Het veilig voorschrijven van opioïden in de huisartsenpraktijk

Annelies Lenaerts, Universiteit Gent

Sappho Walravens, Katholieke Universiteit Leuven

Prof. Dr. Cathy Matheï, Katholieke Universiteit Leuven

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Voorwoord

Sinds het begin van onze MaNaMa opleiding huisartsgeneeskunde werden wij geconfronteerd met patiënten met problematisch gebruik van opioïden voor chronische niet-kanker pijn. Tijdens deze consulten kwamen frustraties boven bij zowel onszelf als bij onze collega's. Meermaals kwamen patiënten langs voor het hernieuwen van een voorschrift voor veel te hoge dosissen of meerdere soorten opioïden. Deze ervaringen hebben bijgedragen tot de keuze van dit thesis onderwerp. Via deze thesis hopen wij een bijdrage te leveren aan een uitweg voor deze problematiek in de huisartsenpraktijk.

Deze thesis verbindt onze beide onderzoeksvragen. Gezien de onvoorwaardelijke verbinding tussen uitwerking en resultaten, wordt dit gepresenteerd als één geheel.

Graag willen we ook enkele mensen bedanken die ons geholpen hebben bij het tot stand brengen van deze thesis.

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Verder willen we ook graag onze families en vrienden bedanken voor al hun steun tijdens deze laatste twee jaar. Zij zorgden voor de nodige ontspanning en afleiding op de geschikte momenten.

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Annelies en Sappho

Abstract (NL)

Achtergrond: Zoals beschreven door de Centres for Disease Control and Prevention (CDC) is er een toename van opioïde misbruik, overdosis met opioïden en opioïde gerelateerde sterfte. Ondanks deze toename, worden opioïden steeds meer voorgeschreven voor zowel kanker als niet-kanker pijn in de Verenigde Staten. Deze stijgende trend in opioïde gebruik is ook zichtbaar in andere landen waaronder België. In 2016 publiceerde de CDC een richtlijn met aanbevelingen voor huisartsen met als doel het voorschrijven van opioïden voor niet-kanker pijn te reduceren. Desondanks werd er geen significante daling van het aantal opioïde gerelateerde sterfte gezien in de Verenigde Staten.

Doel: Een beter inzicht krijgen in het voorschrijfgedrag van huisartsen bij de behandeling van chronische niet-kanker pijn. Dit wordt bekomen door onderzoek van hun overtuigingen, attitudes, barrières en facilitatoren omtrent het voorschrijven van opioïden. Zo hopen we een basis te vormen voor de ontwikkeling van nieuwe interventies die een verantwoordelijk voorschrijfgedrag bevorderen.

Methode: Kwalitatieve en kwantitatieve studies omtrent dit onderwerp werden gezocht via een zoekstrategie op PUBMED tot december 2019. De resultaten van de geïncludeerde studies werden onafhankelijk geëxtraheerd en geanalyseerd door beide auteurs. Achteraf werden de resultaten onderverdeeld in de drie componenten van het Behaviour Change Wheel (BCW) en de Theoretical Domains Framework (TDF).

Resultaten: Twintig studies, gepubliceerd tussen 2003 en 2019, werden geïncludeerd. In totaal werden 96 overtuigingen, attitudes, barrières en facilitatoren over het voorschrijven van opioïden voor chronische niet-kanker pijn geïdentificeerd. Hieruit kwamen twee grote thema's naar voor. Het eerste thema legt een groot tekort aan opleiding bloot. Hieronder wordt zowel opleiding voor het gebruik van opioïden bij chronische pijn evenals pijn in het algemeen verstaan. Een tweede thema bundelt verschillende factoren die een intern dilemma bij de huisarts aantonen. De balans tussen de wil om een patiënt te helpen en de angst om de gezondheid van de patiënt te schaden veroorzaakt een emotionele belasting bij de huisarts.

Conclusie: Verschillende ankerpunten voor verbetering werden geïdentificeerd waaronder een gebrek aan opleiding en een innerlijk conflict bij het voorschrijven van opioïden. Toekomstige interventies kunnen ontwikkeld worden met behulp van deze kennis.

Abstract (EN)

Background: As documented by the Centres for Disease Control Prevention (CDC), opioid abuse, opioid overdose and opioid related deaths have increased in the last decade. Despite these growing numbers, opioids are still increasingly prescribed for both cancer and chronic non-cancer pain (CNCP) in the USA. This opioid epidemic is also seen in other country such as Belgium. To reduce opioid prescribing for CNCP the CDC released a guideline in 2016 providing recommendations to primary care physicians (PCP's). Despite these guidelines, no significant decrease in opioid related deaths is witnessed in the USA.

Objectives: To have a better understanding of the prescribing behaviour of PCP's in treating CNCP by exploring their beliefs, attitudes, barriers and facilitators. By doing this, we hope to provide a basis for the development of interventions to insure responsible opioid prescribing for CNCP in primary care.

Methods: We searched PUBMED until December 2019 for qualitative and quantitative studies concerning the topic. Two authors independently extracted and analysed the results of included studies. Afterwards results were mapped to the three components of the Behaviour Change Wheel (BCW) and the Theoretical Domains Framework (TDF).

Main results: A total of 20 studies published between 2003 and 2019 met the inclusion criteria and were included. 96 beliefs, attitudes, barriers and facilitators concerning opioid prescribing for CNCP were identified. Two big themes emerged. First, PCP's report a lack of education concerning the use of opioids for CNCP but also a lack of basic knowledge of pain in general. A second major theme bundles different factors showing an internal dilemma for PCP's when prescribing opioids for CNCP. Balancing between wanting to help patients and avoiding harm seems to cause a significant emotional burden.

Authors' conclusions: Different areas for improvement were identified including lack of education and inner conflict when prescribing opioids. Intervention strategies can be developed using this knowledge.

Introduction

Opioid abuse and related to this opioid overdose and opioid related deaths have increased in the last decades. According to the Centres for Disease Control and Prevention (CDC) in the United States there has been a rise in the number of opioid overdose deaths since the 1990s. Recently, starting in 2013, there has been an increase in overdose deaths involving synthetic opioids, both prescribed or illicitly manufactured. Since the start of this epidemic there have been almost 450,000 deaths in the USA related to an overdose involving opioids (1). Despite these increasing numbers of opioid related deaths, opioids are still increasingly prescribed for both people with cancer and chronic non-cancer pain in the USA. (2).

This opioid epidemic is not limited to the United States. According to the 'Rijksinstituut voor Ziekte- en Invaliditeitsverzekering' (RIZIV) there has been a significant raise in the number of prescribed opioids in Belgium in the last decade. Between 2006 and 2016 there was a significant increase in the number of patients who received at least one opioid prescription per year. In 2016 the number equated to about 10% of the Belgian population that received a prescription. The number of Defined Daily Doses (DDD) increased as well. There were even a number of patients who received more opioids than one daily dose, and even some who received more than two daily doses (3). More recently, in 2018 the 'Christelijke Mutualiteit' published a press announcement which stated that there was an increase of 32% in the number of patients who received opioid prescriptions. Of these patients only 8% were cancer patients and 92% were patients who used this medication for non-cancer pain (4).

Currently one of the most used tools in Belgium in the treatment of chronic non-cancer pain is the "pain ladder" of the World Health Organisation (WHO). Chronic pain is defined as persistent or recurring pain that last longer than 3 months (5). This "ladder" was developed by the WHO to aid in the treatment of cancer pain in adults and consists of three steps. Namely paracetamol or a NSAID as a first step, then a weak opioid and lastly a strong opioid (6). Although it was developed for cancer pain, it is widely used in the treatment of chronic pain as well. Research shows however that there is no definitive proof that opioids are effective in the long term in the treatment of CNCP. It doesn't have a proven benefit on pain control, nor does it have a proven benefit for the physical functioning of the patients (7).

In order to help reduce the opioid epidemic the CDC released a guideline in 2016 for prescribing opioids for chronic pain to provide recommendations to primary care physicians (PCP's) (8). This guideline already is an improvement in the treatment of CNCP as it has helped clinicians to think more carefully about opioid prescribing and its possible alternatives.

However, it still has some omissions as for example it doesn't mention anything about patient or provider education (9). Despite the release of this guideline and other interventions, for example raising public awareness, by the CDC there is still no significant decrease in the number of opioid related deaths in the USA. From 2017 to 2018 the number of drug overdose deaths decreased only by 4%. Every day 128 people still die from an opioid overdose in the USA (1).

When we look at both the numbers concerning opioid abuse and opioid prescribing we can say that there is still an ongoing problem with both the prescribing and the use of opioids. If we want to change this in the future, we need to know where these changes need to happen. To do this we first must know why doctors prescribe opioids to patients with chronic non-cancer pain (CNCP). What are their beliefs and attitudes about the prescription of opioid to patients with CNCP? Are there any barriers or facilitators that they experience to prescribe opioids? In this thesis we hope to provide some answers to these questions, so we can provide a basis for the development of interventions to diminish the prescription of opioids and reduce the number of opioid abuses, opioid overdose and even opioid related deaths.

It is known that designing interventions based on intuition diminishes the chances of success (10). Therefor various frameworks were created for classifying behaviour change interventions, including the Behaviour Change Wheel (BCW). The framework consists of three layers. At the core of the wheel, is a 'behaviour system' involving three essential conditions: capability, opportunity and motivation (what is called the 'COM-B system') (11). We chose this framework for our thesis to help us identify the behaviours of PCP's that need change and how to achieve this.

Methodology

The overall purpose of this thesis is to have a better understanding of the prescribing behaviour of primary care physicians (PCP's) in treating chronic non-cancer pain (CNCP). We will be addressing two main questions:

1. What are beliefs and attitudes of PCP's concerning prescribing opioids for CNCP in primary care?
2. Which barriers and facilitators are identified by PCP's concerning prescribing opioids for CNCP in primary care?

A qualitive systematic review was created because it facilitates a comprehensive understanding of a problem and to gain insights into complex phenomena (12).

The framework

The COM-B system provides a basis for designing interventions aimed at behaviour change. It consists of three essential conditions: capability, opportunity and motivation (what is called the 'COM-B system'). Capability refers to an individual's physical and psychological capacity to engage in the activity concerned. It includes comprehension, literacy, reasoning and having the necessary knowledge and skills. Motivation refers to all brain processes that energize and direct behaviour including goals, decision-making as well as emotional responding. Opportunity is defined as all factors that lie outside the individual that make behaviour change possible or prevent it (11).

The task is to identify what behaviour needs changing, and which COM components would need to change to achieve the target behaviour. To do so, the COM-B system can be expanded by the Theoretical Domains Framework (TDF) (10).

COM-B component		TDF Domain
Capability	Psychological	Knowledge
		Skills
		Memory, Attention and Decision Processes
		Behavioural Regulation
	Physical	Skills
Opportunity	Social	Social Influences
	Physical	Environmental Context and Resources
Motivation	Reflective	Social/Professional Role & Identity
		Beliefs about Capabilities
		Optimism
		Beliefs about Consequences
		Intentions
		Goals
	Automatic	Social/Professional Role & Identity
		Optimism
		Reinforcement

Table 1: Mapping of the Behaviour Change Wheel's COM-B system to the TDF Domains. Source: Cane et al (10).

Methods

Inclusion and exclusion criteria

Study designs. Qualitive studies and mixed-methods studies were included. Quantitative studies were included if they were cross-sectional studies.

Participants. Studies were included if the participants include PCP's, nurse practitioners (NPs) or physician assistants (PAs) working in primary care settings.

Outcomes. Studies were included if they report at least one belief, attitude, barrier or facilitator of prescribing behaviour of PCP's concerning opioids in CNCP.

Setting. The primary data must be obtained in a primary care setting. All other settings were excluded.

Language. Studies were included if written in the following languages: English, French and Dutch. Studies in other languages were excluded.

Information sources and search strategy. The following electronic database was searched from the onset of the literature database until December 2019: PUBMED, for studies meeting the inclusion criteria stated above. The search strategy was developed by the authors and reviewed by the promotor, based on a list of relevant Medical Subject Headings (MeSH terms). The relevant studies identified through the search were scanned for potentially eligible papers.

One of the following:			
Topic	**Title/Abstract**		**MeSH Terms**
Opioid	Opioid Opioids	*OR*	Analgesics, opioid Opioid analgesics
AND			
Primary care	Primary care Family medicine General practitioner General practice Primary care physician Ambulatory care	*OR*	Primary care Physician, primary care Physicians, primary care Primary care physician Primary care physicians General practice physician General practice physicians General practice General practitioner General practitioners Physician, general practice Physicians, general practice Ambulatory care
AND			
Prescribing	Prescribing Prescribed Prescriptions	OR	Drug prescription Drug prescriptions Prescriptions

Table 2: Search strings used in the search strategy.

Data management, study selection and data synthesis. Results of the search strategy were independently screened by the two authors. Disagreements were resolved through consensus. Full-text copies of the selected studies were sought, and the selection process was repeated. The authors independently extracted and analysed the results of included studies independently. Afterwards results were mapped to the three components of the BCW (capability, opportunity and motivation) and the TDF domains. Disagreements were resolved through consensus. Results of the systematic review are reported in a table and a narrative synthesis of the findings is provided.

Assessment of methodological quality. Quality of the selected articles was evaluated using the Joanna Briggs critical appraisal checklists. Both a checklist for quantitative cross-sectional studies and for qualitative research were used. If a paper scored seven out of ten points, it is of fair quality. For good quality a score of eight points was needed. Very good quality corresponds with nine points or more.

Results of search strategy

The search strategy found 1123 potentially relevant studies (see figure 1). Of those, 1066 references had an abstract and proceeded to abstract screening. A total of 30 studies were selected for full-text examination. We were unable to obtain a full-text copy of one study. Of the 29 remaining studies, 9 with full text were excluded (for details see annex B)

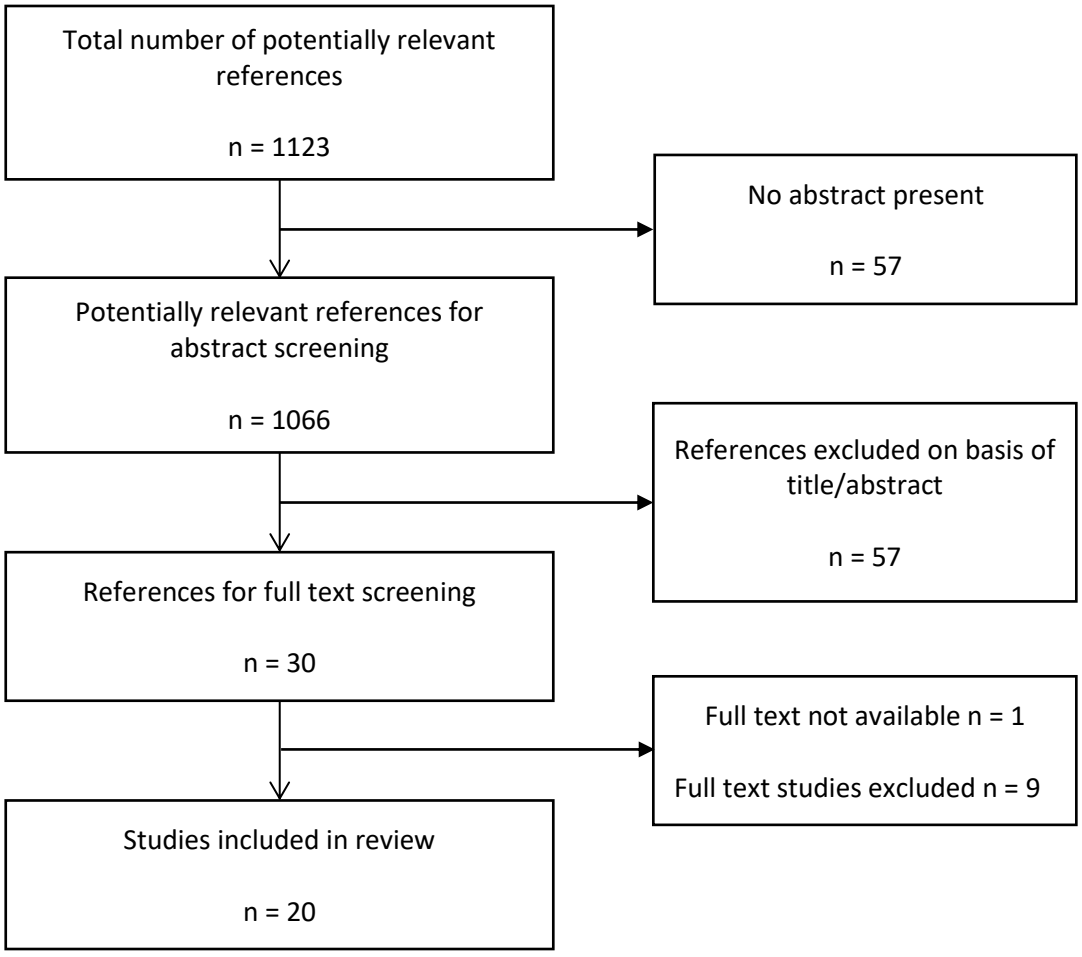


Figure 1: Flow diagram of the screening process

A total of 20 studies published between 2003 and 2019 met the inclusion criteria and were included in this review (13-32). All references included were single-site studies, mainly from North America (n=14) and Europe (6). All twenty studies were written in English.

Ten studies were qualitative, mainly using semi-structured interviews and focus groups; nine studies were quantitative, all of them using a cross-sectional design; the remaining study used a mixed-methods approach. Characteristics of the included studies can be found in table X.

Methodological quality. Five studies were scored as having fair quality. There were six studies of good quality and nine studies of very good quality.

First Author	Year	Language	Country	Recruitment	Study Design	Study Sample	Methodological quality
Barry DT	2010	English	USA New England	Physicians in New England who provide primary care were contacted through email and postal mailing.	Qualitative study Semi-structured interview	23 primary care physicians	Very Good
Blake H.	2015	English	UK East Midlands	All GPs of the Nottingham City Primary Care Trust region were sent a questionnaire.	Quantitative study Cross-sectional 57-item questionnaire with Likert-type scale	94 general practitioners	Very Good
Clark LG	2007	English	USA Massachusetts	Family physicians were recruited out of 6 family practices	Qualitative study Focus-groups	14 family physicians	Good
Click IA	2018	English	USA Tennessee and Virginia	all active primary care providers and clinic directors in 5 clinics (3 in Tennessee and 2 in Virginia)	Qualitative study Focus-groups, using a semi-structured interview guide	32 participants of which 24 doctors, 4 nurse practitioners, 2 clinical pharmacists and 2 other	Very Good
Desveaux L.	2019	English	Canada Ontario	family physicians were sent a recruitment email, interested physicians were asked to contact a member of the research team	Qualitative study Semi-structured interview in person or by telephone	22 family physicians	Very Good
Ekelin E.	2018	English	Sweden	Ten health centres in the middle of Sweden were contacted by mail. Two rural and two urban centres were selected	Qualitative study Focus groups	15 GPs, 4 GP residents and 2 interns	Good

First Author	Year	Language	Country	Recruitment	Study Design	Study Sample	Methodological quality
Hurstak EE	2017	English	USA San Francisco Bay Area	purposeful sampling by identifying safety-net primary care clinics through discussions with regional health system directors	Qualitative study Semi-structured interview	23 primary care practitioners (18 physicians, 4 nurse practitioners and 1 physician assistant)	Good
Hutchinson K.	2007	English	UK South-East England	convenience sampling at postgraduate training events on pain and other subjects invitation to GP practices	Quantitative study Cross-sectional 34-item questionnaire with Likert-type scale	115 GPs, of which 13 having additional training or a specialist interest in pain management	Good
Hwang CS	2016	English	USA	random sample of 1000 practising primary care physicians using the American Medical Association Masterfile were mailed the questionnaire	Quantitative study Cross-sectional 45-item questionnaire, using with Likert-type scale	420 physicians of which 52% were family practitioners, 46% internal medicine and 2% general practice	Fair
Jamison RN	2014	English	USA Boston	primary care practitioners from eight centers were recruited as part of a larger ongoing study examining ways to improve confidence of managing challenging patients with chronic pain.	Quantitative study Cross-sectional 5 surveys all but one using a Likert-type scale	56 primary care practitioners of which 45 internal medicine practitioners, 8 nurse practitioners and 3 practice assistants.	Fair
Keller CE	2012	English	USA New York	81 primary care physicians belonging to the Upstate New York Practice-Based Research Network were randomly selected	Quantitative study Cross-sectional 17-item questionnaire with a 5-point Likert-type scale	35 physicians of which 24 family medicine, 4 internal medicine, 1 pediatrics, 4 others and 2 missing	Fair

First Author	Year	Language	Country	Recruitment	Study Design	Study Sample	Methodological quality
Kennedy MC	2016	English	Ireland	recruitment using a snowball sampling approach, initially trough the Health Research Board Centre for Primary Care Research until saturation	Qualitative study Semi-structured interviews	12 GPs	Good
McCrorie C.	2015	English	UK Leeds and Bradford	158 general practices were approached of which 37 wanted to participate	Qualitative study Focus groups	15 GPs	Good
Morley-Forster PK	2003	English	Canada	100 physicians drawn from a nationally representative sample of physicians	Quantitative study Cross-sectional Telephone conducted interview	70 GPs and 30 palliative care physicians	Fair
Pearson AC	2017	English	USA	clinicians attending a pain-focused continuing education conference	Quantitative study Cross-sectional 10-item questionnaire with a 5-point-Likert - type scale	69 participants of whom 56.6% physicians 26.1% advanced practice nurses 11.6% physician assistants 1.4% registered nurse 2.9% others	Very Good
Seamark D.	2013	English	UK Exeter and East-Devon	selection of purposive sample of GP's with experience in prescribing strong opioids	Qualitative study Focus groups and 17 semi-structured interviews	22 GP's: 17 GP's in interviews 5 GP's in focus group	Very Good

First Author	Year	Language	Country	Recruitment	Study Design	Study Sample	Methodological quality
Spitz A.	2011	English	USA New York City	recruitment during routine staff meeting at two practices + medical directors at community health centres were contacted to recruit at 3 practices	Qualitative study Focus groups	23 physicians 3 nurse practitioners	Very Good
Tong ST	2019	English	USA Virginia	Secondary analysis of electronic health record data + Interview with primary care clinicians	Mixed method Cross-sectional Questionnaire + Semi-structured interview	data from 21 primary care practices (271 clinicians) Interview with 16 GP's	Fair
Vijayaraghavan M.	2012	English	USA	Recruitment of PCPs trough patients who were enrolled in a longitudinal study on pain and the use/misuse of opioid analgetics	Quantitative study Cross-sectional Questionnaire with a Likert-like scale	61 PCPs (81,9% physicians, 16,4 % NPs and 1,6 % PAs)	Very Good
Wenghofer EF	2011	English	Canada Ontario	1000 PCP were randomly selected from the college of physicians and surgeons of Ontario (CPSO)	Quantitative study Cross-sectional Questionnaire with a Likert-like scale	658 PCPs with a primary care practice (family physician or general practitioner)	Very Good

Table 3: Characteristics of included studies.

Results

A total of 96 themes relating to beliefs and attitudes, barriers or facilitators about opioid use for CNCP were extracted. These themes were sorted according to TDF domain and can be found in tables X. In the following paragraphs, highlights of the most observed findings are presented.

Beliefs and attitudes about prescribing opioids for CNCP

A total of 44 findings relate to beliefs and attitudes. Most themes identified were mapped in the 'motivation' component of the BCW. The TDF domains with the highest number of themes were environmental context, beliefs about consequences and emotion.

Capability

In general, PCP's report a need for more education and training in treating CNCP (13, 23, 24, 27). In addition to specific training, PCP's feel that physician practices guidelines would be of assistance in treating CNCP (18, 19, 32). In a total of six studies PCP's believe that CNCP is often related to having other problems, mainly sociopsychological problems. They feel this complicates diagnosis and treatment of CNCP (13, 15, 16, 20, 22, 31). Furthermore, mixed beliefs were identified concerning the capability of PCP's. In three studies the majority of PCP's don't consider opioids to be a first-line treatment for CNCP (20, 25, 26). However, in one study PCP's explain that prescribing opioids often becomes a default reaction in absence of a long-term management plan (31). In addition to this last finding, in four more studies PCP's report a lack of effective alternatives to opioids (15, 16, 25, 31).

Opportunity

The most reported belief by PCP's is a limited access to alternative interventions or treatment for pain (15, 16, 18, 21, 25, 31, 32). Additionally, PCP's report in five studies a lack of support and communication received from pain specialists in managing CNCP (14, 22, 30-32). In general, there is a reported need for increased general access to health-care providers (15, 18). Certain beliefs or attitudes concern practice management such as limited time for pain consultations, a need for a nurse care manager or need for change in the opioid refill progress (15, 18, 22, 31). Other beliefs like lack of control over patients' access to other sources of opioids and lack of addiction treatment resources are related to the general healthcare management (15, 16, 22, 30).

Motivation

PCP's report a low level of confidence or satisfaction when treating patients with CNCP in three studies (22, 27, 28). In five research papers, PCP's state that weak opioids are adequate in treating chronic pain if well-managed (13, 15, 16, 24, 30).

On the other hand, they report in two studies that total pain relieve may not be achieved when treating CNCP (13, 20). One study reported that PCP's experience different kinds of conflict when prescribing opioids. Inner conflict, conflict with patients and conflict with colleagues are reported (16). Other findings are that PCP's report anxiety, stress and frustration when handling opioid-related conversions (14, 16, 18, 30, 31). In four studies, PCP's mention awareness when prescribing opioids for patients with a history of substance abuse (17, 18, 20, 22).

Barriers concerning prescribing opioids for CNCP

There were 35 findings relating to barriers concerning prescribing opioids for CNCP. Most of these findings were mapped in the 'motivation' component of the BCW. The TDF domains with the highest number of themes were beliefs about consequences and reinforcement.

Capability

The barrier concerning PCP's capabilities that was mentioned the most in our studies was having a lack of confidence in treating CNCP due to insufficient training (13, 14, 17, 20, 22-24, 26, 28). This barrier was mentioned in nine studies. Four studies stated difficulty in assessing pain as a barrier (16, 20, 22, 26). The difficulty in distinguishing true pain from possible secondary gains was mentioned in a further five studies (16, 20-22, 29). Three studies stated a reluctance to prescribe opioids when a clear diagnosis is absent as a further barrier to prescribe opioids (14, 22, 24).

Opportunity

Four studies state the substantial cost of opioid treatment as a barrier for PCP's to prescribe opioids (13, 20, 22, 26). A lack of availability of appropriate pain management referrals was mentioned in two studies (22, 32). And a lack of available resources to support effective pain management in practice was mentioned in two studies as well (19, 22).

Motivation

Seventeen studies stated concerns about possible addiction as a barrier for PCP's to prescribe opioids to patients with CNCP (13, 14, 16, 17, 19, 20, 22-32). Eight of these studies also mentioned concerns about medication misuse (13, 14, 17, 19, 20, 24, 29, 30). Concerns about tolerance was also mentioned as a barrier in eight studies (16, 17, 19, 20, 23-25, 27). And concerns about opioid related adverse effects was mentioned in seven of the studies (13, 14, 20, 23, 24, 26, 32). Another barrier that recurred in seven studies was a fear of medicolegal consequences (13, 23, 24, 26, 27, 29, 30). Furthermore, PCP's reported fear of causing harm to the patient in four studies (24, 26, 29, 32). Previous bad experiences with prescribing opioids for CNCP was mentioned as a barrier in three studies (20, 21, 26).

Concerns about co-morbidities were also stated in three studies as a barrier to prescribe opioids (22, 26, 32). As well as concerns about drug-drug interactions which was mentioned in a further three studies (14, 26, 32).

Facilitators concerning prescribing opioids for CNCP

There were 17 finding relating to facilitators concerning prescribing opioids for CNCP. These findings were about equally divided among the three components of the BCW. Six findings were mapped in the capability component, five in opportunity and another six findings were mapped in motivation. The TDF domains with the highest number of themes were memory, attention and decision process and environmental context.

Capability

Some of the facilitators mentioned pertaining to PCP'S capabilities were a strong interest and an education in palliative care or pain management (20). As well as studies demonstrating long-term benefit of opioids, the use of validated risk assessment tools or evidence-based tools to calculate starting doses (26). All of these facilitators were mentioned in one study each. One other study mentioned the use of opioid agreements with their patients to establish clear boundaries (22). Some PCP's were also more likely to prescribe opioids when other treatments were ineffective in treating CNCP (28).

Opportunity

The facilitator that was mentioned most frequently in our studies, namely in five of the studies, was having a trusting and strong therapeutic relationship with the patient when prescribing opioids (16, 19, 21, 26, 31). Three studies made mention of easy access to pain specialists as facilitating the prescribing of opioids (18, 26, 32). As well as having adequate support and direction from these specialists as stated in three studies (14, 26, 28).

Motivation

Having confidence and experience in the clinical management of patients with CNCP was a facilitator that was mentioned in three studies (17, 19, 20). Another facilitator mentioned in two studies was the belief of the PCP in the effectiveness of opioids in treating CNCP (24, 27). As well as patients whose pain has an identifiable aetiology and patients with a history of benefiting from opioids in the past were both mentioned in one study (26).

COM B COMPONENT	BELIEFS/ATTITUDES	STUDY
CAPABILITY		
Knowledge	CNCP is related to having other problems, mainly sociopsychological problems.	(13, 15, 16, 20, 22, 31)
	Need for more education and training in treating CNCP	(13, 23, 24, 27)
	Don't consider opioids to be first-line treatment for CNCP	(20, 25, 26)
Skills	PCP's feel that they can identify patients at risk for misuse	(28)
Memory, attention and decision process	Because of absence of a long-term management plan, prescribing opioids often becomes a default reaction.	(31)
	There is lack of effective alternatives to opioids	(15, 16, 25, 31)
	Need for physician practice guidelines	(18, 19, 32)
	PCP's report limited interest in providing pain management	(22)
Behavioural regulation		
OPPORTUNITY		
Social influences		
Environmental context	Lack of support and communication received from pain specialists in managing patients with CNCP	(14, 22, 30-32)
	Need for change in the way patients obtain their monthly medication (opioid refill process)	(18)
	Need for improvement in patients' self-management education	(18)
	Need for increased general access to health-care providers	(15, 18)
	Need for a nurse care manager	(18)
	Lack of addiction treatment resources	(30)
	Limited time for CNCP consultations	(15, 22, 31)
	Lack of control over patients' access to other sources of opioids	(15, 16, 22)
	Access to alternative interventions or treatment for pain is limited	(15, 16, 18, 21, 25, 31, 32)
	Prescription drug abuse is a problem in my community	(25)
MOTIVATION		
Social/professional role & identity	Feelings of violating an inner conviction when prescribing opioids for CNCP	(16)
	Primary care often becomes the default chronic pain medication manager	(15, 16)
Beliefs about capabilities	Low level of confidence and satisfaction in treating CNCP	(22, 27, 28)

	Practicing with suspicion and cynicism complicates the ability to address patient needs	(16, 19, 22)
	Initiating opioid therapy is less straightforward for CNCP than for cancer pain	(20)
Optimism	PCP's belief that treating patients with CNCP is a problem in their practice	(28)
	Total pain relief may not be achieved in CNCP	(13, 20)
Beliefs about consequences	Weak opioids are adequate in treating chronic pain if well-managed	(13, 15, 16, 24, 30)
	Risk of losing the patient's confidence when refusing to prescribe opioids	(16)
	Risk of being at odds with colleagues when refusing to prescribe opioids	(16)
	When refusing opioids, patients may interpret this as the GP not believing their symptoms	(16)
	Awareness about prescribing to patients with a history of substance misuse	(17, 18, 20, 22)
	Opioid-related consultations threaten the integrity of the physician-patient relationship	(19)
Intentions	Other medical comorbidities often take priority	(15)
Goals	Absence of clear treatment goals	(31)
	Necessity to frequently review opioid prescriptions	(32)
Reinforcement	Opioid prescribing is strongly influenced by the level of comfort with the patient.	(21)
	Limited cooperation of the patient to review opioid prescriptions	(32)
Emotion	Opioid-related conversations are emotionally laden.	(19)
	Appointments for monthly refill prescription cause anxiety	(16, 18, 30)
	Managing patients with CNCP is stressful	(14, 31)
	Frustration after inheriting patients with CNCP on opioids	(15)
	Frustration when asked to renew a prescription of a drug previously prescribed by another doctor	(13, 16)
	Feeling manipulated and/or lied to by patients to renew a prescription	(16)
	Perception of lack of control during a consultation about CNCP	(16)
	Atmosphere of suspicion/distrust with certain patients	(16)

Table 4: Beliefs and attitudes concerning opioid prescribing for CNCP in primary care

COM B COMPONENT	BARRIERS	STUDY
CAPABILITY		
Knowledge	Lack of confidence in treating CNCP due to insufficient training	(13, 14, 17, 20, 22-24, 26, 28)
Skills	Difficulty in assessing pain	(16, 20, 22, 26)
	Distinguishing true pain from possible secondary gains	(16, 20-22, 29)
	Problem of converting or dosing opioids	(26, 30)
Memory, attention and decision process	Reluctance to prescribe opioids when a clear diagnosis is absent	(14, 22, 24)
	Minimal knowledge of the initial rationale for opioid prescription by a specialist	(16, 19)
	The potential harms outweigh the potential benefits	(26)
Behavioural regulation		
OPPORTUNITY		
Social influences	Media coverage of inappropriate opioid use cases is discouraging	(24)
	Stigma about opioid use for CNCP	(26)
Environmental context	Lack of available resources to support effective pain management in practice	(19, 22)
	Substantial cost of opioid treatment	(13, 20, 22, 26)
	Questionable feasibility of implementing guidelines in resource-constrained family practice settings	(19)
	More and tighter clinic policies	(21)
	Lack of appropriate pain management referrals	(22, 32)
MOTIVATION		
Social/professional role & identity	Fear of medicolegal consequences	(13, 23, 24, 26, 27, 29, 30)
Beliefs about capabilities		
Optimism		
Beliefs about consequences	Concerns about opioid related adverse effects	(13, 14, 20, 23, 24, 26, 32)
	Concerns about medication misuse	(13, 14, 17, 19, 20, 24, 29, 30)
	Concerns about addiction	(13, 14, 16, 17, 19, 20, 22-32)
	Concerns about tolerance	(16, 17, 19, 20, 23-25, 27)
	Concerns about physical dependence	(23, 24)
	Concern about a long-term commitment to prescribing strong opioids	(14, 24, 31)

	Concerns about drug-drug interaction	(14, 26, 32)
	Fear of causing harm to the patient	(24, 26, 29, 32)
	Fear of community harm	(29)
	Fear to facilitate substance use	(29)
	Fear of overdose	(29)
Intentions		
Goals		
Reinforcement	Bad experience with prescribing opioids for CNCP	(20, 21, 26)
	Opioid use in young people regardless of gender should be avoided	(21)
	Unreliable patient	(26)
	Concern for family member/caregiver abuse of opioids when prescribing opioids to an older patient	(26)
	Family's reluctance to have patient take opioids	(26)
	Patient reluctance to try opioids	(22, 26)
	Concerns about co-morbidities	(22, 26, 32)
	Patients' exclusive focus on opioid analgesics	(22)
	Patients' psychosocial background	(32)
Emotion		

Table 5: Barriers concerning opioid prescribing for CNCP in primary care

COM B COMPONENT	FACILITATORS	STUDY
CAPABILITY		
Knowledge	Strong interest and education in palliative care or pain management	(20)
Skills		
Memory, attention and decision process	Studies demonstrating long-term benefit of opioids	(26)
	Use of validated risk assessment tools	(26)
	Evidence-based tools to help calculate starting dose	(26)
	Opioid agreements help to establish clear, appropriate boundaries.	(22)
	More likely to prescribe opioids for CNCP when other treatments are ineffective	(28)
Behavioural regulation		
OPPORTUNITY		
Social influences	Trusting, long-standing, strong therapeutic relationship	(16, 19, 21, 26, 31)
Environmental context	Having a chronic pain template or toolkit would improve pain management	(18, 32)
	Easy access to specialists	(18, 26, 32)
	Adequate support and direction from pain specialists	(14, 26, 28)
	Presence of a reliable caregiver at home when prescribing opioids to older patients	(26)
MOTIVATION		
Social/professional role & identity		
Beliefs about capabilities	Confidence in clinical management and experience with CNCP	(17, 19, 20)
	Informed decision making by the patient	(16)
Optimism		
Beliefs about consequences	Belief in effectiveness of opioids in treating CNCP	(24, 27)
	Increasing risk of overdose when discontinuing/tapering opioids	(29)
Intentions		
Goals		
Reinforcement	An identifiable aetiology of pain	(26)
	A history of benefiting from opioids in the past for CNCP	(26)
Emotion		

Table 6: Facilitators concerning opioid prescribing for CNCP in primary care

Discussion

This study aimed to identify beliefs, attitudes, barriers and facilitators concerning opioid prescribing for chronic non cancer pain in order to develop strategies to ultimately reduce opioid use.

A total of 96 factors were identified of which 21 (22%) relating to capability, 22 (23%) relating to opportunity and 53 (55%) relating to motivation. However, among these factors two big themes emerged in many studies included in this thesis.

A first big theme that emerged concerns the capability of PCP's in treating CNCP. In general, the majority of PCP's lack confidence and have low satisfaction in treating CNCP (27). A few possible explanations are identified in this paper. PCP's feel that they lack a good general education concerning the treatment of CNCP. Even more, different factors suggest that even the basic knowledge of pain in general is insufficient. A low skillset can be a second possible explanation. PCP's have difficulty in assessing pain, mostly because pain is a subjective symptom without a good measuring tool. Opioid prescribing is more influenced by the level of comfort with the patient and a good, long therapeutic relationship than by an unbiased evaluation (21). A third and final explanation is the lack of practice guidelines and treatment goals when treating patients with CNCP. Often prescribing opioids becomes a default reaction because of absence of a long-term management plan (31). It is easy to understand that these different factors can create insecurities and low confidence for PCP's.

Adding to this lack of knowledge and education is a shortage of resources. PCP's reported a lack of alternative treatments for these patients, both medical as well as non-medical. They found they did not have enough access to alternative pain treatments, for example psychological and physiological therapy, for patients with CNCP. As well as not enough access to other health care providers, primarily concerning addiction treatment and pain management referrals. They reported a lack of support and communication with pain specialists to help optimise their patients' therapy.

A second big theme bundles different factors mapped to the 'motivation' part of the COM-B model. PCP's struggle with an ethical dilemma because of the conflict between potential benefit of opioids and causing harm. They can feel manipulated and/or lied to by patients to renew a prescription for opioids. There is a constant concern for potential adverse effects, medication misuse, addiction, overdose, etc… while refusing to prescribe can complicate the patient-doctor relationship. Several results show that prescribing opioids gives rise to discomfort, anxiety and conflicting feelings. Desveaux et al. reports that opioid-related conversations are found to be emotionally laden (19).

If a well-informed patient with a risk of addiction claims to decide over his own health and continues to demand weak opioid prescriptions , PCP's may be forced to violate one of the principles of patient autonomy, nonmaleficence and beneficence (16, 19). Balancing between these principles often results in a significant emotional burden for PCP's (16).

Looking at these results we concluded that there are multiple areas where we can intervene to significantly alter the prescribing of opioids. However taking into consideration the COM-B system these interventions need to have an effect on all the different components of this system, as shown in the figure below. It would be insufficient to create an intervention that only improves one component, we need to look at all the different components and develop interventions on all these levels if we want to significantly alter the prescribing of opioids.

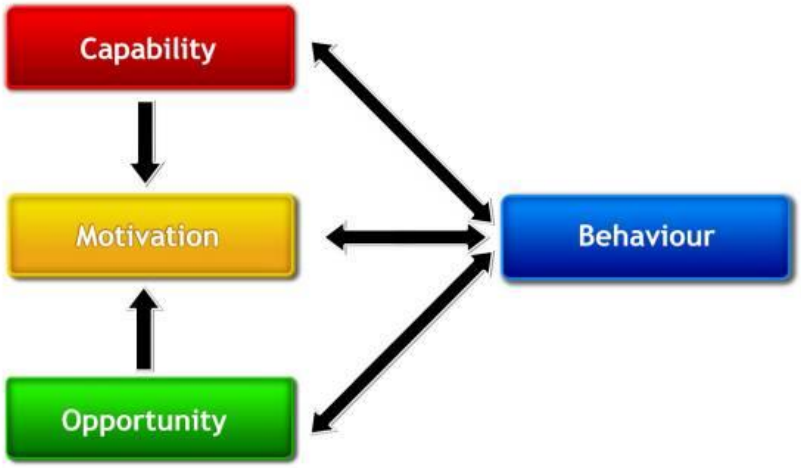


Figure 2: The COM-B system - a framework for understanding behaviour. Source: Michie et al. (11)

As you can see in the figure above, there are interactions between the different components of the COM-B system. The single headed and double-headed arrows represent potential influence between the components of the system. For example, both capability and opportunity can influence motivation; and enacting a behaviour can alter capability, motivation and opportunity. Motivation is the hardest component to alter however taking into consideration these interactions it is possible to improve even this component.

As stated before a lot of PCP's feel an internal conflict when prescribing opioids as they are divided by their wish to relieve the pain of the patient and their fear to cause their patient harm.

Taking into the consideration the COM-B system we would like to suggest some possible interventions that we have identified that could improve the prescribing of opioids and by doing so alleviate PCP's of this internal conflict.

There is a need for more and better education to improve PCP's knowledge about prescribing opioids. PCP's need to be better educated not only about treating CNCP but also about how to motivate and treat patients with opioid addiction. The development of new guidelines, tools to assess the risk for addiction or calculate the correct dose of opioids or the development of E-learnings are only some of the possibilities to better educate PCP's. But not only their knowledge but also their communication skills need to be improved. Trainings about how to handle difficult consultations, dealing with uncertainty and addiction could be of use.

Furthermore, we need to improve the organisation, communication and accessibility between PCP's, pain specialists and other health-care providers. Pain treatment should not be managed solely by the primary care physician. The treatment of CNCP needs to consist of both medical and non-medical interventions such as physiotherapy, psychological guidance and therapy groups. So, we think there is a need for a more multidisciplinary approach to treating patients with CNCP. There needs to be contact with a pain specialist to help PCP's optimising the medical therapy of CNCP. Physical therapists can help to improve the patients' physical wellbeing and psychologists could support the patients' mental health and teach them how to deal with their pain. All these different aspects can be used in the treatment of CNCP but we also need a good communication between all these different groups if we want to optimise the treatment of patients with CNCP.

We would also like to mention that we identified these different factors to help develop interventions to optimise the prescribing of opioids when treating patients with CNCP. However, we do not want this to be a reason to completely restrict the prescribing of opioids and never prescribe them to patients with CNCP as they do have their place in the treatment of CNCP.

The limitations of our study are the number of studies included in this systematic review but also the origin of the included studies. 70% (14/20) of included papers originate in North America. Therefore, it may be questioned if these results can be transferable to a Belgian health context. On the other hand, the remaining 30% of studies originated in Europe. And these corresponded well with North American results. Another limitation of our study is that our search was only performed in the PUBMED database.

Conclusion

Different areas for improvement were identified in this paper. A number of PCP's experience an inner conflict when prescribing opioids for CNCP between their wish to help the patient and their fear to cause the patient harm. They also reported lack of knowledge and education and a need for better guidelines and tools. As well as a need for better support and communication with specialists. When designing interventions to improve the prescription of opioids in primary care we need to take into consideration all the different components of the COM-B system. Additional research and the further development of interventions are necessary to ensure responsible opioid prescribing for CNCP in primary care.

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Annex A: approvement ethical commission KUL

Het veilig voorschrijven van opioïden in de huisartsenpraktijk

Communicatie geschiedenis

De verstrekte informatie toont aan dat het onderzoek in het kader van de masterproef een zuivere literatuurstudie betreft en dat er op geen enkele wijze gebruik wordt gemaakt van proefdieren, proefpersonen of menselijk lichaamsmateriaal.

Dit type onderzoek vereist geen goedkeuring van een gemachtigde commissie voor medische ethiek.

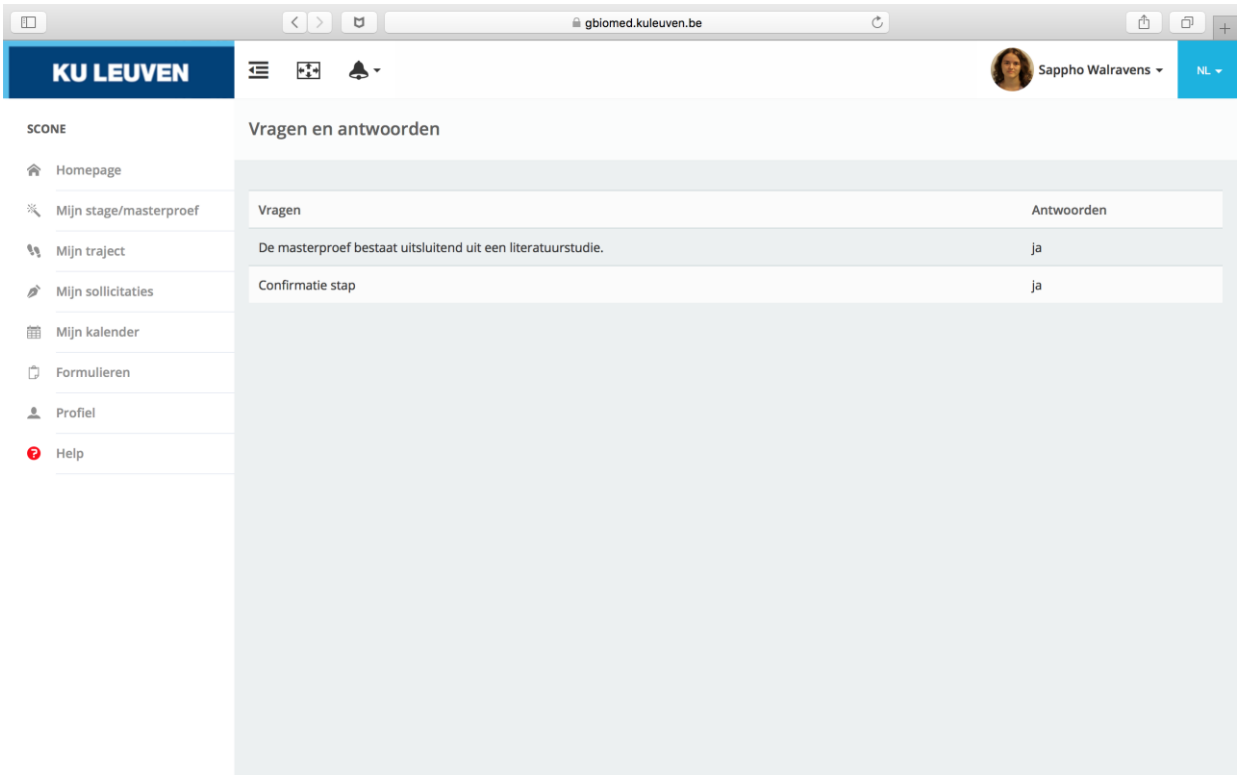
Onder voorbehoud van de volledigheid en correctheid van de door u verstrekte gegevens, krijgt u hierbij het akkoord om het onderzoek in het kader van de masterproef te starten. Deze mail dient als bewijs van goedkeuring mocht u uw onderzoek wensen te publiceren.

Wij willen u erop attent maken dat u zelf verantwoordelijk blijft voor uw onderzoek. Bovendien doet elke wijziging aan de door u verstrekte gegevens omtrent de onderzoeksopzet deze goedkeuring vervallen. U dient in dat geval een amendement te maken aan uw huidig dossier.

Details met de antwoorden van de vragenlijst zijn hier raadpleegbaar.

Dossiernr.	MP009633
Stage	Masterproef I HAIO
Faculteit/opleiding	Faculteit Geneeskunde - Master in de huisartsgeneeskunde
Studiefase	eerste fase
Academiejaar	2018-2019
Opmerkingen / praktische informatie	Een systematic review van kwalitatieve studies omtrent het voorschrijfgedrag in de eerste lijn van opioïden.
Gewenste taal van communicatie	nl
Promotor	Professor Cathy Matheï (u0009104)
Extra groepsleden	**Annelies Lenaerts** r0768745
	Sappho Walravens sappho.walravens@student.kuleuven.be r0299134

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Annex B: Excluded full text articles and references

Reasons for exclusion

1 do not focus on opioids for CNCP

2 do not have a qualitative or quantitative design as mentioned in the inclusion criteria

3 do not focus on beliefs, attitudes, barriers and/or facilitators for prescribing opioids in CNCP reported by general physicians/nurse practitioners/physician assistants in primary care

4 do not focus on prescribing opioids for CNCP in general

Excluded full text articles and reasons for exclusion (n=9)

First Author	Year of publication	Reasons for exclusion
Baldini A	2012	2
Curtis HJ	2019	2
Gardiner C	2012	4
Kavukcu E	2015	2
Kennedy LC	2018	3
Kennedy-Hendricks A	2016	3
Mordecai L	2018	2
Onishi E	2017	3
White R	2019	3