (time) in practice organization with a positive attitude towards collaboration with nurses • Accepting the valuable input of nurses who have more time to spend with patients	*Specific context of care homes* • Stable staffing in LTC homes • Close observation and monitoring of LTC residents by nurses and personal support workers • Role of GP: to assume greater leadership and responsibility
Ideas for improvement				• Improved access to HF clinics and HF nursing teams • Need for locally drawn up guidelines *Specific context of care homes* • Empowerment of LTC staff • Need for a greater leadership role of GPs

HF: heart failure; HF-REF: heart failure with reduced ejection fraction; HF-PEF: heart failure with preserved ejection fraction; ACE-I: angiotensin-converting enzyme inhibitors; ACP: advance care planning; LTC: long-term care

derived from data of study/studies performed in UK; derived from data of study/studies performed in Australia; derived from data of study/studies performed in Canada; derived from data of study/studies performed in Uzbekistan

Appendix 1. Search strategy

Search strategy used for MEDLINE

"Heart Failure"[Mesh:NoExp] OR heart fail*[tiab] OR cardiac fail*[tiab] OR myocardial fail*[tiab] OR heart decompensation[tiab] OR cardiac decompensation[tiab] OR myocardial decompensation[tiab] OR heart insufficiency[tiab] OR cardiac insufficiency[tiab] OR myocardial insufficiency[tiab] OR "Heart Failure, Diastolic"[Mesh] OR "Heart Failure, Systolic"[Mesh] OR diastolic dysfunction[tiab] OR heart ventricle fail*[tiab] OR systolic dysfunction[tiab]

AND

general practices OR gp[tiab] OR gp's[tiab] OR gps[tiab] OR family practices OR general practitioner OR family physician OR primary care physician OR general physician*[tiab] OR family doctor*[tiab] OR "Primary Health Care"[Mesh:NoExp] OR primary health care[tiab] OR primary healthcare[tiab] OR primary care[tiab] OR generalist[tiab] OR generalists[tiab] OR primary medical care[tiab] OR general medical practice[tiab]

AND

"Qualitative Research"[Mesh:NoExp] OR qualitative research[tiab] OR qualitative stud*[tiab] OR focus group OR interview OR interviews[tiab] OR questionnaire OR attitude of health personnel OR physician attitude[tiab] OR physician's attitude[tiab] OR physicians attitude[tiab] OR perception OR perceptions[tiab] OR quality improvement OR needs assessment OR health surveys OR health care surveys OR quality of health care OR clinical competence OR decision making OR guideline adherence OR physician's practice patterns OR perspective[tiab] OR perspectives[tiab] OR barrier[tiab] OR barriers[tiab] OR facilitator[tiab] OR facilitators[tiab] OR facilitating factor*[tiab] OR experience[tiab] OR experiences[tiab] OR survey[tiab] OR surveys[tiab] OR view[tiab] OR views[tiab] OR expectation[tiab] OR expectations[tiab] OR needs[tiab] OR beliefs[tiab] OR obstacle[tiab] OR obstacles[tiab] OR nominal group technique[tiab] OR quality of healthcare[tiab] OR healthcare quality[tiab]

Search strategy used for EMBASE

'heart failure'/de OR 'congestive heart failure'/exp OR 'diastolic dysfunction'/exp OR 'forward heart failure'/exp OR 'heart ventricle failure'/exp OR 'high output heart failure'/exp OR 'systolic dysfunction'/exp OR (heart NEXT/1 fail*):ab,ti OR (cardiac NEXT/1 fail*):ab,ti OR (myocardial NEXT/1 fail*):ab,ti OR (decompensation NEAR/3 heart):ab,ti OR ‘cardiac decompensation’:ab,ti OR ‘myocardial decompensation’:ab,ti OR (insufficiency NEAR/3 heart):ab,ti OR ‘cardiac insufficiency’:ab,ti OR ‘myocardial insufficiency’:ab,ti OR ‘diastolic dysfunction’:ab,ti OR (‘heart ventricle’ NEXT/1 fail*):ab,ti OR ‘systolic dysfunction’:ab,ti

AND

'general practice'/exp OR (general NEXT/1 practice*):ab,ti OR gp:ab,ti OR gps:ab,ti OR (family NEXT/1 practice*):ab,ti OR 'general practitioner'/exp OR (general NEXT/1 practitioner*):ab,ti OR (family NEXT/1 physician*):ab,ti OR ('primary care' NEXT/1 physician*):ab,ti OR (general NEXT/1 physician*):ab,ti OR (family NEXT/1 doctor*):ab,ti OR 'primary health care'/exp OR 'primary health care':ab,ti OR 'primary healthcare':ab,ti OR 'primary care':ab,ti OR 'primary medical care':ab,ti OR 'general medical practice':ab,ti OR generalist:ab,ti OR generalists:ab,ti

AND

'qualitative research'/exp OR 'qualitative research':ab,ti OR (qualitative NEXT/1 stud*):ab,ti OR (focus NEXT/1 group*):ab,ti OR 'interview'/exp OR interview:ab,ti OR interviews:ab,ti OR 'questionnaire'/exp OR questionnaire*:ab,ti OR 'health personnel attitude'/de OR 'physician attitude'/exp OR 'health personnel attitude':ab,ti OR 'attitude of health personnel':ab,ti OR 'health care personnel attitude':ab,ti OR 'attitude of health care personnel':ab,ti OR 'healthcare personnel attitude':ab,ti OR 'attitude of healthcare personnel':ab,ti OR (attitude NEAR/2 physician*):ab,ti OR 'perception'/de OR perception:ab,ti OR perceptions:ab,ti OR (quality NEAR/2 improvement):ab,ti OR 'needs assessment'/exp OR 'needs assessment':ab,ti OR 'health survey'/de OR 'health care survey'/exp OR survey:ab,ti OR surveys:ab,ti OR 'health care quality'/de OR ('health care' NEAR/2 quality):ab,ti OR (healthcare NEAR/2 quality):ab,ti OR 'clinical competence'/exp OR 'clinical competence':ab,ti OR 'medical decision making'/exp OR 'decision making':ab,ti OR 'guideline adherence':ab,ti OR (physician* NEXT/1 'practice patterns'):ab,ti OR perspective:ab,ti OR perspectives:ab,ti OR barrier:ab,ti OR barriers:ab,ti OR facilitator:ab,ti OR facilitators:ab,ti OR (facilitating NEXT/1 factor*):ab,ti OR 'experience'/exp OR 'personal experience'/exp OR experience:ab,ti OR experiences:ab,ti OR view:ab,ti OR views:ab,ti OR 'expectation'/exp OR expectation:ab,ti OR expectations:ab,ti OR 'personal needs'/exp OR needs:ab,ti OR beliefs:ab,ti OR obstacle:ab,ti OR obstacles:ab,ti OR 'nominal group technique':ab,ti

Search strategy used for WEB OF SCIENCE

TOPIC: ("heart fail*") *OR* **TOPIC:** ("cardiac fail*") *OR* **TOPIC: (**"myocardial fail*") *OR* **TOPIC:** (decompensation NEAR/3 heart) *OR* **TOPIC:** ("cardiac decompensation") *OR* **TOPIC:** ("myocardial decompensaton") *OR* **TOPIC:** (insufficiency NEAR/3 heart) *OR* **TOPIC:** ("cardiac insufficiency") *OR* **TOPIC:** ("myocardial insufficiency") *OR* **TOPIC:** ("diastolic dysfunction") *OR* **TOPIC:** ("heart ventricle fail*") *OR* **TOPIC:** ("systolic dysfunction")
DocType=All document types; Language=All languages;

AND

TOPIC: ("general practice*") *OR* **TOPIC:** (gp) *OR* **TOPIC:** (gp's) *OR* **TOPIC:** (gps) *OR* **TOPIC:** ("family practice*") *OR* **TOPIC:** ("general practitioner*") *OR* **TOPIC:** ("family physician*") *OR* **TOPIC:** ("primary care physician*") *OR* **TOPIC:** ("general physician*") *OR* **TOPIC:** ("family doctor*") *OR* **TOPIC:** ("primary health

care") *OR* **TOPIC:** ("primary healthcare") *OR* **TOPIC:** ("primary care") *OR* **TOPIC:** (generalist) *OR* **TOPIC:** (generalists) *OR* **TOPIC:** ("primary medical care") *OR* **TOPIC: (**"general medical practice")

DocType=All document types; Language=All languages;

AND

TOPIC: ("qualitative research") *OR* **TOPIC:** ("qualitative stud*") *OR* **TOPIC:** ("focus group*") *OR* **TOPIC:** (interview) *OR* **TOPIC:** (interviews) *OR* **TOPIC:** (questionnaire*) *OR* **TOPIC:** ("health personnel attitude") *OR* **TOPIC:** ("attitude of health personnel") *OR* **TOPIC:** ("health care personnel attitude") *OR* **TOPIC:** ("attitude of health care personnel") *OR* **TOPIC:** ("healthcare personnel attitude") *OR* **TOPIC:** ("attitude of healthcare personnel") *OR* **TOPIC:** (attitude NEAR/2 physician*) *OR* **TOPIC:** ("physician* attitudes") *OR* **TOPIC:** (perception) *OR* **TOPIC:** (perceptions) *OR* **TOPIC:** (quality NEAR/2 improvement) *OR* **TOPIC:** (needs) *OR* **TOPIC:** (survey) *OR* **TOPIC:** (surveys) *OR* **TOPIC:** ("health care" NEAR/2 quality) *OR* **TOPIC:** ("heathcare" NEAR/2 quality) *OR* **TOPIC:** ("clinical competence") *OR* **TOPIC:** ("decision making") *OR* **TOPIC:** ("guideline adherence") *OR* **TOPIC:** ("practice patterns") *OR* **TOPIC:** (perspective) *OR* **TOPIC:** (perspectives) *OR* **TOPIC:** (barrier) *OR* **TOPIC:** (barriers) *OR* **TOPIC:** (facilitator) *OR* **TOPIC:** (facilitators) *OR* **TOPIC:** ("facilitating factor*") *OR* **TOPIC:** (experience) *OR* **TOPIC:** (experiences) *OR* **TOPIC:** (view) *OR* **TOPIC:** (views) *OR* **TOPIC:** (expectation) *OR* **TOPIC:** (expectations) *OR* **TOPIC:** (beliefs) *OR* **TOPIC:** (obstacle) *OR* **TOPIC:** (obstacles) *OR* **TOPIC:** ("nominal group technique")

DocType=All document types; Language=All languages;

Search strategy used for CINAHL

(MH "Heart Failure") OR (MH "Ventricular Dysfunction+") OR (TI "heart fail*") OR (AB "heart fail*") OR (TI "cardiac fail*") OR (AB "cardiac fail*") OR (TI "myocardial fail*") OR (AB "myocardial fail*") OR (TI "heart decompensation") OR (AB "heart decompensation") OR (TI "cardiac decompensation") OR (AB "cardiac decompensation") OR (TI "myocardial decompensation") OR (AB "myocardial decompensation") OR (TI "heart insufficiency") OR (AB "heart insufficiency") OR (TI "cardiac insufficiency") OR (AB "cardiac insufficiency") OR (TI "myocardial insufficiency") OR (AB "myocardial insufficiency") OR (TI "diastolic dysfunction") OR (AB "diastolic dysfunction") OR (TI "heart ventricle fail*") OR (AB "heart ventricle fail*") OR (TI "systolic dysfunction") OR (AB "systolic dysfunction")

AND

(MH "Family Practice") OR (MH "Medical Practice") OR (MH "Physicians, Family") OR (MH "Primary Health Care") OR (TI "general practice*") OR (AB "general practice*") OR (TI gp) OR (AB gp) OR (TI gp's) OR (AB gp's) OR (TI gps) OR (AB gps) OR (TI "family practice*") OR (AB "family practice*") OR (TI "general

practitioner*") OR (AB "general practitioner*") OR (TI "family physician*") OR (AB "family physician*") OR (TI "primary care physician*") OR (AB "primary care physician*") OR (TI "general physician*") OR (AB "general physician*") OR (TI "family doctor*") OR (AB "family doctor*") OR (TI "primary health care") OR (AB "primary health care") OR (TI "primary healthcare") OR (AB "primary healthcare") OR (TI "primary care") OR (AB "primary care") OR (TI "primary medical care") OR (AB "primary medical care") OR (TI "general medical practice") OR (AB "general medical practice") OR (TI generalist) OR (AB generalist) OR (TI generalists) OR (AB generalists)

AND

(MH "Qualitative Studies+") OR (MH "Focus Groups") OR (MH "Interviews+") OR (MH "Questionnaires+") OR (MH "Attitude of Health Personnel") OR (MH "Physician Attitudes") OR (MH "Needs Assessment") OR (MH "Perception") OR (MH "Quality Improvement") OR (MH "Surveys") OR (MH "Quality of Health Care+") OR (MH "Professional Competence") OR (MH "Clinical Competence") OR (MH "Decision Making+") OR (MH "Practice Patterns") OR (MH "Job Experience") OR (MH "Work Experiences") OR (TI "qualitative research") OR (AB "qualitative research") OR (TI "qualitative stud*") OR (AB "qualitative stud*") OR (TI "focus group*") OR (AB "focus group*") OR (TI interview) OR (AB interview) OR (TI interviews) OR (AB interviews) OR (TI questionnaire*) OR (AB questionnaire*) OR (TI "health personnel attitude") OR (AB "health personnel attitude") OR (TI "attitude of health personnel") OR (AB "attitude of health personnel") OR (TI "health care personnel attitude") OR (AB "health care personnel attitude") OR (TI "attitude of health care personnel") OR (AB "attitude of health care personnel") OR (TI "healthcare personnel attitude") OR (AB "healthcare personnel attitude") OR (TI "attitude of healthcare personnel") OR (AB "attitude of healthcare personnel") OR (TI "physician* attitude*") OR (AB "physician* attitude*") OR (TI perception) OR (AB perception) OR (TI perceptions) OR (AB perceptions) OR (TI "quality improvement") OR (AB "quality improvement") OR (TI "needs assessment") OR (AB "needs assessment") OR (TI survey) OR (AB survey) OR (TI surveys) OR (AB surveys) OR (TI "quality of health care") OR (AB "quality of health care") OR (TI "quality of healthcare") OR (AB "quality of healthcare") OR (TI "clinical competence") OR (AB "clinical competence") OR (TI "decision making") OR (AB "decision making") OR (TI "guideline adherence") OR (AB "guideline adherence") OR (TI "practice patterns") OR (AB "practice patterns") OR (TI perspective) OR (AB perspective) OR (TI perspectives) OR (AB perspectives) OR (TI barrier) OR (AB barrier) OR (TI barriers) OR (AB barriers) OR (TI facilitator) OR (AB facilitator) OR (TI facilitators) OR (AB facilitators) OR (TI "facilitating factor*") OR (AB "facilitating factor*") OR (TI experience) OR (AB experience) OR (TI experiences) OR (AB experiences) OR (TI view) OR (AB view) OR (TI views) OR (AB views) OR (TI expectation) OR (AB expectation) OR (TI expectations) OR (AB expectations) OR (TI needs) OR (AB needs) OR (TI beliefs) OR (AB beliefs) OR (TI obstacle) OR (AB obstacle) OR (TI obstacles) OR (AB obstacles) OR (TI "nominal group technique") OR (AB "nominal group technique")

Appendix 2. CASP qualitative research checklist 2013

Questions	Yes	Can't tell	No
1. Was there a clear statement of the aims of the research?			
2. Is a qualitative methodology appropriate?			
3. Was the research design appropriate to address the aims of the research?			
4. Was the recruitment strategy appropriate to the aims of the research?			
5. Was the data collected in a way that addressed the research issue?			
6. Has the relationship between researcher and participants been adequately considered?			
7. Have ethical issues been taken into consideration?			
8. Was the data analysis sufficiently rigorous?			
9. Is there a clear statement of findings?			
10. How valuable is the research?			

Appendix 3. Characteristics of the included qualitative studies

Table A. Studies with ONLY GPs as participants

Source	Country	Aim of study	Setting	Study participants	Data collection	Theoretic framework and data analysis
De Vleminck et al, 2014[a] (40) Barriers to advance care planning in cancer, heart failure and dementia patients: a focus group study on general practitioners' views and experiences	Belgium (Flanders)	To identify the barriers, from GPs' perspective, to initiating advance care planning and to gain insight into any differences in barriers between the trajectories of patients with cancer, HF and dementia	FG 1: 9 GPs from a group practice in an urban region FG 2-4: 20 GPs from both single-handed and group practices recruited via local peer-review groups (rural and semirural regions) FG 5: 2 GPs active in palliative home care teams, and 5 GPs recruited through professional contacts of the palliative care coordinators (rural and semirural regions)	36 GPs	5 focus groups	Constant comparative method
Fuat et al, 2003 (28) Barriers to accurate diagnosis and effective management of heart failure in primary care: qualitative study	UK (England)	To ascertain the beliefs, current practices, and decision making of GPs in the diagnosis and management of suspected HF in primary care, with a view to identifying barriers to good care	GPs from both single-handed and group practices in north east England, 20 GPs had open access echocardiography	30 GPs	4 focus groups	'Pragmatic variant' grounded theory
Khunti et al, 2002 (29) Heart failure in primary care: qualitative study of current management and perceived obstacles to evidence-based diagnosis and management by general practitioners	UK	To explore GPs views on management of patients with HF and the obstacles to their diagnosis and management	GPs from 18 practices in Leicestershire Health Authority, 2 practices delivered care to mainly South Asian patients	38 GPs	Semi-structured interviews	Constant comparative method
Phillips et al, 2004 (33) Barriers to diagnosing and managing heart failure in primary care	Australia	To elicit GPs' perceptions of the difficulties associated with diagnosing and managing HF in the primary care setting,	GPs from 4 Divisions of General Practice in Victoria and South Australia (urban and rural regions), the	35 GPs	Telephone interviews and 3 focus groups	Common emerging themes were analyzed by cumulative process, in which responses from different sources become

[a] Only one study targeted different diseases: De Vleminck et al studied barriers to advance care planning in cancer, heart failure and dementia. The other 17 studies focused only on heart failure.

		and to identify barriers to the transfer of research findings to general practice	Divisions were selected for their above-average proportion of residents aged over 65 years Telephone interviews: 7 rural GPs FG 1-3: 28 urban GPs			reinforcing of a particular interpretation
Waterworth et al, 2012 (43) Involvement of the practice nurse in supporting older people with heart failure: GP perspectives	New Zealand	To explore the attitudes of GPs regarding the development of the practice nurse role to support the management of older people with HF from diagnosis through to the end of life	GPs from both single-handed and group practices in the Auckland region, which has the largest ethnically diverse population in New Zealand. 28 GPs were Follows of the Royal New Zealand College of GPs.	30 GPs	Semi-structured telephone interviews	Thematic analysis

GPs: general practitioners, HF: heart failure, FG: focus group

Table B. Studies with GPs AND OTHERS as participants

Source	Country	Aim of study	Setting	Study participants	Data collection	Theoretic framework and data analysis
Ahmedov et al, 2013 (30) Addressing the challenges of improving primary care quality in Uzbekistan: a qualitative study of chronic heart failure management	Uzbekistan	To explore current approaches to management of chronic HF, and to identify the challenges to providing 'good quality' care, from the perspectives of both physicians and patients	• Physicians from 3 poly-clinics in urban Tashkent and from 6 polyclinics in 2 rural districts	• 11 GPs 4 cardiologists	• In-depth interviews	Modified thematic content analysis
			• Patients with chronic HF were selected from polyclinic and primary care unit "dispensary" lists	• 30 patients	• In-depth interviews and focus groups	
Barnes et al, 2006 (34) Communication in heart failure: perspectives from older people and primary care professionals	UK (England)	To explore the attitudes of older people and primary care professionals towards communication of diagnosis, prognosis and symptoms in HF	• Purposive sampling of patients taking part in a larger quantitative survey aiming to explore the palliative care services for 542 HF patients, >60 years of age, and NYHA III or IV	• 44 patients	• Semi-structured interviews	Thematic analysis

			• Primary care professionals employed at the 16 GP practices from which patients had been recruited. Of these, 10 were teaching practices.	• 79 primary care professionals: · 39 GPs · 37 nurses · 2 health visitors · 1 nursing home matron	• 9 focus groups	
Browne et al, 2014 (52) Patient, carer and professional perspectives on barriers and facilitators to quality care in advanced heart failure	UK (Scotland)	To examine patient, carer, and professional perspectives on current management of advanced HF and barriers and facilitators to improved care	• Patients NYHA III or IV recruited via HF liaison service, primary care, a Heart Function and Supportive Care Clinic, and local hospital admission units; and their caregivers	• 30 patients 20 carers	• Semi-structured interviews	Framework analysis Normalization Process Theory (NPT) is used as the underpinning conceptual framework
			• FG 1-3: general practice FG 4-5: cardiology trainees FG 6: district nurses	• 65 health professionals: · 29 from general practice (GPs, practice nurses, district nurses and practice managers) · 1 accident and emergency consultant · 2 medicine for the elderly consultants · 1 cardiology consultant · 1 palliative care consultant · 14 cardiology trainees · 1 from ambulance service · 3 HF liaison nurses · 1 palliative nurse (HF interest) · 1 Marie Curie nurse · 9 district nurses · 1 palliative care pharmacist · 1 pharmacist (pharmacy HF service)	• Semi-structured interviews and 6 focus groups	
Close et al, 2013 (37) "It's somebody else's responsibility" – perceptions of general practitioners, heart	UK (England)	To examine the experiences of HF diagnosis and management from the perspectives of residents, care	Residents >65years with LVSD HF and staff from 33 residential and care homes in North East England, within 1	17 patients 5 GPs 8 care home staff 3 HF specialist nurses	In-depth interviews	Thematic analysis

failure nurses, care home staff, and residents towards heart failure diagnosis and management for older people in long-term care: a qualitative interview study		home staff and healthcare professionals	Primary Care Trust. Care homes were served by a total of 23 urban GP practices.			
Glogowska et al, 2015 (35) Managing patients with heart failure: a qualitative study of multidisciplinary teams with specialist heart failure nurses	UK	To explore the perceptions and experiences of health care clinicians working in multidisciplinary teams that include specialist HF nurses when caring for the management of HF patients	Clinicians from 3 geographical locations in the UK where patients with severe or difficult-to-manage HF were participating in a wider, multicenter ethnographic study of unplanned hospital admissions for HF (HoldFAST)	7 GPs 9 specialist HF nurses 3 cardiologists 1 geriatrician 1 hospital liaison psychiatrist 1 cardiac rehabilitation manager 1 cardiac rehabilitation practitioner 1 community matron	In-depth interviews	Constant comparative method
Hancock et al, 2014 (31) Barriers to accurate diagnosis and effective management of heart failure have not changed in the past 10 years: a qualitative study and national survey	UK (England)	To explore changes in healthcare professionals' views about the diagnosis and management of HF since a study in 2003[a]	• Professionals from health authority registers from the North East of England (affluent and deprived locations), including salaried and partner GPs, part and full time employment status, group and single-handed practices	• 56 professionals: · 39 GPs · 4 cardiologists · 6 general physicians · 7 HF nurses	• 8 focus groups	• Thematic analysis
			• Themes derived from the focus groups informed the development of a UK survey, sent by email to the complete sample of each of the 5 professional groups held by Binley's[b]	• 541 professionals: · 84 salaried GPs · 167 partner GPs · 103 cardiologists · 54 general physicians · 78 HF nurses · 8 others	• Online survey	• Statistical methods
Hanratty et al, 2002 (41) Doctors' perceptions of palliative care for heart failure: focus group study	UK (England)	To identify doctors' perceptions of the need for palliative care for HF and barriers to change	FG1: 5 GPs FG 2: 5 GPs (teaching and academic) FG 3: 5 cardiologists from	10 GPs 8 cardiologists 6 geriatricians 4 general medicine doctors 6 palliative care doctors	7 focus groups	Constant comparative method

[a] The previous study is Fuat et al, 2003 "Barriers to accurate diagnosis and effective management of heart failure in primary care: qualitative study": included in the list "Only GPs".
[b] Binley's hold healthcare and public sector data, mailing lists, directories and maps covering National Health Service and local government.

			district general hospitals FG 4: 3 cardiologists from tertiary referral center FG 5: 6 geriatricians FG 6: 4 general medicine doctors FG 7: 6 palliative care doctors			
Hayes et al, 2015 (38) A qualitative study of the current state of heart failure community care in Canada: what can we learn for the future?	Canada	To explore the current state of community-based HF care in Canada as experienced by various healthcare stakeholders providing or coordinating care to HF patients	Healthcare providers with at least 5 years of experience working with HF patients, and having a practice caseload of a minimum of 10% HF patients, (sub)urban setting, exclusion of practices within a tertiary care setting	5 GPs 8 cardiologists 8 nurses/nurse practitioners 4 hospital pharmacists 3 health care administrators/ directors	Semi-structured telephone interviews	Modified thematic analysis
Heckman et al, 2014 (32) Perspectives of primary-care providers on heart failure in long-term care homes	Canada	To describe the perspectives of primary care professionals on current practices and challenges associated with managing HF in residents of LTC homes, and to identify opportunities for improvement	Primary care professionals of residents from 3 LTC homes in southern and northern Ontario, Canada (university and non-university affiliated, public and private, for-profit and not-for-profit). None of these homes had a formal HF management program. FG 1: 3 GPs and 1 nurse FG 2: 9 GPs FG 3: 4 GPs and 1 nurse	16 GPs 2 nurses	3 focus groups	Thematic analysis
Kavalieratos et al, 2013 (42) "Not the 'grim reaper service'": an assessment of provider knowledge, attitudes, and perceptions regarding palliative care referral barriers in heart failure	US	To explore factors perceived by cardiology, primary care, and palliative care providers to impede palliative care referral for HF patients	Care providers from diverse practice settings (academic/non-academic, urban/rural) in North Carolina, who cared for ≥ 3 HF patients in the preceding 6 months.	Cardiology: · 4 physicians · 1 nurse practitioner · 1 physician assistant Primary care: · 4 physicians · 1 nurse practitioner · 1 physician assistant	Semi-structured interviews	Template analysis (combines content analysis and grounded theory)

				Palliative care: · 4 physicians · 1 nurse practitioner · 1 physician assistant		
Newhouse et al, 2012 (22) Barriers to the management of heart failure in Ontario long-term care homes: an interprofessional care perspective	Canada	To describe the barriers to the management of HF in LTC homes that exist among the various staff roles	• LTC healthcare providers equally sampled from each of the 14 Ontario Local Health Integration Networks	• First round: · 25 physicians · 22 nurses · 20 personal support workers (PSWs) Second round: · 15 physicians · 12 nurses · 15 PSWs	• Delphi surveys (after each section of survey questions, space was provided for comments: qualitative data)	Data were interpreted using an interprofessional care framework (53)
			• LTC healthcare providers from 4 LTC homes in southern and northern Ontario, Canada (university and non-university affiliated, public and private, for-profit and not-for-profit): · FG 1-3: PSWs · FG 4: registered practical nurses (RPNs) · FG 5-6: registered nurses (RNs) · FG 7: RPNs and RNs · FG 8: nurse practitioners (NPs) · FG 9: physicians · FG 10-11: physicians, pharmacist and NPs · FG 12: managers (directors)	• 24 PSWs > 8 RPNs > 11 RNs > 5 NPs > 7 physicians ? pharmacists 3 managers	• 12 focus groups	
			• LTC residents with HF and their family caregivers from 2 LTC homes (1 in southern Ontario and 1 in northern Ontario)	• 2 HF residents 3 family caregivers 5 HF resident/family member dyads	• 10 semi-structured interviews	

Simmonds et al, 2015 (36) Unplanned admissions and the organisational management of heart failure: a multicentre ethnographic, qualitative study	UK (England)	To identify critical points on patient pathways where risk of admission is increased and to identify barriers to the implementation of evidence-based interventions	Patients with severe or difficult to manage HF who had an unplanned hospital admission for HF during the preceding 6 months, and their informal carers, recruited from 3 study sites (urban and rural settings, variable access to HF specialist nurse-led clinics). The majority of healthcare professionals were caring for study participants. The other healthcare professionals – not caring for study participants – took part in prearranged interviews.	31 patients 9 informal carers 55 healthcare professionals	Ethnographic approach: In-depth interviews with 23 clinicians: · 7 GPs · 4 community nurses · 5 HF nurses · 5 senior hospital doctors (including 3 consultant cardiologists) · 2 cardiac rehabilitation therapists 22 patient and/or carer in-depth interviews Recorded fieldwork conversations (impromptu interviews) Patient and carer diaries Patient medical records	Thematic analysis Situational analysis (a grounded theory approach involving mapping of patient/carer experiences and the organization of healthcare systems)
Tait et al, 2015 (39) Adaptive practices in heart failure care teams: implications for patient-centered care in the context of complexity	Canada	To examine how HF care teams, as defined by patients, work together to provide care to patients with advanced disease	Practices of HF care teams at five study sites in three Canadian provinces: Ontario, Nova Scotia, and British Columbia. Patients with advanced HF (NYHA III or IV) were asked to identify their care team members. If patients consented, their identified care team members were invited to participate in semi-structured interviews. Interviewees became part of team sampling units.	50 team sampling units: 62 patients 152 care team members: · 55 caregivers/ supportive persons · 25 family physicians · 18 nurses · 35 specialist physicians · 15 allied health/other health professionals	209 semi-structured interviews	Constant comparative method and constructivist grounded theory Complex adaptive system (CAS) theory

GPs: general practitioners, HF: heart failure, FG: focus group, NYHA: New York Heart Association, LVSD: left ventricular systolic dysfunction, LTC: long-term care