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REVIEW

Primary Care Physicians' Learning Needs in Returning Ill or Injured Workers to Work. A Scoping Review

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Abstract

Primary care physicians are uniquely positioned to assist ill and injured workers to stay-at-work or to return-to-work. *Purpose* The purpose of this scoping review is to identify primary care physicians' learning needs in returning ill or injured workers to work and to identify gaps to guide future research. *Methods* We used established methodologies developed by Arksey and O'Malley, Cochrane and adapted by the Systematic Review Program at the Institute for Work & Health. We used Distiller SR©, an online systematic review software to screen for relevance and perform data extraction. We followed the PRISMA for Scoping Reviews checklist for reporting. *Results* We screened 2106 titles and abstracts, 375 full-text papers for relevance and included 44 studies for qualitative synthesis. The first learning need was related to administrative tasks. These included (1) appropriate record-keeping, (2) time management to review occupational information, (3) communication skills to provide clear, sufficient and relevant factual information, (4) coordination of services between different stakeholders, and (5) collaboration within teams and between different professions. The second learning need was related to attitudes and beliefs and included intrinsic biases, self-confidence, role clarity and culture of blaming the patient. The third learning need was related to specific knowledge and included work capacity assessments and needs for sick leave, environmental exposures, disclosure of information, prognosis of certain conditions and care to certain groups such as adolescents and pregnant workers. The fourth learning need was related to awareness of services and tools. *Conclusions* There are many opportunities to improve medical education for physicians in training or in continuing medical education to improve care for workers with an illness or injury that affect their work.

Keywords Healthcare provider · Learning needs · Return to work · Injured workers · Primary care physician

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Introduction

Primary care physicians are in a strategic position to assist ill and injured workers to stay-at-work (SAW) or return-to-work (RTW) [1, 2]. Work has many health benefits and is associated with improved mental and physical health. Likewise, being unemployed can have negative impacts on health and wellbeing [3]. Positive and encouraging messages from physicians are associated with better RTW outcomes and patients who receive information about injury prevention, pain management and work accommodation are more likely to RTW [4, 5].

The role of the physician in the RTW process has, over the last decade, been firmly established. In 2013, the Canadian Medical Association released a policy "to diagnose and treat the illness or injury, to advise and support the patient, to provide and communicate appropriate information to the patient and the employer, and to work closely with other involved health care professionals to facilitate the patient's safe and timely return to the most productive employment possible" [6]. In 2019, the UK Academy of Medical Royal Colleges committed to a consensus statement for action around health and work [7]. It states that all physicians should be able to identify work-related diseases and offer support and advice to enable work participation for patients who wish to work. The American Medical Association encourages all physicians "to advise patients to RTW at the earliest date compatible with health and safety and recognizes that physicians can, through their care, facilitate patient's return to work" [8]. In Australia, a return-to-work flowchart was developed in 2016 at WorkSafe Victoria and the Transport Accident Commission, Victoria, to provide a systematic method for primary care physicians [9].

However, it has been noted that many physicians feel uncomfortable addressing medical questions in the assessment of disability for their patients [10]. Medical training in North America is inconsistent in providing structured training for residents and fellows on the medical aspects of disability, and some physicians do not feel competent to assess patients' functional abilities [10]. Furthermore, primary care physicians have limited time to spend with patients, which impedes the assessment of patients' capabilities and limitations [11].

Work-related injuries and illnesses represent a large burden to society. In 2015 there were over 230,000 claims filed at workers' compensation systems in Canada [12]. Data from the International Labour Organization suggest that 2 million people die worldwide from work-related diseases (not accidents) every year and that these diseases cost at least 145 billion euros annually [13]. Many diseases have an occupational cause and they are mostly unrecognized due to lack of proper diagnosis by health-care providers. There are estimates that 15% of all adult asthma, 15% of all chronic obstructive pulmonary disease, 10% of all lung cancers, 37% of all low back pain and 15% of all hearing loss cases are due to occupational causes [14–18].

There is evidence that providing structured education to primary care physicians changes their perceptions and intentions related to work-related injuries, but weak evidence of behaviour change [19]. However, there is not much known about primary care physicians' needs in returning ill or injured workers to work; therefore, there is a need to identify topics and methods to teach physicians how to assist their patients to SAW or RTW.

The goals of this scoping review were to identify primary care physicians' learning needs in returning ill or injured workers to work, and to identify gaps, inconsistencies, and key areas to guide future research. This review is a component of a larger project to develop and test an educational intervention about occupational and environmental medicine for primary care physicians in Ontario, Canada.

Methods

We used established methodologies for conducting scoping reviews developed by Arksey and O'Malley [20], Cochrane [21], and adapted by the Systematic Review Program at the Institute for Work & Health (IWH) [22]. We used Distiller SR©, an online systematic review software to screen for relevance and perform data extraction and followed the PRISMA for Scoping Reviews checklist for reporting [23].

The search strategies were designed according to the P.I.C.O. inclusion criteria (See Online Appendix 1).

The search strategy was drafted in MEDLINE (Ovid) by the IWH librarian with input from the research team. Searches were adapted according to the database being searched and its controlled vocabulary; there were no language restrictions (Online Appendix 1). As a preliminary check of the search strategy's accuracy, the team put together a list of 37 potentially relevant articles obtained from draft searches, of which 33 "must have" articles were captured by the search strategy. Peer-reviewed articles from the following electronic databases were searched from 2016–2021: Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® < 1946-Present > , Embase Classic + Embase < 1947 to 2021 February 15 > , ERIC, Cochrane Library, and CINAHL. The search was run on February 16th, 2021 and was limited to the last 5 years due to constraints in time and resources for this project.

To supplement the searches, reference lists of articles meeting our inclusion criteria were manually scanned for references not previously captured.

We developed title and abstract (TA) and full-text (FT) screening tools to facilitate the process of including relevant articles. The screening tools and operational definitions are located in Appendix 2. Both tools were pilot tested by the team before use. Rotating pairs of reviewers screened references for relevance at both stages and disagreements were discussed until consensus was achieved. If agreement could not be reached, a third reviewer was consulted.

We pilot tested the data extraction (DE) tool on 5 studies, double reviewed 10% of the included studies and single reviewed the rest; a third reviewer reviewed all extracted data. Data was extracted on the following: author, year, country, study design, and study population. An additional item was related to the author's interpretation, conclusions, or findings from the study.

Evidence synthesis was according to the learning needs. Two authors mapped the learning needs and assigned tags to them. The framework for learning needs is shown in Table 1.

Results

The search retrieved 3309 records. After duplicates were removed, we screened 2106 titles and abstracts; 1731 were excluded as they did not fit our inclusion criteria (primary care physicians) and 375 full-text papers were screened for relevance. We extracted data from 44 studies and synthesized the evidence. Figure 1 shows the PRIMSA flow chart.

Study Characteristics

The 44 included studies were all published in English and conducted in the US, Canada, UK, Ireland, Norway, Finland, Sweden, Denmark, Netherlands, Belgium, Germany, Australia; one study was conducted in 12 European countries. Although we initially aimed to include studies from Canada and similar jurisdictions, we also included a study conducted in Israel due to its relevance to the research question. We included a study from grey literature that was found through screening reference lists of included studies [24]; this study was included as it was clearly relevant to the learning needs of Ontario physicians related to RTW. The target population were general practitioners, residents, fellows, practicing primary care physicians and family doctors. There were 21 qualitative, 20 quantitative and 3 mixed method studies. Four studies were randomized trials. See Table 2 for characteristics of included studies.

Findings

The findings are summarized in Table 1. We categorized the learning needs into four groups: administrative tasks, attitudes and behaviours, specific knowledge, and awareness of services and tools.

Learning Needs Related to Administrative Tasks

Administrative tasks relate to how physicians manage their practices and handle the paperwork associated with their patients' workplaces, insurances and medical evaluations. It also includes how physicians communicate and collaborate with involved parties and stakeholders to promote a successful RTW. These learning needs include record keeping, time management, communication, coordination and collaboration.

Record Keeping

Physicians need to learn how to record patients' risk of work disability and when a visit to primary care is work-related or not in their patients' charts. A randomized controlled trial in Finland aimed at evaluating an intervention designed to improve recording and follow-up of occupational health and safety primary care visits and its impact on sickness absences found that although the intervention did not show any effect on sickness absences, it produced a promising indication of the effectiveness of education on improving occupational health professionals' practices of recording work-related visits in primary care. This effect was supported by a change in electronic information systems [25].

Time Management

Primary care clinicians need to schedule time to review occupational information during clinical encounters, book longer appointments, and receive more training in occupational medicine. Simmons et.al. conducted a study with physicians, physician assistants, nurse practitioners, nurse midwives, community health workers and other personnel from community health centres in the US. Clinicians cited workers' compensation as a source of confusion and frustration. However, most participants recognized occupation as an important social determinant of health and expressed interest in additional training and resources [26].

Communication

Three studies reflected the importance of communication. Aarseth et.al. described the importance of general practitioners' need to provide clear, sufficient, and relevant factual information and coherent medical evaluations to

Table 1 Learning needs

Learning needs	Categories	Studies
Administrative tasks	Record keeping	An educational intervention improved occupational health professional's practices of recording work-related visits in primary care [25]
	Time management	Primary care physicians did not use occupational information during clinical encounters and identified competing priorities, limited appointment time, and lack of training as critical barriers [26]
	Communication	Provide clear, sufficient, and relevant information and coherent medical evaluations to justify the patient's claims of disability pension [27]
		Interactions between physicians and compensation systems [24, 28]
	Coordination	Coordination of services [29, 30]
	Collaboration	Exchange of information with mental health professionals, employers, and insurers [31]
		Improve collaboration between general physicians, occupational physicians, and social insurance physicians [32]
		Establish models of teamwork among healthcare professionals to address return to work [33]
Attitudes and beliefs	Intrinsic biases	Race-by-socioeconomic status interactions in physician's recommendations [34]
		Associations between fit note receipt and ethnicity [35]
		Gender and education, and receipt of medication and counseling [36]
	Self-confidence	General practitioners' reluctance and refusal to treat patients with a compensable injury [37] General practitioners' self-reported knowledge of workplace adaptions, as well as the importance they assign the task of sick-listing, were significantly associated with their experience of assessing work capacity among potential disability claimants [38]
		The need to learn the sickness absence certification process. Physicians support a national guideline concerning the duration of sickness absence [39]
	Role clarity	Lack of role clarity for treating physicians [11, 40]
		Physician's aversion to the gatekeeping role [41]
		General practitioners versus occupational physicians [42, 43]
		Vocational clinical assistants and general practitioners [44]
	Culture of blaming the patient	General practitioners said that a difference between working and non-working patients is their level of individual motivation [45]
Specific knowledge	Assessment	Work capacity assessment and need for sick note [26, 46–53]
	Environmental exposures	Exposure or intolerances to environmental hazards [54]
	Disclosure of information	Mental health disorders and the risk of stigmatization [55]
	Prognosis	After orthopedic surgery [56, 57]
		Chronic low-back pain [58, 59]
		Concussion [60]
		Cancer care [33, 61] Stigma of cancer survivors (societal and workplace [62]
	Special populations (adolescents, pregnant workers)	Nurse practitioners need educational and outreach efforts to prepare them better to treat adolescents' work-related injuries [63]
		Safe and effective treatments for nausea and vomiting, instead of providing with a sick leave note [64]
Awareness	Services	Occupational therapy [29]
		Return to work coordinators [65]
	Tools	Evidence-based medicine tools in the worker's compensation setting [66]

justify the patient's claims of disability pension [27] while Gray et.al. found that the interactions between GPs and compensation systems need to be improved to better manage differing opinions and streamline the certification processes to overcome issues such as patient advocacy, conflicting opinions and certification of RTW capacity [28]. Kosny et.al. found a need for better alignment between the views of healthcare providers and case managers concerning the timing and appropriateness of RTW [24].

Coordination

Two studies found the need for coordination of services. Specifically, general practitioners, caregivers, employer

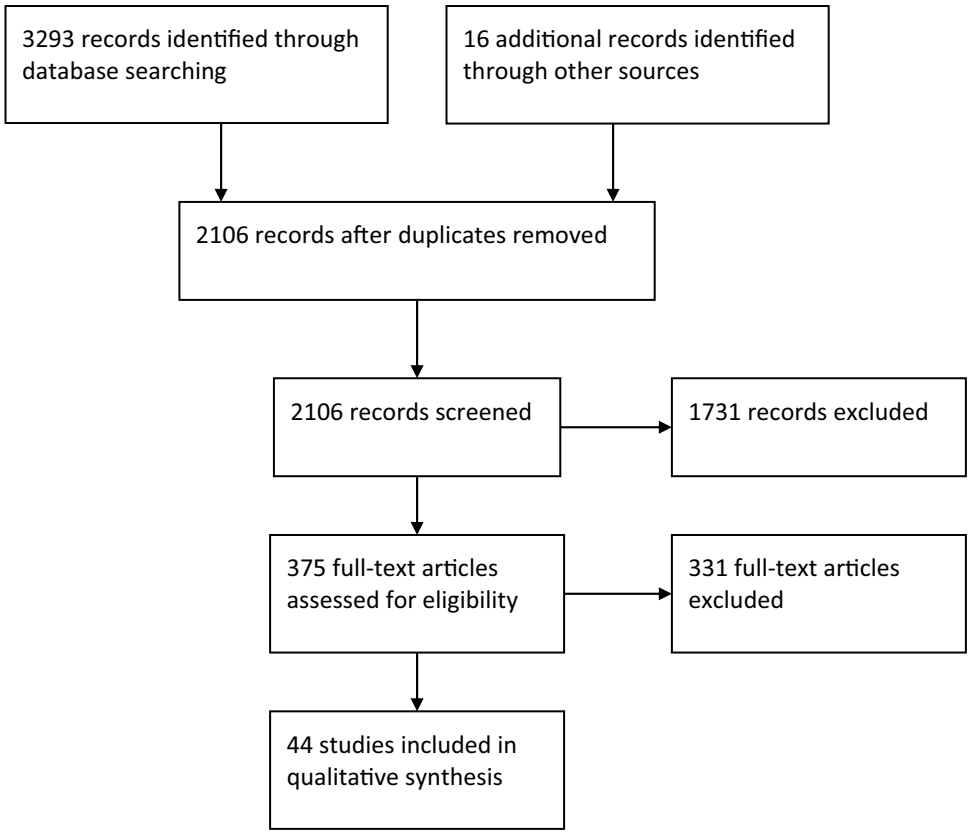

Fig. 1 Prisma flow diagram

representatives, occupational therapists and clinical commissioners need to improve coordination between the different stakeholders in the RTW process [29]. In addition, there is a need for coordination between primary and secondary care, especially around transitions home from hospital after injury. Whereas Christie et.al. identified gaps in coordination and information regarding pain control, RTW, psychological problems, services, and a lack of information about the recovery process and persistence of severe symptoms [30].

Collaboration

One study found a need to improve collaboration among mental health professionals, employers and insurers. It found that Information was never exchanged directly with employers, mostly to preserve the confidentiality of information, and was not seen as relevant. Exchange of information with the insurer was considered important, but solely to facilitate access to specialized services such as rehabilitation that would be otherwise difficult to access [31].

There is a need to improve information transfer, particularly electronic transfer, to improve collaboration between physicians involved in the RTW process. Collaboration between general practitioners, occupational physicians and social insurance physicians participating in the study appeared to be problematic, but the participants correctly identified the need for common training [32].

Additionally, there is a need to establish models of teamwork among occupational physicians, oncologists, oncology nurses, social workers, psychologists, and family physicians treating oncology patients. A study showed that teamwork among healthcare professionals to address RTW might contribute to the success of RTW and convey the message that RTW is part of the role of all healthcare professionals [33].

Learning Needs Related to Attitudes and Beliefs

These learning needs refer to physicians' attitudes and beliefs that could be improved by providing them with education and training. They involve intrinsic biases related to patients' socioeconomic status (SES), ethnicity, gender, and educational level. Another area was their lack of self-confidence and role-clarity. We also identified a need to learn how to avoid a culture of blaming the patient for not working and not being motivated to RTW.

Intrinsic Biases

Physicians need to be aware that there are significant race-by-SES interactions in their recommendations for chronic pain management. Secondary analysis of data from a large

Table 2 Characteristics of included studies

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Aarseth 2017 [27]	Norway; Qualitative	General practitioners	In this paper, we have carried out a close, critical reading of a selection of medical certificates issued in Norway Certifying general practitioners (GPs) frequently failed to provide clear, sufficient and relevant factual information and coherent medical evaluations to justify the patient's claims of disability pension. Whereas a deficient certificate has no negative consequences for the certifying GP, it may complicate NAV's [Norwegian Labour and Welfare Administration] treatment of the case, delay the decision and increase costs by the use of (usually unnecessary) specialists. In addition, insufficient, unclear and biased documentation may lead to wrong or unfair decisions We believe that professional writing skills should be validated as an important part of medical practice and should be integrated in medical schools and in further education as a discipline in its own right, preferably involving humanities professors
Anastas 2020 [34]	United States of America; Secondary analysis of data from a larger RCT	Physicians in residency and fellowship programs; 11% practiced in outpatient settings	There were three significant race-by-SES [socioeconomic status] interactions: (a) For high SES patients, Black (vs. White) patients were rated as having more pain interference; the opposite race difference emerged for low SES patients (b) For high SES patients, Black (vs. White) patients were rated as being in greater distress; no race difference emerged for low SES patients (c) For low SES patients, White (vs. Black) patients were more likely to be recommended workplace accommodations; no race difference emerged for high SES patients Additionally, providers were more likely to recommend opioids to Black (vs. White) and low (vs. high) SES patients, and were more likely to use opioid contracts with low (vs. high) SES patients Providers' implicit and explicit attitudes predicted some, but not all, of their pain-related ratings
Atkins 2020 [25]	Finland; RCT	Occupational physicians acting in primary care capacity	The aim of this study was to evaluate an intervention designed to improve recording and follow up of OHS primary care visits and its impact on sickness absences Though our intervention showed no effect on sickness absences, it produced a promising indication of the effectiveness of education in improving occupational health professionals' practices of recording work-related visits in primary care. This effect was supported by a change in electronic information systems

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Balasooriya-Smeekens 2020 [29]	United Kingdom; Qualitative	General practitioners, survivors of TIA/stroke, carers, an employer representative, occupational therapists, and clinical commissioners	There was a mismatch between patient and carer needs and what is provided by primary care. This included: lack of GP awareness of invisible impairments; uncertainty how primary care could help in time-limited consultations; and complexity of return-to-work issues. Primary care physicians were not aware of relevant services they could refer patients to, such as OT support. In addition, there was an overall lack of coordination between different stakeholders in the return-to-work process
Bertilsson 2018 [46]	Sweden; Qualitative	General practitioners, occupational physicians, psychiatrists	Physicians' tacit knowledge of assessing work capacity and the need for sickness absence for patients with CMD [common mental disorders] was identified as doing a jigsaw puzzle. The physicians became identifiers and creators of the pieces of the puzzle using a broad palette of essential information Five categories were identified Category 1 identified work capacity assessment as doing a jigsaw puzzle without any master model. The physicians both identified and created the pieces of the puzzle, mainly by facilitating strategies to make the patient a better supplier of essential information. The finished puzzle made up a highly individualized comprehensive picture required for adequate assessment Categories 2–4 identified the particular essential pieces of information the participants used, relating to the patient's disorder, capacity in the work place and contextual everyday life. For the sickness absence assessment [category 5], apart from decreased work capacity, the physicians also took particulars of the work place into account; e.g. could the work place handle an employee with reduced capacity
Bohatko-Naismith 2018 [65]	Australia; Cross-sectional	General practitioners	A total of 78% (n = 39) of respondents considered RTWCs [Return-to-Work Coordinators] were important in assisting injured workers return to work, with 98% (n = 49) ranking trustworthiness, respectfulness and ethicalness as the most important or an important trait for a RTWC to possess. Interestingly, 40% (n = 20) of respondents themselves reported having no training in the return-to-work process GPs acknowledge the importance of the workplace RTWC in the return-to-work process, and the results highlight the need for RTWCs to possess specific traits and undergo appropriate training for the facilitation of a successful return to work for injured workers

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Brijnath 2016 [37]	Australia; Qualitative	General practitioners	Almost all GPs in the study noted that their GP colleagues and medical specialists that they referred patients to had at some point refused to treat compensable injury patients. A few GPs reported that they also refused treatment to patients with a compensable injury who presented to their clinic for the first time. However, as the inclusion criteria required GPs to have treated or be treating patients with compensable injuries at the time of the study, most GPs commented on their reluctance, rather than refusal, to treat patients with compensable injury due to administrative and clinical reasons In the case of compensable injury management, reluctance and refusal to treat is likely to have a domino effect by increasing the time and financial burden of clinically complex patients on the remaining clinicians. This may present a significant challenge to an effective, sustainable compensation system. Urgent research is needed to understand the extent and implications of reluctance and refusal to treat and to identify strategies to engage clinicians in treating people with compensable injuries
Christie 2016 [30]	United Kingdom; Qualitative	Patients and service providers in primary and secondary care, including general practitioners	The transition home from hospital after injury can be problematic for patients. Although this study found examples of well-managed hospital discharges, many patients felt they were not provided with the information they needed concerning their injury, prognosis, pain control, return to work, psychological problems, or services to help meet their needs. Patients also described difficulty accessing services such as physiotherapy or counselling Service providers identified problems with communication between secondary and primary care, lack of access to physiotherapy, lack of information about other services, limitations on the care GPs can provide, and difficulties providing information and support to patients regarding the recovery process and likely prognosis The present findings indicate that GPs distinguish between early psychological responses to injury, which they regard as 'normal' or 'to be expected', and persistent or severe symptoms regarded as illness. They respond to early symptoms with reassurance and support, or in some cases with advice on gradually reintroducing feared activities. Patients report GPs' reluctance, however, to refer for counselling or other psychological support

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Coole 2021 [56]	United Kingdom; Qualitative	Hospital-based allied health professionals and nurses, orthopedic surgeons, and General Practitioners (GPs)	Expected levels of post-operative activity [after total hip or knee replacement], both at work and elsewhere, might be unrealistically high, particularly amongst younger patients. Some participants viewed this as a result of poor advice from healthcare professionals There was a suggestion, that with increased knowledge of potential outcomes, patients might be able to make a more informed decision about surgery. Preoperative education was seen as having an important role in managing expectations and the patient's decision-making process, particularly in knee surgery, where successful outcomes were less certain In this study, clinicians tended to refer to patients' post-operative work outcomes in terms of whether or not patients would be able to return to their pre-operative level of work ability, rather than to a future improved level of work performance, which one might reasonably expect In this study it appeared that patients may not necessarily be referred for, or listed for surgery at the optimum time with regards to maintaining or improving their work performance. Patients may have benefited from surgery at an earlier stage or an alternative intervention to surgery to aid work retention
de Kock 2016 [47]	The Netherlands; Qualitative	General practitioners	We distinguished three themes: (a) work as an element of an integrated consultation style; (b) work as a component of sick leave management; and (c) cooperation between GPs and OPs [occupational physicians] GPs in our study agree that it is important to pay attention to work during consultations. However, their opinions are especially diverse concerning the issue of sick leave Most GPs in this study say that they explicitly give advice to take sick leave to patients with serious somatic problems and patients with depression, whereas they do not advise sick leave to patients with medically unexplained symptoms, however serious. In the former situation, these GPs adopt the role of advocate. Many participants are not happy with a role in deciding about sick leave or are ambivalent about discussing the topic. A minority of the GPs say that they refrain from any advice regarding sick leave as they consider this the responsibility of OPs Participants reported that they lacked the knowledge to advise patients specifically concerning their work environment. The EMR [electronic medical record] in its present form was mentioned as a hindrance with respect to the recording of occupation. Most GPs in this study value the specific expertise of OPs, but say they experience a lack of access and communication. One of the difficulties here is a lack of confidence in the OP's neutrality, based on the assumption that the OP serves two masters

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
de Kock 2018 [48]	The Netherlands; RCT	General practitioners and patients	Training GPs did not increase patients' work-related self-efficacy or GPs' recording of work-related problems or occupation; neither did patients experience more attention for work from GPs who were trained
Dorrington 2020 [35]	United Kingdom; Longitudinal	Primary care physicians	After adjustment for age, sex, ethnicity and area deprivation, for virtually every age group, presence of a long-term condition was associated with a twofold to threefold increase in fit note receipt compared with those without We found substantial differences in fit note receipt by gender, age, ethnicity and area-level deprivation. While positive associations between fit note receipt, age and deprivation are to be expected, the association of fit note receipt with ethnicity requires further explanation. Even after accounting for differences in long-term conditions and area level deprivation, all minority ethnic groups except the Asian group experienced increased fit note receipt An understanding of the underlying needs of workers presenting for a fit note is necessary to enable policymakers and clinicians to support the working age population
Dwyer 2018 [58]	Ireland; Judgement analysis	General practitioners	The current study modelled the judgements made of two important judgement tasks relevant to the management of chronic low back pain in general practice, namely current case severity and future risk of disability The GPs who took part in the study placed more emphasis on biomedical indicators when judging case severity, as reflected in higher relative weight associated with the pain right now and mobility information cues. They placed more weight on motivation and self-esteem when judging risk of future disability, suggesting a tendency toward endorsing a psychosocial model of disability The GPs' judgements of future risk of disability were less consistent than their judgements of current case severity. This illustrates that GPs' were less able to base a judgement of future disability on the five information cues of self-esteem, motivation, sleep, pain right now, and mobility than they were when judging current case severity

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Dwyer 2020 [59]	Ireland; RCT	Medical students and general practitioner (GP) trainees	Interventions informed by the flags approach have resulted in reduced pain-related work absences and increased return to work for individuals with chronic lower back pain The study indicated: A beneficial effect of the educational video on knowledge of the flags approach to pain-related disability A significant effect on beliefs and attitudes regarding pain, which became more consistent with a biopsychosocial perspective for the experimental group relative to controls The participants who received the video intervention did not make more accurate judgments than controls Overall, the results from the current study indicate that educational video interventions may provide valuable educational opportunities to gain relevant biopsychosocial knowledge, overcome potential attitude barriers to applying biopsychosocial perspectives, and facilitate development of judgment-making more aligned with the biopsychosocial perspective when considering chronic low back pain patients' future risk of disability
Elbers 2017 [66]	Australia; Cross-sectional mixed methods	Health care practitioners from different clinical specialties, including 15 general practitioners (1 general practitioner for the qualitative component)	General practitioners reported having the greatest obstacles to applying EBM [evidence-based medicine]. Participants who were interviewed perceived that an EBM tool in the workers' compensation setting could potentially have some advantages, such as reducing inappropriate treatment, or over-servicing, and providing guidance for clinicians. However, participants expressed substantial concerns that the EBM tool would not adequately reflect the impact of psychosocial factors on recovery. They also highlighted a lack of timeliness in decision making and proper assessment, particularly in pain management Overall, it is concluded that healthcare providers were supportive of EBM, however, many had concerns about the implementation in clinical practice, when operating in workers' compensation settings. It is concluded that special attention should be given to general medical practitioners before an EBM tool is implemented

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Godycki-Cwirko, 2016 [50]	12 European countries (Belgium Finland, Germany, Hungary, Italy, Norway, Poland, Slovakia, Spain, Sweden, the Netherlands, the United Kingdom); Prospective observational study	Primary care physicians	There is large variation in: Whether FPs [family practitioners] advise their patients with LRTIs [lower respiratory tract infections] in Europe about taking time off work The recommended duration of time off work, which is not explained by differences in patient reported illness duration We found that consulting a FPs early in the illness (which could be motivated by a country-specific requirement for obtain a sickness certificate from a FP from the first day taken off sick), as well as reporting more, and more severe symptoms at presentation, increased the likelihood of being advised to take time off work. There is a need to develop guidance that will promote consistent, evidence based advice from FPs to their patients about taking time off work for this common condition Patients who were advised to take time off work more frequently had abnormal lung auscultation findings, had been sick for longer before presenting, reported higher number of symptoms at presentation, and their symptoms were more severe. They were also more frequently diagnosed with LRTIs and prescribed antibiotics
Graves 2016 [63]	United States of America; Cross-sectional	Nurse practitioners	Factors associated with nurse practitioners' [NPs] previous experiences and comfort in treating adolescents with work-related injuries were identified using modified Poisson regression Less than a quarter of respondents (21.1%, n = 225) reported having ever treated an adolescent for a work-related injury. Nearly half (43.6%) of respondents reported being uncomfortable or very uncomfortable in treating adolescents with work-related injuries. Previous experience and male gender were associated with greater likelihood of feeling comfortable ($p < .01$) Nurse practitioners serve as primary care providers for adolescents who may experience work-related injuries This study documents the need for developing educational and outreach efforts to better prepare NPs to treat adolescents' work-related injuries
Gray 2019 [28]	Australia; Cross-sectional	General Practitioners	Despite agreeing there are health benefits associated with early RTW, issues such as patient advocacy, conflicting opinions, and certification [of RTW capacity] are identified by GPs as complicating a patient's treatment and potentially delaying their RTW. The interactions between GPs and compensation systems need to be improved in order to better manage differing opinions and streamline the certification processes to overcome these issues. By reducing these barriers and improving engagement and communication, there will likely be a positive impact on refusal to treat

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Heitmann 2016 [64]	Norway; Qualitative	General practitioners and pregnant women	There was an impression that sick leave was an important part of the treatment regime applied by the GPs, probably as a consequence of a need for additional rest among women with NVP [nausea and vomiting during pregnancy] and the reluctance to use medicines, with sick leave being viewed as a safe intervention from both sides. Sick leave often seems to be given without the concomitant prescribing of medicines that could give additional relief, or in some cases perhaps enable the woman to work part time Our results indicate that pregnant women requiring medical treatment against nausea would probably need comprehensive information and reassurance that there are safe treatment options for NVP, before they would consider taking medicines. However, the participating GPs showed reluctance regarding the use of medicines to treat NVP and appeared to be insecure in terms of the safety and the effectiveness of treatment
Hinkka 2019 [39]	Finland: Cross-sectional	Physicians who dealt with sickness certification at least a few times per month (Surgery, Psychiatry, General Medicine, Occupational Health and Others)	Our study shows that Finnish physicians widely perceive SA [sickness absence] certification tasks to be problematic Lack of time for SA patient appointments was the most frequent problem. Another important finding of our study highlights the fact that excessive waiting times for further healthcare interventions or rehabilitation prolong SA. Finnish physicians commonly reported a need to deepen their knowledge of the SA certification process. A majority of Finnish physicians support national guidelines concerning the duration of SA In our study, GPs especially wished to have SA tasks referred to occupational healthcare. Thus, assessments of work ability and return to work would also be conducted with a stronger connection to the patient's work. Future research is needed to determine how to support physicians in coping with the SA certification problems that are only partly related to the medical profession
King 2016 [49]	Ireland; Cross-sectional	General practitioners	Difficulties encountered in sickness certification by GPs in this study are apparent at a GP–patient level (the therapeutic relationship), GP–employer level (the lack of involvement of employers in sick certification) and GP–health service level (the lack of rehabilitation services available and inadequate training of GPs in this area) 66% of respondent Irish GPs reported that sickness certification impacted adversely on the therapeutic relationship and 90% reported a lack of available rehabilitation services for patients on sick leave. Fifty-three per cent of respondents who indicated a preference for introducing a fit note were significantly more likely to view the current sick certification system as having an excessive focus on disability and to report that GPs lack training in completing sickness certification

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Kosny 2016 [24]	Canada; Qualitative	The health-care provider sample included 59 general practitioners (GPs) (of which nine practised internally for workers' compensation systems at the time of data collection), 19 allied health-care providers, and 19 specialists	We found most health-care providers did not encounter significant problems with the workers' compensation system or the RTW process when they treated patients who had visible, acute physical injuries that were supported by clear "objective" evidence. We found health-care providers faced challenges when they encountered patients with multiple injuries, gradual-onset or complex illnesses, chronic pain and mental health conditions. In these circumstances, many health-care providers experienced the workers' compensation system as opaque and confusing, with little clarity about their role in it When health-care providers dealt with injuries that were complex, their views and the views of case managers were sometimes misaligned with respect to the timing and appropriateness of RTW. Forms and recovery guidelines were viewed as ill-suited to these conditions, and communication difficulties between case managers and health-care providers made it difficult to convey important information needed for decision-making and effective RTW planning. In the absence of regular and effective communication, internal medical consultants were used to help case managers with medical decision-making. For treating health-care providers, however, this practice contributed to their further alienation from the workers' compensation system. Administrative hurdles, disagreements about medical decisions and lack of role clarity impeded the meaningful engagement of health-care providers in RTW. In turn, this resulted in challenges for injured workers, as well as inefficiencies in the workers' compensation system
Kosny 2019 [11]	Canada; Qualitative	A review of resources for physicians (GPs, specialists) involved in RTW	While physicians are urged to encourage RTW, few resources explain how the workers' compensation system operates and their role within it. There is a dearth of resources that address complex conditions and difficulties physicians may encounter while treating patients with compensable injuries. These gaps may hinder physicians' understanding of their roles and responsibilities and delay workers' RTW after injury. There is a need for resources aimed at physicians that clearly discuss their role and how to deal with complex conditions and RTW difficulties
Lippel 2016 [41]	Canada; Qualitative	General practitioners	Doctors may be reticent to treat injured workers because of bureaucratic requirements associated with workers compensation procedures and because their role is exposed to scrutiny by various institutional actors. Physicians' aversion to the gatekeeping role. Physicians dealing with workers compensation might benefit from greater understanding of the effect of their own practices on the compensation process, the experiences of their colleagues and, ultimately, on the health of workers

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Lundberg and Melander 2019 [45]	Sweden; Qualitative	General practitioners and patients	We analyzed the interviews with thematic analysis and a motivational push and pull framework to cover different motivational factors, societal and individual, that might push or pull patients from or toward work Providers said that a difference between working and nonworking patients is their level of individual motivation while the patients' stories showed that the main difference was the physical (non) ability to push themselves to work. We suggest that work-related support can be improved by addressing such differences in clinical practice
Mandal and Dyrstad 2017 [38]	Norway; Cross-sectional	General practitioners	A main finding in this study is that length of service is associated with a higher confidence in assessing work capacity for disability benefit claims, a better patient relation, and a more lenient practice. The main difference was found between GPs with more than ten years of experience, and those with less than ten years of experience. In addition, the GPs' self-reported knowledge of workplace adaptions, as well as the importance they assign the task of sick-listing, were significantly associated with their experience of assessing work capacity among potential disability claimants More training in doing assessments of employability (with experienced occupational and rehabilitation doctors in a leading role), the development of better guidelines, as well as closer cooperation between GPs and the Labour and welfare administration are all measures that could strengthen the GPs abilities to conduct sound assessments of work ability
Mann 2017 [60]	Canada; Cross-sectional	Family medicine residents	Thematic analysis revealed 4 themes related to the challenges of concussion diagnosis and management: the nonspecificity and vagueness of symptoms, lack of formal diagnostic criteria, patient compliance with management, and counseling patients with respect to return to play, work, or learning While most family medicine residents correctly defined concussion, there were clear inconsistencies in recognizing concussion symptoms and knowing proper management strategies

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Marell 2016 [54]	Sweden; Qualitative	Fourteen women who attributed their symptoms and illness to either dental restorative materials and/or electromagnetic fields	In consultations, caregivers feel frustrated when they can neither understand nor help patients with environmental intolerance and symptoms attributed to dental materials. Based on the informants' descriptions, conflicts could have arisen from the fact that doctors or dentists did not understand the patient's experience of illness. Therefore, it is important to listen to the patient's explanatory model and try to understand that they have a strong feeling of illness Caregivers must attempt to provide a better consultation and treatment, as this could help avoid an escalation of symptoms. Patients with environmental intolerance seek an explanation of their illness. Even if a medical answer cannot be given, an illness story and a positive consultation can be created, which could contribute to recognition and provide a sense of coherence for the patients
Moßhammer 2016 [42]	Germany; Cross-sectional	General practitioners and Occupational physicians	Overall, OPs and GPs see their respective working field responsibilities as clearly separated from each other, but are interested in intensifying their cooperation. Both physicians' groups rated many variables of potential interfaces to be important. Overall, no competition or even rivalry seems to exist between OPs and GPs in Germany according to the present results. But in terms of remuneration in the field of primary prevention services there may be a competition: GPs do not want to share certain resources with OPs. Some diametrical attitudes between the two physicians groups may exist: OPs accused GPs of lacking knowledge of employees' working conditions when issuing sick-leave certificates. According to OPs, work-related medical certificates issued by GPs often cause more harm than benefit. In addition, GPs seem to have misgivings about OPs, especially in terms of nonadherence to medical confidentiality towards employers in general, especially in cases of addictive disorders of employees. In contrast, OPs think themselves that they adhere to medical confidentiality
Nordhagen 2017 [51]	Norway; RCT	General practitioners	A new model of case-specific colleague guidance to help GPs manage the most challenging sickness absence cases was popular among GPs, who reported appreciating the programme and finding it useful Considerable benefit from the guidance was reported by 68 (59%; 95% CI 50–68). The GPs self-reported other effects on their sickness absence certification, specifically an increased use of part-time sickness absence (Fit-Note equivalent)

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Peters 2020 [57]	Australia; Cross-sectional	Multiple health care providers (occupational therapists, physiotherapists, hand therapists, exercise physiologists, psychologists, surgeons, and general practitioners)	Respondents (n = 787) identified 20 factors being influential on RTW [following upper extremity surgery]. They [include](in order from highest to lowest) poor pain coping (the highest, > 85% of respondents), postoperative psychological state, RTW self-efficacy, employer/supervisor's support, employer's unwillingness for job modification, recovery expectations, job satisfaction, suitable duties availability, whether the job can be modified, and mood disorder diagnosis There was agreement that two factors do not influence RTW, gender, and preemployment medical assessment There was disagreement (P < .05) between healthcare providers disciplines on six factors (obesity, comorbidities, doctors' RTW recommendation, diagnosis, fitness, income) There were no consistent patterns with respect to which professions disagreed across all six factors. Hand therapists differed from the other disciplines for three of the factors including diagnosis, comorbidities, and doctor's recommendation for RTW
Riiser 2021 [36]	Norway; Cohort	General Practitioners	The distribution of sickness absentees across intersectional groups showed that highly educated women made up the largest group and their male counterparts the smallest. Among long-term absentees, highly educated women were less likely to receive medication compared to all other intersectional groups, and more likely to receive talking therapy, compared to women with low and medium education. The results of our study suggest that GPs deliver equitable depression care regarding consultations and referral for all intersectional groups, but differential care regarding drug treatment and talking therapy for highly educated women. These differences may reflect unwarranted variation in treatment that GPs needs to be aware of to prevent replicating inequity
Ruseckaite 2016 [52]	Australia; Cohort	General practitioners	Older men (55–64 years) were less likely to receive alternate/modified duties (ALT certificate). Workers suffering musculoskeletal injuries or occupational diseases were nearly twice or three times at higher odds of receiving an ALT certificate when compared to fractures. Being seen by a GP experienced with workers' compensation increased the odds of receiving ALT certificate This study suggests that specific groups of injured workers (i.e. older age, workers with mental health issues, in rural areas) are more likely to receive unfit for work [UFW] certificates than workers with physical injuries, workers living in metropolitan areas and workers visiting GPs with a higher injured worker case load. The latter are more likely to receive an ALT certificate

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Sanders 2019 [44]	United Kingdom; Qualitative	General Practitioners	GPs suggested that although vocational advice (VAs) could provide an alternative way of managing patients with complex work-related difficulties, there was a lack of engagement and feedback between them and VAs, leading to a mismatch between the objectives of the VA service, to support a faster return to work, and GPs' clinical management. The strict referral criteria were an obstacle to GP acceptability. Whilst early intervention has been advocated to prevent long-term sickness absence, it appears that intervening too early is also problematic, as many patients in our study self-managed their pain and work absence and felt that they did not need a service to assist with this
Scharf 2020 [55]	Germany; Qualitative	Multiple health care professionals (Occupational physicians, Psychotherapists, Psychotherapist in training, Social Worker and General practitioners)	The present study explored the expectations among different stakeholders involved in the RTW process. A key aspect, mentioned by all stakeholder groups, pertained to the need for open communication about expectations and the aims pursued by the different types of stakeholders during the RTW process. At the same time, all stakeholders acknowledged that an open communication about CMDs [common mental disorders] is difficult due to the risk of stigmatization. The returnees' [employee] fear and their communication of their performance profile (e.g., work-related limitations) would indirectly disclose their diagnosis. Therefore, a stronger emphasis should be put on the communication between the stakeholders as well as a trustful communication about the changed performance profile of the returnee
Schouten 2018 [61]	Belgium; Mixed methods	Multiple primary care practitioners, 41 General practitioners	The psychosocial approach in cancer care seems to depend more on the individual approach of HCP [healthcare provider] than on the healthcare system. As a result of the financing system, the accessibility of specific psychosocial care aspects could be under pressure. Explicit detection of psychosocial needs is missing and the response to those needs, from a team perspective and an integrated approach, is not yet common practice. A more explicit approach of psychosocial needs for cancer patients can also provide important insights for training, continuing education and support of the involved HCP. A variety of psychosocial topics are discussed during patient–HCP interactions, and often care is given in line with the patient's needs. However, half the HCPs believe that not enough attention is paid to the psychosocial needs of cancer patients—for some leading to feelings of impotency. Most psychosocial topics are "sometimes" or "regularly" discussed. Sexuality and return to work are rarely mentioned The main barriers in providing psychosocial support to cancer patients are as follows: limited knowledge in order to optimally support the patient in coping with their experiences, inadequate (interdisciplinary) communication and collaboration, and a lack of time and resources to integrate the psychosocial approach in routine inpatient and outpatient care

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Sekoni & Jamil 2018 [53]	United States of America; Mixed methods	Family or internal medicine residents	This article describes a curricular intervention to prepare residents to complete a focused functional capacity assessment during a 30-min office visit Teaching residents how to determine a patient's RFC [residual functional capacity] can reduce anxiety, frustration, and time required to complete related paperwork. This translates to practicing physicians that are more comfortable with the SSA [Social Security Administration] process of disability determination. The societal benefits are timely and accurate information that will expedite the disability process, and in some cases may allow determination to be made without requiring additional resources
Simmons 2018 [26]	United States of America; Qualitative	Physician, physician assistant, nurse practitioner, nurse midwife, community health workers, and other personnel from similar settings [community health centres]	Clinicians and other personnel serving vulnerable populations in safety-net health centers confirm the toll that unsafe work and lack of job security take on their patients. [This study] confirms a number of previously reported findings about challenges experienced by clinicians and other personnel from time constraints, competing priorities, lack of training, and lack of available referral networks, which is exacerbated by fear regarding patient job insecurity and immigration status in this safety-net setting Clinicians reported not utilizing occupational information during clinical encounters and identified competing priorities, limited appointment time, and lack of training as key barriers. They cited workers' compensation as a source of confusion and frustration. However, most participants recognized occupation as an important social determinant of health and expressed interest in additional training and resources

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Stergiou-Kita 2016 [62]	Canada; Qualitative	Health care providers, vocational service providers, community service providers, or advocates (Rehabilitation Consultant, Occupational Therapist, Psychologist, Lawyer, Return to Work Facilitator and Wellness Coach)	While most health care/vocational service providers and employer representatives believed survivors were not likely to be stigmatized, cancer survivors themselves perceived cancer as a highly stigmatized illness in the workplace A supportive workplace, a desire to be open with co-workers, and a need to request supports and manage expectations were reasons provided for disclosure. Conversely, an unsupportive workplace, fear of discrimination, and a minimal need for assistance were reasons provided for not disclosing their cancer Stigma and workplace discrimination are significant concerns for cancer survivors. Survivors, health care providers, vocational service providers, and employers should become familiar with anti-discrimination legislation and recognize stigma and discriminatory behaviors when they occur Survivors require guidance to decide whether (or not) to disclose their cancer, how to respond to discriminatory behaviors, and how to best state their needs for workplace accommodations Workplace stigma and discrimination (e.g., hiring discrimination, refusal of workplace accommodations, wrongful dismissals, limited opportunities for career advancement) can create many immediate and long-term negative consequences for cancer survivors. Individuals who receive inadequate workplace supports and accommodations may be unable to successfully return to work, and those denied promotions will be unable to advance in their chosen careers
Stratil 2017 [43]	Germany; Qualitative	General Practitioners, Occupational Physicians, Rehab physicians, and patients	The participants in our study proposed suggestions on how problems in the rehabilitation process and barriers to cooperation between OPs, GPs, and RPs could be overcome Room for improvement exists with regard to (1) regulation (e.g. formalized role and obligatory input of occupational physicians), (2) finance (e.g. financial incentives for physicians based on the quality of the application), (3) technology (e.g. communication by email), (4) organizational procedures (e.g. provision of workplace descriptions to RPs on a routine basis), (5) education and information (e.g. joint educational programs, measures to improve the image of OPs), and (6) promotion of cooperation (e.g. between OPs and GPs in regards to the application process) Many suggestions are practical and could be implemented into the daily routine of physicians, while others demand multi-level, multi-stakeholder approaches

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Sylvain 2016 [31]	Canada; Qualitative	13 General practitioners and six mental healthcare professionals	The results identified a set of practices common to all the GPs and other practices that differentiated them. Two profiles were defined on the basis of the various practices documented. The first is characterized by the integration of the RTW goal into the treatment goal right from sickness certification and by interventions that include the workplace, albeit indirectly. The second is characterized by a lack of early RTW-oriented action and by interventions that include little workplace involvement Regardless of the practice profile, actions intended to improve collaboration with key stakeholders remain the exception. However, two characteristics of the work context appear to have an impact: the availability of a dedicated mental health nurse and the regular provision of clinical information by psychotherapists. These conditions are rarely present but tend to make a significant difference for the GPs
Vanmeerbeek, 2016 [32]	Belgium; Qualitative	Multiple types of physicians: general practitioners (GP), occupational physicians (OP) and social insurance physicians (SIP)	Information transfer, particularly electronic transfer, was stressed as an important way to improve collaboration between GPs, OPs and Social Insurance Physicians. The collaboration process appeared to be currently more problematic, but the participants correctly identified the need for common training
Yagil 2019 [33]	Israel; Cross-sectional	Occupational physicians (23 senior physicians and 3 interns), oncologists (13 senior oncologists and 5 interns), oncology nurses (N = 41), social workers (N = 30), psychologists (N = 22) specializing in psycho-oncology, and family physicians (N = 20)	The results of this study show: That viewing RTW as part of one's personal role responsibility is positively associated with viewing RTW as part of the role(s) of other professionals working with cancer survivors That the relationship between the perceived benefits of RTW and the perception that responsibility for RTW is part of one's professional role is stronger when team responsibility for RTW is low than when it is high The effect of professional area indicate that occupational physicians view involvement in RTW as one of the responsibilities of their role more than other healthcare professionals do. No significant differences were found between the other professions, with a mean above the scale center (M = 5.06), suggesting that, in general, healthcare professionals tend to view RTW as part of their role Establishing models of teamwork among healthcare professionals to address RTW might contribute to the success of RTW and convey the message that RTW is part of the role of all healthcare professionals That in the absence of a view of RTW as an inherent responsibility of healthcare professionals, personal beliefs about the benefits of RTW might determine each professional's inclination to be involved in RTW. Because RTW might seem to be less important than more salient health and social issues, the benefits of RTW should be actively "promoted" to increase healthcare professionals' awareness of the potential contribution of RTW to cancer survivors' well-being

Table 2 (continued)

Author, Year	Country; Study design	Study population	Interpretations/Conclusions/Findings
Yanar 2019 [40]	Canada; Qualitative	69 HCPs: sample included 50 general practitioners and 19 specialists (e.g., surgeons, oncologists, industrial and sports medicine)	Among the workplace compensation stakeholders examined in this study—CMs [case managers] and HCPs—it is agreed upon that the primary role of HCPs is to provide diagnosis and treatment of injured workers. However, aside from this established medical responsibility, there was less agreement regarding HCP involvement as it pertained to a number of other RTW issues, including acceptable evidence for claim adjudication, workplace readiness, and early RTW. The question of what role HCPs should play in the workers' compensation process is without an easy answer. A dialogue between workers' compensation board decision-makers and HCPs is needed to bring clarity and consensus to their roles, and to ensure that a diversity of stakeholders can achieve a single goal: responsibly returning workers to safe employment

GP General practitioner, *OHS* occupational health and safety, *OP* occupational physician, *OT* occupational therapy, *RP* rehabilitation physician, *RTW* return to work

randomized controlled trial in the US showed that physicians in residency and fellowship training, who were practicing in outpatient settings, had significant race-by-SES interactions in their recommendations. For high SES patients, Black (vs. White) patients were rated has having more pain interference; the opposite race difference emerged for low SES patients. For high SES patients, Black (vs. White) patients were rated as being in greater distress; no race difference emerged for low SES patients. For low SES patients, White (vs. Black) patients were more likely to be recommended workplace accommodations while no race difference emerged for high SES patients. Additionally, providers were more likely to recommend opioids to Black (vs. White) and low (vs. high) SES patients and were more likely to use opioid contracts (a document signed by both patient and prescriber about rules for opioid prescriptions and use) with low (vs. high) SES patients. Providers' implicit and explicit attitudes predicted some, but not all, of their pain-related ratings [34].

Physicians need to be aware that there are significant associations between fit note receipt and ethnicity. A longitudinal study with primary care physicians in the UK showed that all minority ethnic groups, except the Asian group, experienced increased fit note receipt [35].

Physicians also need to be aware that there is an association between gender and education and receipt of medication and counselling. A cohort study in Norway looked at the distribution of sickness absence certification from general practitioners across intersectional groups and found that highly educated women made up the largest group and their male counterparts the smallest. Among long-term absentees, highly educated women were less likely to receive medication compared to all other intersectional groups, and more likely to receive counselling, compared to women with low and medium education [36].

Self-Confidence in Treating Compensable Injury Patients

Brijnath et.al. showed that physicians in Australia refuse to treat patients with compensable injuries because they present with administrative and clinical complexities. The GPs in the study noted that their GP colleagues and medical specialists refused to treat compensable injury patients. A few GPs reported that they also refused treatment to patients with a compensable injury who presented to their clinic for the first time. However, as the inclusion criteria required GPs to have treated or be treating patients with compensable injuries at the time of the study, most GPs commented on their reluctance, rather than refusal, to treat patients with a compensable injury due to administrative and clinical reasons. In the case of compensable injury management, reluctance and refusal to treat is likely to have a domino effect by

increasing the time and financial burden of clinically complex patients on the remaining clinicians. This may present a significant challenge to an effective, sustainable compensation system. Urgent research is needed to understand the extent and implications of reluctance and refusal to treat and to identify strategies to engage clinicians in treating people with compensable injuries [37].

However, GPs with more than 10 years of experience had higher confidence in assessing work capacity for disability benefit claims, better patient relations, and a more lenient practice. In addition, the GPs' self-reported knowledge of workplace adaptations, as well as the importance they assign the task of sick-listing, were significantly associated with their experience of assessing work capacity among potential disability claimants [38].

General practitioners reported a need to deepen their knowledge of the sickness absence certification process. In a study by Hinkka et al., physicians reported they would prefer that these tasks were referred to the occupational healthcare professional and that they would support a national guideline concerning the duration of sickness absence [39].

Role Clarity

There is a need to clarify the physician's role in providing medical information to workers compensation systems and encouraging RTW. Kosny et al. found that healthcare providers find administrative hurdles, disagreements about medical decisions and lack of role clarity impeded their meaningful engagement in RTW, which resulted in challenges for injured workers, as well as inefficiencies in the workers' compensation system [11].

There seems to be agreement that the primary role of healthcare providers is to provide diagnosis and treatment of injured workers. However, aside from this established medical responsibility, there was less agreement regarding the healthcare provider's involvement as it pertained to a number of other RTW issues, including acceptable evidence for claim adjudication, workplace readiness, and early RTW. The question of what role healthcare providers should play in the workers compensation process is without an easy answer. A dialogue between workers compensation boards' decision-makers and healthcare providers is needed to bring clarity and consensus to their roles, and to ensure that a diversity of stakeholders can achieve a single goal: responsibly returning workers to safe employment [40].

Physicians are reticent to treat injured workers because of bureaucratic requirements associated with workers compensation procedures and because their role is exposed to scrutiny by various institutional actors. There is tension between the gatekeeping role and patient advocacy, resisting or rejecting such roles as incompatible with the doctor's professional and moral responsibilities. Physicians dealing with workers compensation might benefit from greater understanding of the effect of their own practices on the compensation process, the experiences of their colleagues and, ultimately, on the health of workers [41].

There is a need to understand the role of general practitioners (GP) and occupational physicians (OP) in the RTW process. A study conducted with occupational physicians and general practitioners showed their respective responsibilities as clearly separated from each other but are interested in intensifying their cooperation. Both physicians' groups rated many variables of potential interfaces to be important. Overall, no competition or rivalry seems to exist between OPs and GPs in Germany according to the present results. But in terms of remuneration in the field of primary prevention services there may be competition: GPs do not want to share certain resources with OPs. Some diametrical attitudes between the two physician groups may exist: OPs accused GPs of lacking knowledge of employees' working conditions when issuing sick-leave certificates. According to OPs, work-related medical certificates issued by GPs often cause more harm than benefit. In addition, GPs seem to have misgivings about OPs, especially in terms of nonadherence to medical confidentiality towards employers in general and in cases of addictive disorders in employees. In contrast, OPs think they adhere to medical confidentiality [42].

Another similar study found that there is room for improvement with regard to (1) regulation (e.g. formalized role and obligatory input of occupational physicians), (2) finance (e.g. financial incentives for physicians based on the quality of the application), (3) technology (e.g. communication by email), (4) organizational procedures (e.g. provision of workplace descriptions to rehabilitation physicians on a routine basis), (5) education and information (e.g. joint educational programs, measures to improve the image of OPs), and (6) promotion of cooperation (e.g. between OPs and GPs in regards to the application process) [43].

In the UK, vocational services are integrated into primary care. Sanders et al. showed that physicians need to be knowledgeable of the role of a vocational clinical assistant that works alongside the general practitioner in supporting the management of patients' work difficulties over and above the clinical problem. This study showed a shift from a solely biomedical to a social model of rehabilitation. Also, it was recognized that changing vocational assistant and GP behaviour to facilitate engagement in a new intervention is not only about removing organisational obstacles but also equipping professionals with the skills to negotiate occupational boundaries in complex multidisciplinary contexts [44].

Culture of Blaming the Patient

Lundberg and Melander found a push and pull framework to cover different motivational factors, societal and individual,

that might push or pull patients from or toward work. General practitioners said that the difference between working and nonworking patients is their level of individual motivation while the patients' stories showed that the main difference was the physical (non) ability to push themselves to work. The authors suggest that work-related support can be improved by addressing such differences in clinical practice [45].

Specific Knowledge and Skills

We identified various areas that relate to specific knowledge related to the practices of occupational medicine. These areas were categorized as performing capacity assessments, knowledge about environmental exposures, mental health disorders, prognosis after certain conditions and injuries, and care related to specific populations such as adolescents and pregnant workers.

Skills to Assess Work Capacity and Need for a Sick Note

A recent study demonstrated that interprofessional clinicians from community heath centers lack training regarding work-related injuries and the workers' compensation processes. Clinicians recognized the adverse effects of work-related illness and injury on work, functional capacity, relationships, mental health, and income, which often results in depression, disability and adverse effects on family members [26].

Another study identified five categories in the assessment of sick-listed patients that physicians need to learn and include in their daily practice: (1) Identifying, understanding, creating, and fitting the pieces together. This means using previously acquired personal experiences and obtaining accurate information directly from the patient; (2) The significance of the disorder while assessing work capacity and sickness absence; (3) Identifying workplace-related pieces of information. This means identifying work setting, work tasks and work demands; identifying potential risk situations at work, and understanding the patient at work; (4) Identifying capacity in everyday life and contextual pieces of information; and (5) Assessing the need for sickness absence. This means issuing sickness absence certification in cases of decreased work capacity and using sickness absence as a means to having enough time for a thorough diagnostic procedure and assessment of work capacity, but also having time to allow recovery and/or the effect of medication [46].

General practitioners lack knowledge to advise patients specifically concerning their work environment and are not happy with their role in deciding about sick leave. This study found three areas where general practitioners agree about their role in the area of work and health: (1) integration of work context in consultation style; (2) counselling about sick leave; and (3) cooperation with occupational physicians [47]. However, this group conducted a cluster randomized controlled trial to assess the effect of training designed to improve the care of patients with work-related problems in general practice and they showed that training GPs did not improve patients' work-related self-efficacy or GPs' registration of work-related problems and occupation [48].

There is a need to address the challenges that GPs experience with the current sickness certification system and their attitudes toward the fit note, which has been in use in the UK since 2010. The fit note focuses on supporting GPs and employers in enabling patients' RTW. Sixty-six percent of GPs report that sickness certification impacted adversely on the therapeutic relationship and 90% report a lack of available rehabilitation services for patients on sick leave. Fifty-three per cent of respondents who indicated a preference for introducing a fit note were significantly more likely to view the current sickness certification system as having an excessive focus on disability and to report that GPs lack training in completing sickness certification [49].

There is a need to develop guidance that will promote consistent, evidence-based advice about taking time off work because there is large variation on how primary care physicians advise their patients about taking time off work, which cannot be explained by differences in patient reported illness duration [50]. There is evidence of benefit for providing education and guidance using a case-specific discussion with a colleague that focused on the management of long-term sickness absence [51].

General practitioners need to be aware of their own limited skills in performing adequate assessments and how that impacts their patients. A cohort study showed that GPs with the highest case load (i.e., 49 and more claims per provider over the eight-year period) were more likely (by 16%) to issue an alternate/modified duties certificate to an injured worker than GPs who saw less than 13 injured workers over eight years. In addition, it showed that some groups of injured workers (i.e., older age, workers with mental health issues, in rural areas) were less likely to receive alternate/modified duty certificates [52].

There is a need to train and prepare residents to complete functional capacity assessments. Sekoni and Jamil demonstrated that a curricular intervention to prepare residents to complete a focused functional capacity assessment during a 30-min office visit can reduce anxiety, frustration and time required to complete related paperwork among family or internal medicine residents. This translates to practicing physicians that are more comfortable with the Social Security Administration process of disability determination. The societal benefits are timely and accurate information that will expedite the disability process, and in some cases may allow determination to be made without requiring additional resources [53].

Knowledge Regarding Environmental Exposures

There is a need to train physicians about environmental exposures and intolerances. A study with 14 women who attributed their symptoms and illness to either dental restorative materials and/or electromagnetic fields found that during consultations, caregivers feel frustrated when they can neither understand nor help patients with environmental intolerance and symptoms attributed to dental materials. Based on the informants' descriptions, conflicts could have arisen from the fact that doctors or dentists did not understand the patient's experience of illness [54].

Knowledge Regarding Disclosure of Relevant Medical Information

In the field of mental disorders, there are some arguments about disclosure of relevant medical information due to the risk of stigmatization. This study involved multiple healthcare professions and concluded that a stronger emphasis should be put on the communication between the stakeholders as well as respectful communication about the changed performance profile of the patient. All stakeholders acknowledged that open communication about common mental disorders is difficult due to the risk of stigmatization. The patient's fear and communication of their performance profile (e.g., work-related limitations) would indirectly disclose their diagnosis. Therefore, stronger emphasis should be put on the communication between the stakeholders as well as trustful communication about the changed performance profile of the patient [55].

Knowledge about Prognosis Related to RTW

There is a need to disseminate knowledge regarding prognosis to return to work for a variety of illnesses and injuries. A study showed that general practitioners' referrals to orthopaedic surgery do not happen at the optimal time and the patients do not receive the best information pre-operatively to make informed decisions, especially around their future levels of work performance [56]. A study with healthcare providers from various occupations showed that there are disagreements between healthcare professions on some factors that predict RTW after surgery for a non-traumatic upper extremity condition [57]. A judgment analysis showed that GPs judgment of future risk of disability for chronic low back pain was less consistent than their judgments of current case severity and they were less able to base a judgment of future disability on the five information cues of self-esteem, motivation, sleep, pain right now, and mobility than they were then judging current case severity [58]. A randomized trial with medical students and GP trainees demonstrated that providing an educational intervention may result in gains in relevant biopsychosocial knowledge, overcoming potential attitude barriers to applying a biopsychosocial perspective and facilitating development of judgment-making more aligned with the biopsychosocial perspective when considering chronic low back pain patients' future risks of disability [59]. A study with family medicine residents showed a lack of knowledge about counseling patients with concussion with respect to return to play, work, or learning [60].

Cancer patients returning to work may pose additional concerns to physicians. A study with multiple primary healthcare practitioners who provide cancer care, including 41 general practitioners, showed that most psychosocial topics are "sometimes" or "regularly" discussed, however sexuality and return to work are rarely mentioned [61]. Another study in oncology patients showed that the relationship between the perceived benefits of RTW and the perception that responsibility for RTW is part of one's professional role is stronger when the healthcare team responsibility for RTW is low than when it is high [33]. A study including healthcare providers, vocational service providers, community service providers and health advocates in assisting cancer survivors found that stigma and discrimination can create many immediate and long-term negative consequences for cancer survivors. Survivors require guidance to decide whether to disclose their cancer, how to respond to discriminatory behaviours and how to best state their needs for workplace accommodations [62].

Knowledge Regarding Specific Populations

Physicians and interprofessional healthcare professionals need to be prepared to provide assistance with adolescents' work-related injuries. A study showed that nurse practitioners serve as primary healthcare providers for adolescents who present with work-related injuries and 43% reported being uncomfortable or very uncomfortable treating them. Previous experience and male gender were associated with greater likelihood of feeling comfortable. This study demonstrates the need for educational and outreach efforts to better prepare nurse practitioners to treat adolescents' with work-related injuries [63]. Another study showed that general practitioners need knowledge about how to help pregnant workers to SAW. Physicians are reluctant to prescribe medications to treat nausea and vomiting during pregnancy, and provide sick leave often or enable the woman to work part-time [64].

Awareness of Available Resources

This scoping review identified that physicians need to be aware of relevant services for injured or ill workers, and

available tools to help them in the management of their patients with work-related injuries or diseases.

Awareness of Relevant Services

A study with general practitioners showed that primary care physicians were not aware of relevant services they could refer patients to, such as occupational therapy support. There was a lack of awareness of invisible impairments and uncertainty about how physicians could help in time-limited consultations; and the complexity of return-to-work issues [29].

Another study of general practitioners highlighted the important role of the RTW coordinator at the workplace in facilitating a successful RTW for injured workers [65].

Awareness of Relevant Tools

A study of healthcare providers from different clinical specialities showed that GPs perceived that an evidence-based medicine (EBM) tool in the workers' compensation setting could potentially have some advantages, such as reducing inappropriate treatment or over-servicing, and providing guidance for clinicians. However, participants expressed substantial concerns that the EBM tool would not adequately reflect the impact of psychosocial factors on recovery. They also highlighted a lack of timeliness in decision making and proper assessment, particularly in pain management [66].

Discussion

We found four areas of physicians' learning needs. One area was related to administrative tasks. These tasks refer to all activities of running their practice as a business, such as record keeping, time management, communication with other parties, and collaboration with other stakeholders. A second area of learning need relates to attitudes and beliefs that physicians have when facing a situation in which their patient needs their assistance to SAW or RTW. We found that there are intrinsic biases among healthcare professionals that may hinder the process. Many studies highlighted a lack of self-confidence among physicians, and barriers related to how physicians view their roles and their business. There is a need for clarity of physicians' roles in the process of treating ill or injured workers. There appears to be a culture of blaming the patient for their lack of motivation to return to work. A third area relates to gaps in specific medical knowledge, such as assessments, environmental exposures, disclosure of relevant medical information, prognosis related to RTW, and special populations such as adolescents and pregnant women. Lastly, we found that physicians need to be aware of services and tools that exist to assist them in returning their patient to work.

Our scoping review focused on the learning needs of primary care physicians' in helping workers to SAW or RTW after an injury or illness. The included studies used a variety of methods to identify these learning needs, including questionnaires, surveys, interviews, and focus groups. The 44 included studies were published in the past 5 years and were conducted in North America, Europe, Australia, and Israel. The compiled list of learning needs may not be exhaustive, but provides a general sense that there is a need to provide medical education to front line primary care providers on RTW and SAW. The topics generated by these 44 studies provide a comprehensive idea for a didactic curriculum that could be applied to teaching family medicine, general internal medicine, emergency medicine, rehabilitation medicine, nurse practitioners and allied healthcare professionals.

Strengths and Limitations

Our methods to conduct this scoping review followed recommended methodologies to avoid bias in the searches, selection and synthesis of data. However, our scoping review is limited to publications since 2016 due to constraints in time and resources for this project. The wide number of countries from which we found literature on this topic is both a strength and a limitation. It is limiting because there may be jurisdiction and health system-specific issues. However, it is a strength because despite any national differences, a commonality has been revealed in the four themes identified. There is no doubt that being in well supported and safe work is good for people, and family physicians need to advocate for their patients in an informed manner. The burdens of time constraints and what can be seen as bureaucracy are universal. Our findings are similar to Kosny et al., that physicians and other healthcare professionals can improve outcomes for injured workers, however, many of these opportunities are missed due to uncertainties about physician's roles, vagueness and lack of clarity in various resources aimed at physicians, lack of knowledge about complex and invisible conditions (chronic pain, mental health, substance use), and barriers to effective collaboration [24].

Future Research

We identified various studies that included an educational intervention aimed at physicians. It is important that future studies include detailed follow-up of patients with a workplace component [25]. There is a need to explore the role of various healthcare professionals such as vocational rehabilitation and medical assistants on the RTW process, especially in practices where physicians do not have access to an interprofessional team or specialized occupational

medicine consultants [26]. Future research needs to consult all interested stakeholders, including insurers and employers [31]. Studies need to have an adequate sample size to allow exploration of the potential variables in terms of professional experiences and workplaces.

The extant evidence supports rehabilitation professionals' role in RTW yet their limited knowledge may be a barrier to this process [67–70]. Our results indicate examining the learning needs of rehabilitation professionals in the coordination of services between different stakeholders in supporting RTW. Moreover, demonstrating the potential utility of investigating the learning needs of rehabilitation professionals through an interdisciplinary perspective in improving the transition of care. Specifically, future studies may explore the need to further improve interprofessional education, training, and mentorship of health professionals to address gaps in improving the coordination of services between different stakeholders.

Large numbers of participants for each professional group will enable examination of each profession separately [33]. It is also important to explore cross-cultural differences in the extent to which healthcare professionals view RTW as part of their role. Issues related to healthcare professionals' education, workload and role definitions, as well as cultural characteristics, such as collectivistic vs. individualistic orientation, might affect professionals' views regarding responsibility for RTW [33].

Some interpretations of intrinsic biases need to be confirmed in future studies [34]. Future work is needed to elucidate which pain-related decisions are most influenced by patient race and SES and provider attitudes, as well as the environmental conditions that amplify or diminish these effects [34]. Other race/ethnic groups and SES categories (e.g., blue collar, middle class) should be considered in future studies. Additionally, other indicators of SES (e.g., education) may affect provider decisions in real clinical settings [34].

There is a need for larger scale research to explore the extent and impact of reluctance and refusal to treat, and how to effectively address it, so that patients with compensable injuries can access the care they need [37]. Future research should include the experiences of GPs from various locations alongside the views of specialists and allied health professionals.

More research is needed to improve our knowledge of the occupational health needs of the population that the fit note is designed to support [35].

Future research is needed to determine how to support physicians in coping with the sickness absence certification problems that are only partly related to the medical profession [39].

Conclusions

There are opportunities to improve primary care for workers with an illness or injury that affect their work. We identified various learning needs that could be included in didactic curricula to physicians in residency or in continuing medical education. More research is needed to test interventions aimed at filling these gaps in learning needs.

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Declarations

Conflict of interest All authors declare that they have no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

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