

Review

HOSPITAL-BASED CASE MANAGEMENT FOR MIGRANT PATIENTS: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Although inequality in access to health care for migrant patients is well described, less is known about inequalities originating within the health-care system regarding choice of diagnostic procedure, diagnostic delay, treatment options, secondary prevention and follow-up offered to patients with a refugee or immigrant background. Provision of specialized services for migrant patients, including case management with multidisciplinary physical, cognitive and social interventions, has been suggested as a way to tackle inequalities in response to a growing recognition of the complexity of both their health needs and the skills needed to meet these. However, categorical care is generally considered to be stigmatizing and to decrease care quality. The evidence base for both arguments is unclear. The aim of this review

was therefore to investigate the effectiveness of specialized hospital-based case management for ethnic minority patients.

Methods: This review used a health technology assessment model, including a systematic search of literature in the PubMed, Embase, the Cochrane Library, Sociological Abstracts, the Cumulative Index to Nursing and Allied Health Literature databases and grey literature.

Results: Of the 5328 studies found in the literature search, only one matched the criteria for inclusion. It described a specialized tuberculosis-focused hospital-based treatment programme supported by a cross-disciplinary team that increased treatment completion among ethnic minority patients. Despite using broad search criteria and searching

a wide range of migrant health-related information networks and databases, no other hospital-based migrant health clinics were identified. The single relevant study indicated that benefits of a specialized hospital-based migrant management programme might include reducing inequality and improving clinical outcomes. No studies supporting the argument that specialized hospital care is stigmatizing or reduces quality of care were identified.

Conclusion: The review highlights a fundamental lack of evidence against specialized care for ethnic minorities. In view of the current refugee situation in Europe, there is an urgent need to identify the best interventions for reducing inequalities in hospital care for ethnic minority patients.

Keywords: CASE MANAGEMENT, HEALTH-CARE DISPARITIES, PUBLIC HEALTH, MINORITY HEALTH, ETHNIC GROUPS

INTRODUCTION

BACKGROUND

Ethnic minorities experience heterogeneous morbidity rates, lower self-rated health, less coverage of preventive health care, lower quality hospital care and worse rehabilitation outcomes compared with general populations (1–5). Modern hospital-based health care is highly specialized and focused on

health service delivery through fast-track clinical pathways, but these are not necessarily appropriate for patients with complex health issues requiring a multidisciplinary physical, cognitive and social investigation (6–10). The specific mechanisms through which the health-care sector creates or maintains inequalities in care are unclear, largely due to a lack of studies. This was demonstrated in a recent review of 30 years of intervention studies on health inequity

for ethnic minorities, which concluded that over 90% of interventions were aimed at changing patient behaviour and perception, while less than 9% aimed to make interventions within the health-care system (11).

So far, research on health inequality for refugees and immigrants has focused on preventive health care and inequality in access to health care (12–14). A smaller number of studies have indicated disparities in the type and quality of diagnostic procedures, treatment options and follow-up offered to patients with a refugee or immigrant background, as well as access to specialized services, organ transplants, experimental treatments and psychopharmacological treatments (4, 6, 15–17).

Accessing a modern health care system requires patients to have high levels of navigation skills and (health) literacy (18–20). Effective communication is therefore a crucial and fundamental precondition for successful cooperation between patient and health-care staff; unfortunately, this is often compromised by patients' functional illiteracy or low health literacy combined with cultural barriers and a lack of cultural competency among health-care staff (21, 22). Furthermore, communication in health-care settings is generally influenced by technical and social factors that hinder information flow (23–25).

Patients' communication and navigation skills may be further compromised by undiagnosed post-traumatic stress disorder, which may contribute to diffuse and unexplained somatic symptoms, low ability for self-care and failure to comply with diagnostic procedures and treatments (16, 26–31). As a result, clinical investigations may be terminated prematurely, symptoms may be overlooked or misinterpreted, and necessary treatment may not be prescribed or completed, leading to a large group of refugee and immigrant patients having long-term complicated diseases, multiple serious social and economic problems, and complex compliance failure (32). Patients with such health issues are essentially abandoned by the general health-care system. A failure to recognize the background of these complex health issues means that they are simply classified as stereotypical cultural or refugee problems and largely ignored in the clinical assessment (33, 34). For decades, it has been debated whether these inequalities should be addressed through migrant-specific interventions,

diversity-sensitive health systems or an inclusive approach in which immigrants are covered by an overall improved health-care system. However, no studies that have aimed to document the effects of these model (1, 14, 35, 36).

DEFINING THE PROBLEM

European countries are facing multiple challenges with the current rapid increase in refugee numbers, and the unprepared health sector urgently needs effective ways of addressing clinical inequalities in specialized hospital settings (and the general health-care system). In the Department of Infectious Diseases, Odense University Hospital, Denmark, the Migrant Health Clinic (MHC) was established in 2008 in response to growing recognition that a significant group of ethnic minority patients did not have access to the same levels of prevention, treatment and rehabilitation services as the majority population. The primary purpose of the MHC is to document, alleviate and prevent possible adverse health consequences of inequality in health care. The MHC provides a possible interdisciplinary model to demonstrate how specialized intervention for this vulnerable patient group can be established and implemented in a hospital setting (32, 37).

Hospital-based case management in the MHC is defined as “a collaborative practice model including patients, nurses, social workers, physicians, other practitioners, caregivers and community” (38). The case management process encompasses communication and facilitates care along a continuum through effective coordination. The process is multifaceted and includes individually targeted communication and support, analysis of life stories, and clarification of the patients' social and familial situations, as well as providing cross-sectoral coordination, mediation and assistance in applying for health-care and social services (16, 38).

Patients at the MHC are often vulnerable and have complex health problems. They include both sexes, with an average age of 42 years, and have resided in Denmark for 12 years on average. According to the patient administrative database at Odense University Hospital, the largest proportion of patients comprises refugees and immigrants from Iran, Iraq, sub-Saharan Africa, Afghanistan, the former Yugoslavia, Somalia, Turkey, Pakistan, Sri Lanka and some eastern European countries (in order of frequency of attendance; 2013) (16).

Over the last 8 years, the MHC has created an extensive knowledge base on the clinical challenges encountered in ethnic minority patients derived from scientific evidence and Danish registries and from evaluating multidisciplinary interventions in the clinic (39). The purpose of the knowledge base is to map both the potential for improvement in the current health-care service and the needs of the patient group, and to document patient discrimination based on the complexity of health issues. A fundamental part of that work is to describe the evidence base for such clinics. Thus, as part of a health technology assessment (HTA) of the MHC, we conducted a systematic review of the literature. A description of MHC methods and a cost-benefit analysis of hospital-based case management have been published separately (38).

OBJECTIVE OF THE HTA AND LITERATURE REVIEW

The objective of the HTA and literature review was to investigate the prerequisites for implementing hospital-based case management for patients born in a country other than their country of residence and to compare the consequences of hospital-based case management and no case management (i.e. current practice). The HTA covered the four domains of the Danish HTA model: technology/clinical effectiveness; patient aspects; organizational prerequisites; and economic effects (40). This study reports the available evidence for clinical effectiveness only.

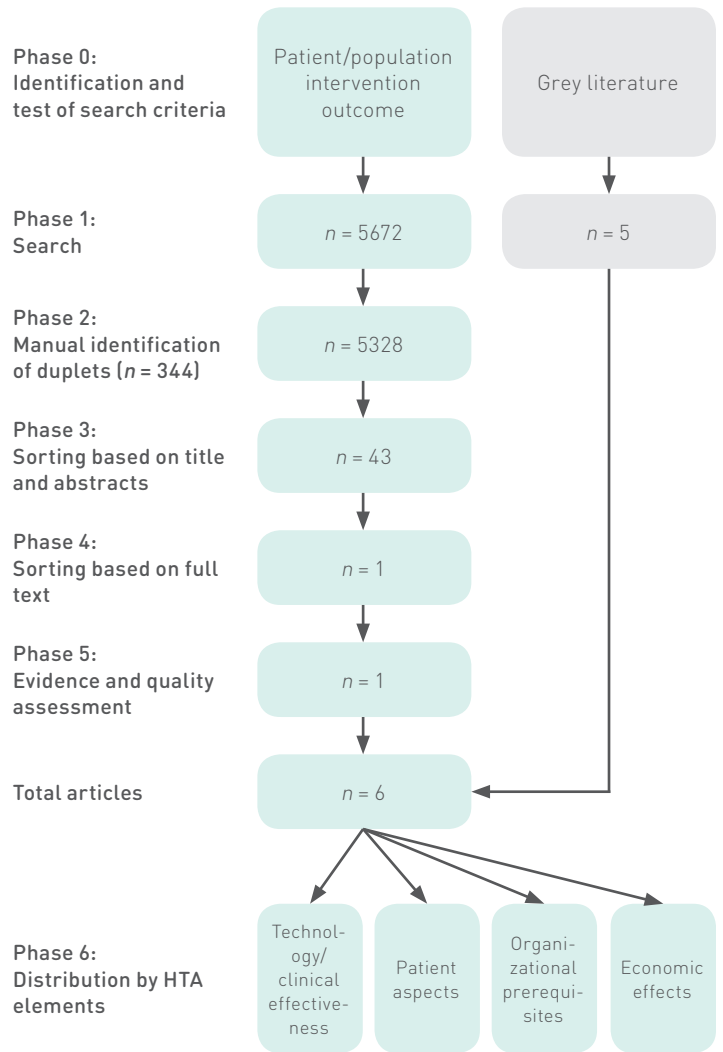
METHODS

The PICO mnemonic (patient/population, intervention, comparison, outcome) served as a general framework for designing the search strategy. Thus, we initially conducted searches on each of the PICO dimensions in each database, and then combined these searches into a single query for each database (Fig. 1). The outcome dimension was further subdivided according to which of the four HTA domains were the focus.

DATABASES

A search of databases relevant to the various HTA domains was performed (Table 1). We also included grey literature from the MHC archives, including internal evaluation reports, reports from professional associations and other materials not published in

FIG. 1. FLOW CHART FOR LITERATURE SORTING



bibliographic databases. Box 1 lists websites that were searched for relevant grey literature.

Table 1 outlines the primary search terms by PICO dimension, with the search terms used in relation to the outcome dimension subclassified by the four HTA domains.

TABLE 1. SEARCH WORDS AND DATABASES BY PICO DIMENSION AND HTA DOMAIN

PICO dimension (and HTA domain)	Indexed keywords/search words	Database
Patient/population	Cultural diversity Displaced persons Emigrants/immigrants Ethnic groups Immigration Minority health Minority groups Race/racial Race relations Racial disparity Refugee Minority/ethnic minority Transient/migrant	PubMed Embase Cochrane Library Sociological Abstracts CINAHL
Intervention	Cultural competency Cultural mediator Health-care administration Health services administration Migrant health clinic Minority clinic Minority health clinic Patient advocate Patient care management Patient care planning	PubMed Embase Cochrane Library Sociological Abstracts CINAHL
Comparison	Current practice	–
Outcome		
Technology/clinical effectiveness	Morbidity Mortality Post-traumatic stress disorder/PTSD	PubMed Embase Cochrane Library
Patient aspects	Cultural capital Health attitudes, knowledge & practice Health behaviour Health literacy Medication adherence Patient compliance Patient satisfaction Quality of life Self-care Social capital	PubMed Embase CINAHL
Organizational prerequisites	Access to health care Delivery of health care Delivery of health care, integrated Health-care disparities	PubMed Embase Sociological Abstracts
Economic effects	Health-care costs Health-care economics and organizations Occupational status	PubMed Embase Cochrane Library

CINAHL: Cumulative Index to Nursing and Allied Health Literature.

BOX 1. WEBSITES SEARCHED FOR RELEVANT GREY LITERATURE

- Health Status of Ethnic Minorities literature database, Danish National Institute for Public Health, Denmark (<http://www.si-folkesundhed.dk>)
- MIGHEALTHNET: migrant health wiki (<http://mighealth.net/>)
- Danish Research Centre for Migration, Ethnicity and Health, University of Copenhagen, Denmark (<http://mesu.ku.dk/>)
- National Competency Unit for Minority Health, Norwegian Center for Minority Health Research, Norway (<https://www.nakmi.no/>)
- Documentation Center about Immigrants, Refugees and Racism, The Immigrant Institute, Sweden (<http://www.immi.se/>)
- Arkansas Minority Health Commission, USA (<http://arminorityhealth.com/>)
- Alta Bates Summit Medical Center, USA (<http://www.altabatesummit.org/>)
- California Pan-Ethnic Health Network, USA (<http://cpehn.org/>)
- Eliminating Racial and Ethnic Health Disparities, Centers for Disease Control and Prevention, USA (<https://www.cdc.gov/minorityhealth/>)
- Victorian Refugee Health Network, Australia (<http://refugeehealthnetwork.org.au/>)
- Migrant Clinicians Network, USA (<http://www.migrantclinician.org/>)
- Health Disparity Solution Center, Michigan, USA (<https://mghdisparitiessolutions.org/>)
- National Institute for Health and Clinical Excellence, United Kingdom (<https://www.nice.org.uk/>)
- Economic and Social Research Council Centre for Evidence in Ethnicity, Health and Diversity, United Kingdom (<http://www.thehealthwell.info/node/36007>)
- European Cooperation in Science and Technology (<http://www.cost.eu/>) – European Union framework supporting transnational cooperation among researchers, engineers and scholars across Europe under the European Commission Horizon 2020 programme

STUDY DESIGN

We searched for efficacy studies containing the highest possible level of evidence. Our objective was to determine the clinical effectiveness of hospital-based patient care coordination.

INCLUSION AND EXCLUSION CRITERIA

We included relevant literature in English, Danish, Norwegian and Swedish from 2001 to 2011.

The initial search combining PICO and HTA elements yielded a large number of papers (>20 000). We therefore used a multisectional search strategy in which the literature search was carried out using each of the following four approaches: (i) Medical Subject Headings (includes only indexed literature); (ii) title (includes papers with the exact sequence of search words); (iii) phrases (captures papers within the search scope in which other subject terms have been used); and (iv) added together the results of the three searches to compensate for weakness in any of the strategies. A detailed description of the selection process can be found in the full HTA report and its appendices (41, 42).

Delimitation of the study design was only made in the PubMed search, which undoubtedly contributed the largest number of hits (Table 2). In the PubMed search, we included the following study designs: clinical trials, meta-analyses, randomized controlled trials, reviews, comparative studies, controlled trials and evaluation studies. Purely descriptive studies were excluded. Studies with interventions that did not correspond to the definition of hospital-based case management used in the MHC were excluded (e.g. studies of non-profit-making health clinics for illegal Hispanic immigrants in the USA).

LITERATURE SORTING

The identified literature was imported into an EndNote X7.1 database (Thompson Reuter, Philadelphia, PA, USA) and duplets were removed. Literature was sorted independently by three of the authors (AMØ, JBC and MLE) according to the PICO criteria for inclusion and exclusion. The first stage of sorting was performed by reading the title and abstract and the second by reading full-text articles. Included articles were assessed for methodological quality before the final inclusion and categorized according to relevant HTA domains.

Disputes about the relevance of identified literature were resolved by joint examination according to the inclusion and exclusion criteria and, if necessary, involvement of a fourth assessor (MS).

TABLE 2. RESULTS OF LITERATURE SEARCH, DISPLAYED BY DATABASE, PICO DIMENSION AND HTA DOMAIN

Database	PICO dimension (and HTA domain)	No. of hits (including limits ^a)		
PubMed	Patient/population	76 388	<i>P+I</i>	<i>P+I+O</i> _{total} 4107
	Intervention	908 107	18 854	
	Outcome			
	Technology/clinical effectiveness	268 998	<i>P+I+O</i> _{tech} 2441	
	Organization prerequisites	318 017	<i>P+I+O</i> _{org} 9912	
	Patient aspects	166 442	<i>P+I+O</i> _{pat} 3376	
	Economic effects	395 938	<i>P+I+O</i> _{eco} 6953	
Embase	Patient/population	241 321	<i>P+I</i>	<i>P+I+O</i> _{total} 284
	Intervention	10 427	1154	
	Outcome			
	Technology/clinical effectiveness	412 584	<i>P+I+O</i> _{tech} 59	
	Organization prerequisites	5238	<i>P+I+O</i> _{org} 99	
	Patient aspects	257 653	<i>P+I+O</i> _{pat} 142	
	Economic effects	67 886	<i>P+I+O</i> _{eco} 23	
Cochrane Library	Patient/population	5450	<i>P+I</i>	<i>P+I+O</i> _{tech + eco} 664
	Intervention	79 680	2700	
	Outcome			
	Technology/clinical effectiveness	10 162	<i>P+I+O</i> _{tech} 162	
	Economic effects	16 992	<i>P+I+O</i> _{eco} 541	
Sociological Abstracts	Patient/population	69 103	<i>P+I</i>	<i>P+I+O</i> _{org} 31
	Intervention	1062	699	
	Outcome			
	Organization prerequisites	864		
CINAHL	Patient/population	51 660	<i>P+I</i>	<i>P+I+O</i> _{pat} 586
	Intervention	80 085	4488	
	Outcome			
	Patient aspects	96 882		
Total				5672
Total – duplets (344 articles)				5328

CINAHL: Cumulative Index to Nursing and Allied Health Literature.

^aI: intervention; O: outcome; P: patient/population; eco: Economic effects; org: Organization prerequisites; pat: patient aspects; tech: technology/clinical effectiveness.

A κ coefficient of 0.23 was calculated, demonstrating weak correlation among assessors and highlighting the difficulty in defining clear boundaries for inclusion and exclusion in complex interventions. As there were no set boundaries and very similar features between our MHC and other corresponding interventions, an extensive list of broad search terms was used to capture as much relevant literature as possible. The inevitable trade-off between precision and recall in literature retrieval (in this case at the cost of precision) can explain the low κ coefficient value.

Finally, quality assurance of the initial sorting process (by AMØ, JBC and MLE) was performed by the fourth author (MS), who assessed the relevance of a random sample of 100 hits from the original 5328 hits using previously defined parameters. Agreement between the initial sorting and the relevance assessment was 100%.

RESULTS

In total, 5672 articles were retrieved from the initial systematic search of databases. Table 2 shows the results of the search by database and the total number of retrieved articles before and after deletion of duplets (344 articles).

The 5328 articles were sorted according to explicit inclusion and exclusion criteria. The first round of sorting was carried out by two authors independently, resulting in the inclusion of 43 articles for the next round of sorting (<1% of the initial 5328 hits identified after deleting duplets). This illustrates the complexity and diversity of the intervention and the difficulty of defining the core components of the intervention; these factors could hamper the development of a sufficiently comprehensive and specific search strategy. The literature sorting process is illustrated by a flow chart (Fig. 1).

The final result of the sorting process was a single article by Goldberg et al. matching the inclusion criteria. It described a study carried out in partnership between Washington's Harborview Medical Center and a tuberculosis clinic using a hospital-based team of mediators for communication between hospital specialties, communities and ethnic minority patients. The included study has a pretest/post-test design

with no control group (i.e. a quasi-experimental design). However, we have not identified checklists for the quality assessment of quasi-experimental studies, so this was omitted. Consequently, the study results should be interpreted with caution, since the effectiveness of the intervention cannot be reliably attributed to the intervention alone.

With the aim of increasing the number of newly arrived refugees being tested and (if infected) completing treatment for latent tuberculosis, Goldberg et al. described a bilingual, multicultural case management approach (i.e. cultural case management [CCM]) to controlling and treating latent tuberculosis in refugees from the former Soviet Union, the former Yugoslavia and Somalia (43). The effect of CCM was examined in a comparative study using data before and 18 months after start-up. The CCM approach included home visits, individually customized education on tuberculosis and referral to additional health and social services. In this way, the CCM intervention is similar to the MHC methods.

The CCM approach improved the rate of treatment completion (37% vs 82%, $P < 0.001$) and increased the percentage of patients initiating treatment (73% vs 88%, $P < 0.001$). The introduction of a new and more targeted approach to managing latent tuberculosis was therefore associated with increased acceptance and treatment completion among newly arrived refugees (36).

DISCUSSION

This systematic literature review found that hospital-based case management health clinics for ethnic minority patients similar to the MHC are rare and have not been scientifically evaluated. Evidence for the effects of hospital-based care coordination for refugee and immigrant patients is even more limited. A search in relevant networks, websites and other sources confirmed that if similar clinics or interventions do exist they have not been documented on any of the existing relevant migrant health platforms, conferences or networks (which were all included in this literature review). The only identified study that fulfilled the search criteria was a disease-specific approach to hospital-based patient support for ethnic minority patients. Therefore, the

MHC is probably one of the first hospital-based MHCs in Europe.

Categorical care for ethnic minorities is generally considered to be stigmatizing and to decrease the quality of care (35, 44, 45). However, the present literature review found no evidence to support this. On the contrary, ethnic minority patients continue to have negative experiences when encountering the existing (i.e. non-categorical) health-care services and have reported difficulties in obtaining the same quality of care as the general population (46–48). Ethnic minority patients have more side-effects, more complications after treatment, more frequent readmission and worse disease control, and are asked to sign patient consent forms less often (49–53). There is therefore no evidence to support the existing paradigm that ethnic minorities would not benefit from specialized health care.

Frequent fragmentation of hospital care for patients with multiple chronic conditions is a barrier to effective care for these patients [31]. Lack of care coordination for patients with complex disease leads to higher costs and worse outcomes, not least among ethnic minorities [32]. Hospital-based case management (also defined as hospital-based care coordination in the patient advocacy model) seems feasible, but the evidence base for case management in general is insufficient: it is mostly disease specific, with most studies describing coordination between primary and secondary care (33–35).

In a study of experiences with the use of cultural mediators in health care in 2006, the Danish National Board of Health emphasized that the approach to resolving problems for ethnic minority patients (specifically, what should be done and why) varies from country to country and is closely related to experiences of practical problems (54). Key to this are countries' migration patterns and the characteristics of minority populations including their composition, disease patterns and status. This results in different organizational models that are rarely directly comparable across national borders.

The present study used quite broad and nonspecific search terms to ensure a high level of literature retrieval. Consequently, precision was low, meaning that full literature retrieval included a large number of irrelevant hits. This highlights a need for more

detailed descriptions about the activities in the MHC (e.g. workflows, theory of change, core elements, mechanisms) to further develop the intervention for future scientific examination and comparison. Thus, the criteria for inclusion and exclusion may seem rather vague but the lack of specificity reflects the lack of clear boundaries of the intervention.

Accordingly, a lot of the published literature on hospital-based care coordination for ethnic minorities uses terms such as patient navigation and CCM to classify the intervention. However, these terms are not clearly defined: they are variously described as being tightly integrated in certain specialties in some hospitals to being a more peripheral, autonomous system, and from being provided by full-time health-care professionals to be delivered by volunteers or fellow patients. However, interventions based on these concepts share a number of common features (55, 56).

- They target individual patients rather than populations or patient groups.
- They aim to reduce delays in patient care pathways and ensure timely diagnosis and treatment.
- They typically involve identifying patient needs and addressing barriers to health-care access, including linguistic and financial problems, along with providing health-care education, psychosocial support and coordination (including paperwork, cross-sectoral planning and communication).

These commonalities are in accordance with the principles of the MHC hospital-based care coordination. CCM is also the essence of Goldberg and colleagues' work, as reported in this systematic review. A general search in PubMed using the search terms "patient navigation" and "case management" reveals a rising focus on the general need for and effectiveness of individual-level interventions for care coordination in the health-care system for both minority patients and those in low-income, underserved communities (57), as well as diabetes patients (58, 59) and those with various other diseases (60–62).

Most of the literature identified in the systematic search but not included in this review described small demonstration projects without a control group or randomization and with a small sample size. In addition, interventions often comprised a number of separate subinterventions – some more compatible with the MHC hospital-based care coordination than others. These subinterventions were typically evaluated together as part of a comprehensive intervention package. This makes it impossible to identify which subinterventions are most effective with the aim of comparing them directly with the elements of MHC hospital-based care coordination in randomized, controlled trials.

The common and most central feature of hospital-based care coordination (or patient coordination, (cultural) case management, patient navigation etc.) is the focus on an individual level, patient-centred approach adjusted to local health system features and to perceptions of illness and health. This sort of intervention can, in HTA terminology, be characterized as a complex, social technology in which the organization of technology delivery (i.e. hospital-based care coordination) has a great impact on the clinical effects/outcome of the intervention. Certain effects are thus only realized under certain conditions because contextual factors influence the intervention to a degree that makes causal inference between intervention and outcome highly difficult. This could explain why this review did not identify any high-quality effectiveness studies (in terms of evidence-based medicine methodology). Moreover, a limitation of the search strategy may be that we restricted it to efficacy studies only.

The review also shows that care coordination is described using many terms that are difficult to define owing to their context specificity. Future evaluation could benefit from using qualitative approaches and descriptive studies to unravel the so-called black box of intervention components and describe the perceived and theoretical connections between inputs and outcomes of the intervention.

In conclusion, hospital-based case management offered to migrant patients is an unreported area of research. To investigate the effectiveness of hospital-based case management for these patients, more research is needed to explore which interventions are being

used. It would be interesting to include research on the managerial and political aspects of hospital-based case management. In addition, the conceptual ambiguity of case management can be ascribed to the field being relatively new. Thus, clear and agreed definitions for research terminology are also necessary.

There is no evidence to support the opinion that ethnic minorities would not benefit from specialized care. On the contrary, most studies report a systematically lower quality of hospital care for immigrants, and the ability of specialized hospital services such as the MHC at Odense University Hospital to tackle the evident disparities in care should be investigated further. In view of the current refugee situation in Europe, there is an urgent need for studies that document interventions that can reduce global inequalities in hospital care for ethnic minority patients (31, 63).

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REFERENCES

1. Rechel B, Deville W, Mladovsky P, Rijks B, Petrova-Benedict R, editors. Migration and health in the European Union. Maidenhead, K: Open University Press, McGraw-Hill Education; 2011.
2. Szczepura A. Access to health care for ethnic minority populations. *Postgrad Med J*. 2005;81:141–7.
3. Priebe S, Sandhu S, Dias S, Gaddini A, Geacen T, Ioannidis E et al. Good practice in health care for migrants: views and experiences of care professionals in 16 European countries. *BMC Public Health*. 2011;11:187.
4. Smedley BD, Stith AY, Nelson AR, editors. Unequal treatment: confronting racial and ethnic disparities in health care (with CD). Washington (DC): National Academies Press; 2009.

5. Simonnot N, Rodriguez A, Nuernberg M, Fille F, Aranda-Fernández PE, Chauvin P. Access to health care for people facing multiple vulnerabilities in health in 31 cities in 12 countries. Report on social and medical data gathered in 2015 in 11 European countries and Turkey. Paris, France: Doctors of the World; 2016.
6. Burgess DJ, Fu SS, Van Ryn M. Why do providers contribute to disparities and what can be done about it? *J Gen Intern Med.* 2004;19:1154–9.
7. Banks AD, Dracup K. Factors associated with prolonged prehospital delay of African Americans with acute myocardial infarction. *Am J Crit Care.* 2006;15:149–57.
8. Green CR, Anderson KO, Baker TA, Campbell LC, Decker S, Fillingim RB et al. The unequal burden of pain: confronting racial and ethnic disparities in pain. *Pain Med.* 2003;4:277–94.
9. Schulman KA, Berlin JA, Harless W, Kerner JF, Sistrunk S, Gersh BJ et al. The effect of race and sex on physicians' recommendations for cardiac catheterization. *N Engl J Med.* 1999;340:618–26.
10. Bischoff A. Caring for migrant and minority patients in European hospitals: a review of effective interventions. Neuchâtel: Swiss Forum for Migration and Population Studies; 2006.
11. Clarke AR, Goddu AP, Nocon RS, Stock NW, Chyr LC, Akuoka JA et al. Thirty years of disparities intervention research: what are we doing to close racial and ethnic gaps in health care? *Med Care.* 2013;51:1020–6.
12. Bradby H, Humphris R, Newall D, Phillimore J. Public health aspects of migrant health: a review of the evidence on health status for refugees and asylum seekers in the European Region. Health Evidence Network Synthesis Report No 44. Copenhagen: WHO Regional Office for Europe; 2015.
13. Greve B. Migrants and health in the Nordic welfare states. *Public Health Rev.* 2016;37:9.
14. Bollini P, Siem H. No real progress towards equity: health of migrants and ethnic minorities on the eve of the year 2000. *Soc Sci Med.* 1995;41:819–28.
15. Schouler-Ocak M, Wintrob R, Moussaoui D, Villasenor Bayardo SJ, Zhao X-D, Kastrup MC. Background paper on the needs of migrant, refugee and asylum seeker patients around the globe. *International Journal of Culture and Mental Health* 2016;9:216–32.
16. Sodemann M, Kristensen TR, Nielsen D, Svabo A, Buch S, Korsholm KM et al. 'Tak fordi I lavede en bedre version af mig.' Erfaringer fra Indvandrermedicinsk Klinik 2008–2013 [‘Thank you for making a better version of me.’ Experiences from Migrant Health Clinic 2008–2013]. Department of Infectious Diseases, OUH Odense University Hospital; 2013 (in Danish; <http://www.ouh.dk/dwn347559>, accessed 7 December 2016).
17. Schrijvers CT, Stronks K, van de Mheen HD, Mackenbach JP. Explaining educational differences in mortality: the role of behavioral and material factors. *Am J Public Health.* 1999;89:535–40.
18. Ngo-Metzger Q, Fund C. Cultural competency and quality of care: obtaining the patient's perspective. New York: Commonwealth Fund; 2006.
19. Clement S, Schauman O, Graham T, Maggioni F, Evans-Lacko S, Bezborodovs N et al. What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychol Med.* 2014;1–17.
20. Abebe DS. Public health challenges of immigrants in Norway: a research review. NAKMI Report 2. Oslo: Norwegian Center for Minority Health Research; 2010.
21. Kleinman A, Benson P. Anthropology in the clinic: the problem of cultural competency and how to fix it. *PLoS Med.* 2006;3:e294.
22. Horowitz CR, Davis MH, Palermo A-GS, Vladeck BC. Approaches to eliminating sociocultural disparities in health. *Health Care Financ Rev.* 2000;21:57–74.
23. Anderson MA, Helms LB. Communication between continuing care organizations. *Res Nurs Health.* 1995;18:49–57.
24. Davidson EJ. Analysing genre of organizational communication in clinical information systems. *Information Technology & People.* 2000;13:196–209.
25. Sutcliffe KM, Lewton E, Rosenthal MM. Communication failures: an insidious contributor to medical mishaps. *Acad Med.* 2004;79:186–94.
26. Dow HD. An overview of stressors faced by immigrants and refugees: a guide for mental health practitioners. *Home Health Care Management Practice.* 2011;23:210–7.
27. Kumar BN. The Oslo immigrant health profile. *Diabetes.* 2009;3:8.
28. Kumar BN. Health and migration. *Michael.* 2011;8:240–50.
29. Carswell K, Blackburn P, Barker C. The relationship between trauma, post-migration problems and the psychological well-being of refugees and asylum seekers. *Int J Soc Psychiatry.* 2011;57:107–19.
30. Bhopal RS, Rafnsson SB, Agyemang C, Fagot-Campagna, Giampaoli S, Hammar N et al. Mortality from circulatory diseases by specific country of birth across six European countries: test of concept. *Eur J Public Health.* 2012;22:353–9.
31. Abbott A. The mental-health crisis among migrants. *Nature.* 2016;538:158.
32. Sodemann M, Svabo A, Jacobsen A. [The hardest battles begin after the war]. *Ugeskr Laeger.* 2010;172:141–4 (in Danish).
33. La Bril R, Primm A, Harrison-Ross P. Beyond misdiagnosis, misunderstanding and mistrust: relevance of the historical perspective in the medical

- and mental health treatment of people of color. *J Natl Med Assoc.* 2007;99:879.
34. Spallek J, Zeeb H, Razum O. What do we have to know from migrants' past exposures to understand their health status? A life course approach. *Emerg Themes Epidemiol.* 2011;8:6.
 35. Razum O, Spallek J. Addressing health-related interventions to immigrants: migrant-specific or diversity-sensitive. *Int J Public Health.* 2014;59:893–5.
 36. Kutalek R. Diversity competence in medicine: equity, culture and practice. *Wiener Klin Wochenschr* 2012;124:3–9.
 37. Sodemann M, Nielsen D, Rehling, C. Imperfect models of patient empowerment, incapacitation and intrinsic structural violence in health care threaten equity in health and patient safety. In: Book of Abstracts. EUPHA's 6th European Conference on Migrant and Ethnic Minority Health, Oslo, Norway, 23–25 June 2016. Oslo: Norwegian Center for Minority Health Research; 2016:153.
 38. Sodemann M, Ølholm AM, Lundstrøm Kamionka S. Hospital based patient coordination for ethnic minority patients – a health technology assessment. EUPHA's 6th European Conference on Migrant and Ethnic Minority Health, Oslo, Norway, 23–25 June 2016. Oslo: Norwegian Center for Minority Health Research; 2016:137.
 39. Kamionka SL, Buus N, Sodemann M, Noehr-Jensen P, Larsen KJ. Intersectoral pathways of vulnerable patient groups in Southern Denmark. *Int J Integr Care* 2014;14. doi: <http://doi.org/10.5334/ijic.1607>.
 40. Kristensen F, Sigmund H, editors. Health technology assessment handbook. 2nd edition. Copenhagen: Danish Centre for Health Technology Assessment, National Board of Health; 2008.
 41. Ølholm AM, Christensen JB. MTV af hospitalsbaseret forløbskoordination for patienter af anden etnisk herkomst end dansk. Evalueringsrapport [HTA hospital-based patient care coordination among ethnic minority patients – full report]. In: Afdeling for Kvalitet og Forskning/MTV, Odense Universitetshospital; 2014 [in Danish; <http://www.ouh.dk/dwn428044>, accessed 7 December 2016].
 42. Ølholm AM, Christensen JB. Bilags rapport til MTV af hospitalsbaseret forløbskoordination for patienter af anden etnisk herkomst end dansk. Evalueringsrapport [Appendices to HTA report]. Odense: Afdelingen for Kvalitet & Forskning/MTV, Odense Universitetshospital, 2014 [in Danish].
 43. Goldberg SV, Wallace J, Jackson JC, Chaulk CP, Nolan CM. Cultural case management of latent tuberculosis infection. *Int J Tuberc Lung Dis.* 2004;8:76–82.
 44. Ingleby D. Ethnicity, migration and the 'social determinants of health' agenda. *Psychosocial Intervention.* 2012;21:331–41.
 45. Rechel B, Mladovsky P, Ingleby D, Mackenbach JP, McKee M. Migration and health in an increasingly diverse Europe. *Lancet.* 2013;381:1235–45.
 46. Sanchez-Ramirez DC, Krasnik A, Kildemoes HW. Do immigrants from Turkey, Pakistan and Ex-Yugoslavia with newly diagnosed type 2 diabetes initiate recommended statin therapy to the same extent as Danish-born residents? A nationwide register study. *Eur J Clin Pharmacol.* 2013;69:87–95.
 47. Villadsen SF, Mortensen LH, Andersen AN. Ethnic disparity in stillbirth and infant mortality in Denmark 1981–2003. *J Epidemiol Community Health.* 2009;63:106–12.
 48. Hempler NF, Diderichsen F, Larsen FB, Ladelund S, Jørgensen T. Do immigrants from Turkey, Pakistan and Yugoslavia receive adequate medical treatment with beta-blockers and statins after acute myocardial infarction compared with Danish-born residents? A register-based follow-up study. *Eur J Clin Pharmacol.* 2010;66:735–42.
 49. Divi C, Koss RG, Schmaltz SP, Loeb JM. Language proficiency and adverse events in US hospitals: a pilot study. *Int J Qual Health Care.* 2007;19:60–9.
 50. Lion KC, Rafton SA, Shafii J, Brownstein D, Michel E, Tolman M et al. Association between language, serious adverse events, and length of stay among hospitalized children. *Hospital Pediatr.* 2013;3:219–25.
 51. Suurmond J, Uiters E, de Bruijne MC, Stronks K, Essink-Bot M-L. Explaining ethnic disparities in patient safety: a qualitative analysis. *Am J Public Health.* 2010;100:S113–S117.
 52. de Bruijne MC, van Rosse F, Uiters E, Droomers M, Suurmond J, Stronks K et al. Ethnic variations in unplanned readmissions and excess length of hospital stay: a nationwide record-linked cohort study. *Eur J Public Health* 2013;23:964–71.
 53. Schenker Y, Wang F, Selig SJ, Ng R, Fernandez A. The impact of language barriers on documentation of informed consent at a hospital with on-site interpreter services. *J Gen Intern Med.* 2007;22:294–9.
 54. Galal LP, Thomsen JA, Jakobsen MB. Udenlandske erfaringer med brugen af kulturelle mediatorer i sundhedsvæsenet [Foreign experience with the use of cultural mediators in health care]. Copenhagen: Sundhedsstyrelsen; 2006 [in Danish; <https://www.sst.dk/~media/53448DF4CA8E4A839E23AEE6A1E51FDD.ashx>, accessed 7 December 2016].
 55. Steinberg ML, Fremont A, Khan DC, Huang D, Knapp H, Karaman D et al. Lay patient navigator program implementation for equal access to cancer care and clinical trials: essential steps and initial challenges. *Cancer.* 2006;107:2669–77.
 56. Wells KJ, Battaglia TA, Dudley DJ, Garcia R, Greene A, Calhoun E et al. Patient navigation: state of the art or is it science? *Cancer.* 2008;113:1999–2010.

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57. Highfield L, Ottenweller C, Pfanz A, Hanks J. Interactive web-based portals to improve patient navigation and connect patients with primary care and specialty services in underserved communities. *Perspect Health Inf Manag.* 2014;11:1e.
 58. Shin SA, Kim H, Lee K, Lin V, Liu G. Effect of diabetic case management intervention on health service utilization in Korea. *Int J Nurs Pract.* 2015;21:780–9.
 59. Watts SA, Lucatorto M. A review of recent literature – nurse case managers in diabetes care: equivalent or better outcomes compared to primary care providers. *Curr Diab Rep.* 2014;14:504.
 60. Jeudin P, Carmen MD, Battaglia TA, Bak S, Perkins RB. Effect of patient navigation on adherence to follow-up after treatment of high-grade dysplasia. *Obstet Gynecol.* 2014;123(Suppl 1):29s.
 61. Hillemeier MM, Domino ME, Wells R, Goyal RK, Kum HC, Cilenti D et al. Effects of maternity care coordination on pregnancy outcomes: propensity-weighted analyses. *Matern Child Health J.* 2015;19:121–7.
 62. Carpentier S, Bhat M, Deschenes M, Wong P, Ghali P, Sebastiani G. A care coordination program to optimize management of cirrhosis: real-life applicability and feasibility in the context of the Canadian health care system. *Can J Gastroenterol Hepatol.* 2014;28:221–2.
 63. Miller K, Rasmussen A. The mental health of civilians displaced by armed conflict: an ecological model of refugee distress. *Epidemiol Psychiatr Sci.* 2016:1–10.