

Report: Implementation  
actions for the KNGF  
guideline "Osteoarthritis of  
the hip and knee" – 2018

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### *Note for the reader of the French version*

*This report should have been written in the inclusive form but, in order not to overload the text with full doublets ('lecteur et lectrice') or abbreviated doublets ('lecteur.ice'), the sentence incorporating the epicene form is preferred (la lecture) or the **feminine deliberately alternates with the** generic or lexical **masculine**, in order to remind people that each lexical gender could potentially represent the diversity of genders that co-exist in our society.*

## Summary of the report

### Overview of the situation on knee and hip osteoarthritis and its management

Osteoarthritis is one of the main causes of disability in the world and is one of the top 10 diseases associated with disability-adjusted life years (DALYs) in people aged between 60 and 64. It has a considerable impact on the quality of life of patients, whether from a functional, psychological or social point of view. Despite a relatively stable incidence of osteoarthritis in Belgium, its age-adjusted prevalence has risen considerably over the last decade, and the associated multimorbidities make it more complex to treat. This may be underlined by the increase in drug prescriptions associated with osteoarthritis, which have seen a notable rise in prescriptions for acetaminophen, mild opioids and glucosamine.

On the other hand, for almost 15 years, Belgium has remained in the top-5 of countries with the highest arthroplasty rates among OECD countries, despite the correction for age distribution.

Yet all current recommendations suggest conservative, staged and sustained management of knee and/or hip osteoarthritis (KHOA), before considering the use of arthroplasty (KNGF, 2018; OARSI, 2019; NICE, 2022).

Although there are no data to enable us to estimate the proportion of people suffering from KHOA who actually use conservative management, the increasing prevalence, multimorbidities and associated drug prescriptions, together with management that may be sub-optimal (leading to over-hasty surgery when all conservative resources have not been sufficiently exploited beforehand), make this condition one of the priorities for improving healthcare in Belgium.

However, there are many obstacles to the conservative management of KHOA, stemming as much from patients and healthcare providers as from the current organisation of healthcare in 1<sup>ère</sup> line.

Indeed, both the Euler survey, which revealed 20 years ago the lack of transdisciplinary vision of each of the carers involved in the management of osteoarthritis, and the recent OARSI model of transdisciplinary skills for the management of arthritis, underline the importance of multidisciplinary - or even transdisciplinary - management of arthritis.

### Step 1 - Selection of the prioritized recommendations

The *Guide to physiotherapy practice for coxarthrosis and gonarthrosis* (KNGF, 2018) published on [EBPnet.be](http://EBPnet.be), has been amended with recommendations from the guides aimed at prescribers of treatment (OARSI, 2019; NICE, 2022), all three of which propose conservative management of KHOA.

Of all the recommendations for the conservative management of KHOA that were presented to the stakeholders (2 general practitioners, 4 physiotherapists, 2

orthopaedic surgeons, 1 psychologist), 5 recommendations were prioritised in a survey conducted among them:

- (1) Providing **information/education to patients** from the outset and throughout their treatment (on the pathophysiology of KHOA, treatment options, pain and pain management, lifestyles, adapted physical activity, self-management, etc.);
- (2) Offer **supervised therapeutic exercise management** (based on the FITT model), including several exercise modalities adapted to the patient's comorbidities and goals;
- (3) Provide **dietary advice** (for patients with the right profile) as a first-line treatment and, if this fails, refer patients to a dietician;
- (4) **Refer to an orthopaedic surgeon after at least 3-6 months of conservative management of KHOA which has not** proved effective;
- (5) To propose **pre-operative management** for patients eligible for arthroplasty and showing risk factors for sub-optimal recovery.

## Step 2 - Context analysis - barriers, interventions from literature and stakeholders ' feedback

In order to explore the obstacles to the implementation of the recommendations for the conservative management of KHOA, a 'Rapid Review' method was first carried out within Ebpracticenet and the obstacles identified through the 43 primary studies included in the 'Rapid Review' were discussed with the stakeholders during meetings.

- Patients have misconceptions about both KHOA and its treatment. When they raise the issue of KHOA with their therapist, they perceive a lack of listening on the part of the therapist, who fatalistically considers KHOA to be a "minor problem" compared with other situations. As allopathic pharmacological options are only palliative and have significant side-effects, patients readily turn to alternative medicines. When they agree with the principle of changing their lifestyles, all the interventions requiring lifestyle changes (physical activity, weight management, etc.) remain difficult to implement. Conservative management, including therapeutic exercises, seems ill-suited to their particular situation, and the fear of seeing their pain increase is the major obstacle to their participation and/or perseverance in exercise or physical activity. Finally, the short duration of physiotherapy sessions and the low number of reimbursed sessions are also an obstacle to their involvement in supervised exercise.
- GPs do not feel sufficiently trained in the management of KHOA from all points of view (both in terms of clinical diagnosis and treatment options), and they do not have the time required to properly inform patients about KHOA and its treatment options. They admit to having a fatalistic view of KHOA, considering

that arthroplasty is "the ultimate and only effective solution", but which they nevertheless seek to postpone using all the means in their therapeutic arsenal. Therapeutic exercises are prescribed with little conviction as to their effectiveness, for certain patient profiles and if they so wish. This modest enthusiasm is reinforced by the little feedback doctors receive from the physiotherapists who look after their patients, and by the rarely positive feedback they hear from their patients. The patient's recourse to arthroplasty is associated with the GP's fear of losing control of his patient.

- Physiotherapists oscillate between a pronounced interest in *evidence-based practice* and a return to *feeling-based practice* with their patients. The question of the uneven quality of physiotherapy training in Belgium (teaching of techniques that are not always evidence-based) was raised, depending on the different generations of physiotherapists and the different regions of the country. For many physiotherapists, the treatment paradigm for KHOA remains very biomechanical, and the bio-psycho-social dimensions (BPS) are not sufficiently integrated into practice. That said, in order to integrate these BPS dimensions and offer efficient treatment in line with the recommendations, the stakeholders emphasise the impossibility of doing so in a format of sessions that are too short (30 min), that do not allow the benefit of the essential support of peers (not having a nomenclature for group sessions) and that are not numerous enough (18 sessions max/year). In addition to training in the knowledge of KHOA, physiotherapists emphasise the need to develop interpersonal skills with their patients, which can help to stimulate patient motivation, get them through the more difficult episodes, and catalyse patient empowerment and self-management.
- Orthopaedic surgeons emphasise that it is impossible for them to have all the BPS details of patients who come to their consultations for the first time, and that they would be reassured if these patients were systematically referred by their GP to the orthopaedic consultation. They would also like to have information on the efficacy and risks/benefits of the various conservative treatment options, so that they can prescribe them to patients who have not yet benefited from them in 1<sup>ère</sup> line of care. In other words, they would like to see the 1<sup>ère</sup> line of care better organised around the conservative management of KHOA, so that they in turn can offer surgical management to patients who are better targeted and better prepared for it.
- All the stakeholders involved, as well as the literature, insist on the difficulty of interprofessional communication within the 1<sup>ère</sup> care line, leading to discordant discourse between carers, inconsistencies in management, discontinuity in care, a deterioration in the patient-carer relationship and, finally, a lack of patient compliance.

In order to discuss possible strategies for implementing the recommendations on the conservative management of KHOA, Belgian initiatives were explored and examples of interventions from the 29 primary studies included in the Rapid Review were illustrated and discussed with stakeholders at meetings.

Among the interventions described in the literature, a tool for shared decision making has shown that it can be a real catalyst for dialogue between carer and patient, leading to a shared decision, and the presumed impact of using this tool on carers' workload has not been demonstrated.

Resources for the management of KHOA by carers, as well as for patient self-management, can draw on those developed by [Jigsaw-E](#), while the literature has highlighted the importance of making training for carers interactive and dynamic in order to improve adherence to the recommendations.

In Holland, the dissemination of information material to patients, the education of general practitioners and physiotherapists through large-scale training courses, and the distribution of material for carers, have made it possible to offer structured multidisciplinary management organised in 1<sup>ère</sup> line of care. After 2 years of implementing this care pathway, the results include massive use of patient education and a reduction in the need for arthroplasty.

A programme of patient education sessions followed by supervised group therapeutic exercises showed excellent adherence to the proposed programme, enabling the desired results to be achieved.

In terms of access to orthopaedic consultations, triage of patients prior to the orthopaedic consultation has improved the selection of patient profiles for arthroplasty and their preparation for surgery, resulting in less use of post-surgical rehabilitation resources.

Finally, OARSi has developed a model of transdisciplinary skills for the conservative management of KHOA, providing a basis of objectives for implementation.

### Step 3 - Implementation plan

The analysis of the main barriers on which implementation interventions should be targeted concerns, on the one hand, patients' beliefs about KHOA, their self-management skills, and their motivations for the conservative management of KHOA ; and, on the other hand, carers' knowledge about KHOA and all aspects of its management, their beliefs about KHOA, their interpersonal skills relating to their communication with patients, and their (lack of) optimism.

As far as physiotherapists in particular are concerned, the implementation interventions should help to improve their knowledge of therapeutic exercises integrated into BPS and pain management, as well as their skills in motivating patients to support the practice of exercises and to modify their lifestyles.

Finally, more structural interventions are essential (1) to provide a temporal and material environment for physiotherapists to offer supervised and unsupervised therapeutic exercises integrating the BPS aspects of patients in accordance with



current evidence and (2) to overcome the problem of interdisciplinary communication within the 1<sup>ère</sup> care line, in order to improve trust and mutual support of each carer's prescriptions by other carers and finally, to contribute to better co-ordination of the staged and conservative management of KHOA.

The implementation plan could include a range of measures based on initiatives already carried out in Belgium and/or abroad, addressing the main barriers identified.

The development and dissemination of educational material for patients and for educating patients by carers; multidisciplinary and/or interactive training for carers; the creation of tools for shared decision-making with patients; support for carers in the iterative assessment of patients as part of staged management; financial strategies to support the management of patients in small groups for supervised exercises; technical aids to help carers in their interdisciplinary communication, but also patients in their self-management; local champions to consolidate interdisciplinary relationships; process facilitators to catalyse all these interventions.

An example of an implementation plan with various strategies illustrates some of the interventions that could be considered as part of the implementation of conservative management of KHOA in Belgium.

## Overview of the situation on knee and hip osteoarthritis

Osteoarthritis is the 4<sup>ème</sup> worldwide cause of disability and is a major public health problem in countries with a high socio-economic index, accounting for up to 20% of the total healthcare costs linked to musculoskeletal diseases. (1,2).

In Belgium, 14% of men and 22% of women say they have osteoarthritis, and it is one of the top 10 pathologies associated with the number of DALYs, reaching 1170.98 DALYs/100,000 people aged between 60 and 64 ([Global health estimates: Leading causes of DALYs \(who.int\)](#)) (3). Osteoarthritis has a considerable impact on people's quality of life, with a significant perception of functional losses, higher than those perceived in other chronic diseases or in arthritis in general (4). These include the negative impact of osteoarthritis on morale, the deterioration of self-image, problems in married life and difficulties in sexual life, fatigue linked to difficulties in falling asleep or pain that wakes people up at night; discouragement linked to osteoarthritis is reported by 25% of people (5).

### Knee osteoarthritis in Belgium: increasing prevalence, multimorbidities and drug prescriptions

The average age at diagnosis of gonarthrosis is 57 years and has not changed over the last 20 years. The incidence of gonarthrosis has also remained relatively stable in Belgium between 1996 and 2015, reaching 3.75‰ in 2015, while the prevalence of gonarthrosis (age-standardised) has increased considerably during this period in Belgium, estimated at 2.5% in 2015, as have the multimorbidities associated with gonarthrosis (6).

Drug prescriptions have also changed over the last 20 years: while prescription rates for NSAIDs (oral or topical forms) have remained stable overall, prescriptions for strong opioids increased between 1996 and 2003 and then fell slightly between 2003 and 2015; while prescriptions for acetaminophen, mild opioids and glucosamine have increased significantly over this period. (6).

According to Spitaels et al, the increasing prevalence of gonarthrosis in Belgium, and the associated multimorbidities and drug prescriptions, make this condition one of the priorities for improving healthcare in Belgium. (6).

### Increasing knee and hip replacements

Between 2009 and 2019, hip arthroplasties (THA) and knee arthroplasties (TKA) followed the increasing prevalence of hip and knee arthroses in the world ([Country Health Profiles 2021 - OECD](#)). Between 2009 and 2019, Belgium remained in the top-5 of OECD countries with the highest rates of THA and TKA (THA: 283/100,000 inhabitants - TKA: 212/100,000 inhabitants ([Country Health Profiles 2021 - OECD](#))) and the differences observed between the arthroplasty rates of OECD countries cannot be explained by differences in age pyramids. (7). According to the INTEGRO register, more than 20,000 TKAs are performed each year in Belgium (8). The median overall cost of a THA is estimated at €8,023.91, which may be increased when comorbidities are present at the same time as the operation. (9).

A large cross-sectional study conducted under the auspices of OARSI showed that total arthroplasty was recommended in 50% of patients with knee osteoarthritis and 70% of patients with hip osteoarthritis; the variables associated with the surgeons' recommendation for total arthroplasty were (1) radiographic severity, (2) pain and (3) function reported by the patients (10).

## Step 1: Identification of evidence-practice gap and selection of recommendations needing additional implementation support

### Current management of patients with knee-hip osteoarthritis may be sub-optimal

All current recommendations suggest conservative and rational management of osteoarthritis of the knee and hip (KHOA), before considering arthroplasty. (11-14).

Although there is no data to enable us to estimate the proportion of people suffering from KHOA who actually use conservative management in Belgium, or how this is currently carried out in 1<sup>ère</sup> lines of care, all the indicators suggest that this management may not be in line with these recommendations.

#### Prescribers

The current management of patients suffering from KHOA could be sub-optimal, in terms of referral (or self-referral) to surgery too hastily, when all conservative resources have not been sufficiently exploited beforehand, but also in terms of the decision criteria on the basis of which arthroplasty is decided. (15). Under-appreciation of the proven advantages of the procedure by the prescribers, difficulty in getting the patient to adhere to the conservative treatment methods, and a relative conflict of interest on the part of certain surgeons, are some of the factors that could explain - among others - these inappropriate therapeutic choices at this stage of the pathology. (15).

#### Physiotherapists

A survey of 284 Belgian physiotherapists investigated their adherence to the recommendations for the management of knee osteoarthritis, on the basis of 9 quality indicators (selected from a set of 21 indicators for this management); it revealed that the adherence of physiotherapists was very variable, ranging from 27% (regular patient assessments) to 98% adherence (patient referral to sports activities)(16,17).

While 1<sup>ère</sup> physiotherapists certainly need to improve the evidence-based quality of their therapeutic approaches, these must also integrate the bio-psycho-social (BPS) dimensions, according to the multipathological and more complex profiles of their patients, while taking into account patients' values and preferences. (18).

The benefits of therapeutic exercise are enhanced when the recommended dosage for healthy adults is adhered to. However, many obstacles are encountered when trying to achieve these optimal dosages in patients suffering from KHOA, and physiotherapists are often helpless in the face of these obstacles (18,19). From the patients' point of view, for those who have

experienced physiotherapy sessions in Belgium, many do not feel that they have received appropriate treatment for their KHOA (20).

Implementing strategies for the rational and effective management of KHOA in line with the latest recommendations would therefore make a major contribution to improving patients' quality of life, reducing their frailty and the risk of falls, and combating obesity and osteoporosis resulting from a sedentary lifestyle.

It responds to the priority of affordable, high-quality physiotherapy in Belgium, as well as to the specific needs of patients, and is integrated into overall care for chronic conditions.

### Multidisciplinary management of knee-hip osteoarthritis

Interprofessional collaboration, which is recommended in the BPS and multidisciplinary management of a patient suffering from a chronic pathology such as KHOA, must also be supported within the 1<sup>ère</sup> line between GPs, physiotherapists, psychologists, dieticians and other players (carers, social workers, etc.). (21).

### Methodology for the selection of recommendations from the KNGF guideline on conservative management of hip-knee osteoarthritis (KNGF, 2018)

The KNGF guide, published in 2010 and revised in 2018, recommends conservative, staged management of KHOA for 3 to 9 months, but is only aimed at physiotherapists, who are not the prescribers of treatment for the conservative management of KHOA (11). We felt it was essential to include all carers involved in the management of KHOA according to these recommendations (general practitioners, orthopaedic surgeons, psychologists, etc.) and, to this end, to broaden the scope of the recommendations in the KNGF guide with recommendations from OARSI and NICE also aimed at prescribers (12,13).

Of all the recommendations in the KNGF guide for physiotherapists (summarised in [Appendix 1](#)), 10 relate to physiotherapy techniques, of which we have selected 6 recommendations relating to the techniques most commonly practised by physiotherapists in 1<sup>ère</sup> line of care.

### Conclusion Step 1 : Targets for implementation

Following a survey of stakeholders (2 GPs, 4 physiotherapists, 2 orthopaedic surgeons, 1 psychologist) at two meetings (27/03/2023-NL and 30/03/2023-FR), the following 5 recommendations were prioritised for further implementation efforts (details of the stakeholder survey and results can be found in [Appendix 2](#)):

1. The consensus recommendation to provide **information/education to patients** was prioritised by all stakeholders (*results: 62.5% positive - 12.5% neutral - 25% negative*). From the outset and throughout the course of treatment, patients should be provided with information to improve their knowledge of KHOA, the various treatment options available, and their personal involvement in managing their KHOA. They should also be given **advice on** appropriate lifestyles, how to maintain an active lifestyle, suitable physical activities and self-management of KHOA.

2. The recommendation of **exercise therapy** was prioritised by all stakeholders (*results: 62.5% positive - 12.5% neutral - 25% negative*). This should be based on the FITT model (Frequency, Intensity, Type and Time duration), combining strengthening exercises, aerobic exercises and functional exercises. It should be offered to all patients suffering from KHOA, whatever their characteristics (age, severity of symptoms, etc.), and should be adapted to the patient's co-morbidities and objectives.
3. In the case of overweight, the following recommendations were prioritised: (a) during the first 3 months of conservative management of KHOA, **dietary advice** will be given to the patient (*results: 50% positive - 12.5% neutral - 37.5% negative*); (b) if this is not sufficient after 3 months of management, the patient will be **referred to a dietician** (*results: 37.5% positive - 37.5% neutral - 25% negative*).
4. The recommendation concerning the **conditional referral of a patient to an orthopaedic surgeon** after at least 3-6 months of conservative management that has proved ineffective was prioritised (*results: 57.1% positive - 14.3% neutral - 28.6% negative*).
5. For patients at risk of sub-optimal recovery after THA (after any arthroplasty, according to the stakeholders), it is recommended to offer **pre-surgical management using therapeutic exercises** (*results: 85.7% positive - 0% neutral - 14.3% negative*).

## Step 2 : Context analysis

### Rapid review on barriers and interventions

In order to explore the barriers to the implementation of the recommendations on the conservative management of KHOA, from the point of view of patients, general practitioners, physiotherapists and orthopaedic surgeons, a review of the literature was carried out using a 'Rapid Review' protocol ([Appendix 3](#)), the results of which are illustrated below (Fig. 1).

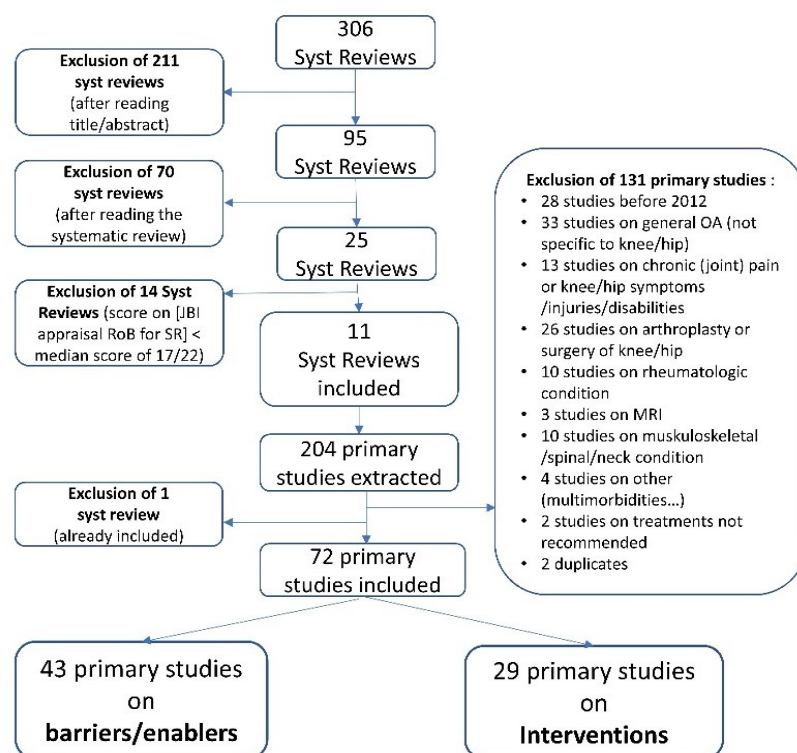


Fig.1 : Flowchart of Rapid review systematic reviews and primary studies

The 72 primary studies included in the analysis comprised 43 publications relating to barriers/facilitators ([Appendix 4](#)) and 29 publications relating to implementation strategies ([Appendix 5](#)).

The analysis of the 43 primary studies on determinants (barriers/facilitators) was broken down into the perspectives of patients, general practitioners, physiotherapists and orthopaedic surgeons and categorised into 3 levels according to the Consolidated Framework for Implementation Research (CFIR) model: (1) Characteristics of individuals, (2) Inner setting and (3) Outer setting. (22) ([Appendix 6](#)).

The barriers were presented to the stakeholders during the meetings of 27/03/2023 (NL) and 30/03/2023 (FR) and these discussions resulted in the barriers set out below.

### Barriers from the patient's perspective

Numerous publications highlight patients' misconceptions about KHOA (its course, symptoms, etc.) in general, as well as their lack of knowledge about the conservative treatments available to treat it (23-29). When patients are informed of the recommendation not to use imaging to make the diagnosis of KHOA, they are in relative disagreement with it: both the literature and the stakeholders emphasise the wish of the patient and the doctor to be able to benefit from imaging in order to confirm the diagnosis of KHOA and reassure the patient (20,29).

When they raise the issue of their KHOA with their therapist (general practitioner or physiotherapist), patients perceive a lack of listening and support through the therapist's often fatalistic discourse, relegating KHOA to a "minor" health problem (20,30-32).

The pharmacological options offered by allopathic medicine meet with little adherence in the medium and long term: patients are well aware that these are only palliative and that they have significant side effects, which leads them to consider treatments offered by alternative medicines (20,26,27).

On the other hand, treatment options that require patients to make behavioural changes and/or increase their physical participation seem to them to be either unconvincing or ill-suited to their particular situation or co-morbidities, especially if KHOA has become very disabling (24,28,30,33,34). For other patients who clearly perceive the benefits of physical activity, they are not always able to make the necessary changes to engage in it (25,26,35).

Stakeholders and the literature emphasise patients' fear that their pain will increase during therapeutic exercise - and the belief that pain is associated with tissue damage - as the main obstacle to engaging in or persevering with physical activity or therapeutic exercise. (26,31,33,34,36-38).

Stakeholders point out that it has been shown that, when practising physical activity or therapeutic exercises in a group, encouragement and support from peers who are experiencing the same difficult situation contribute considerably to patient adherence and positive results, whereas the current nomenclature for physiotherapy does not allow for such group sessions (39,40).

Patients also complained about the limited number of physiotherapy sessions reimbursed for KHOA (2 x 9 sessions/year), the difficulty of finding physical activities adapted to their particular situations in the community, and the difficulty of adapting their work to their KHOA problem (20,41).

With regard to the option of arthroplasty, it is emphasised by the parties involved and in the literature that most patients (over 90%) do not want this procedure as a first-line treatment, and it will only take a few testimonies of poor surgical experiences in their entourage for them to be apprehensive about embarking on it; even if, paradoxically, the surgical option is perceived as being "the only one that will enable them to resolve their KHOA problem". (20,24,27,29,41).

Finally, patients repeatedly emphasise the poor inter-professional communication, which they clearly perceive in the discordant discourse of therapists (20).

Interviews with 11 patients in Belgium and 172 patients in the Netherlands highlighted: (1) *the* major importance of the quality of the patient-caregiver relationship in guiding patients in their therapeutic choices. This will depend on good communication, information tailored to the patient's particular case, support from the carer and continuity of care, and will enable patients to improve their self-management skills, motivate them, have realistic expectations of their treatment and remember it as a positive experience; (2) the importance of high-quality information given to patients, via public communication channels and the internet; (3) the importance of support in the community for people with KHOA (adapted group classes, adapted environments, etc.). (20,42).



### Barriers from the GP's perspective

GPs do not currently feel sufficiently trained to be able to make an exclusively clinical diagnosis of KHOA, without having access to imaging, which reassures both them and their patients. Current general practice training in clinical examination of the musculoskeletal system has been discussed at length, and stakeholders stress the need to incorporate more skills in this area into basic general practice teaching.

Stakeholders and the literature agree that, as the issue of KHOA is very rarely the main reason for consultation, it is most often raised at the end of the consultation and GPs no longer have the time needed to properly inform patients about KHOA and their treatment options (31,43,44). On the other hand, they effectively perceive the issue of KHOA as fatal, as being a minor problem for which the only treatment that seems to them to have a convincing and positive outcome is arthroplasty, which they nevertheless try to postpone as much as possible by conservative management of their patient, on a case-by-case basis (31,32).

On the other hand, GPs are not at ease with the conservative management of KHOA, not knowing how to inform patients about their pathology or about weight management, nor how to guide their therapeutic choices, due to the doubts they have about the efficacy of the various conservative options, both in terms of weight loss and therapeutic exercises (31,43,45,46). And paradoxically, both in the literature and in discussions with stakeholders, GPs would like to see earlier treatment of KHOA, while the question of the long-term affordability of such treatment has been raised (32,44).

Their treatment decisions are taken on the basis of criteria linked to their experience with their patients, as well as their patients' preferences and requests, and the possibilities of access to care: as long as the patient's functional incapacity is not considerably reduced, they offer advice on better weight management (stressing the difficulty of referring to a dietician). And only if patients are not too old and willing to try active exercise do they prescribe supervised therapeutic exercise (with a physiotherapist) and, if necessary (in the event of an acute episode), offer pharmacological support, knowing the limits of each therapeutic option (41,44).

The testimonies of the stakeholders illustrate what the literature says on this point: it is only when the patient is no longer able to manage the pain and the disabilities have too great an impact on the patient's quality of life - and if the patient has not already taken the step of consulting an orthopaedic surgeon himself - that they refer the patient to surgery. (41). In the case of a patient who has taken the initiative to consult an orthopaedic surgeon without prior discussion with the GP (due to direct access), GPs emphasise the "loss of control" over the management of their patient's treatment (44).

### Barriers from the physiotherapist's perspective

The attitude of physiotherapists towards evidence-based practice is controversial: despite a pronounced interest in it, physiotherapists doubt the usefulness of research data when it comes to taking them into account in the management of their patients, opting more for a "*feeling-based*" approach than an evidence-based one. (47,48). As part of the discussions with



stakeholders, basic physiotherapy training was questioned as to whether evidence-based content was taught too little and non-evidence-based content was still widely taught.

On the other hand, a probably generational and geographical aspect in the choice of treatments by physiotherapists is underlined by stakeholders and confirmed by the literature (46-49). Physiotherapists in the north of the country have benefited from training on the evidence of patient revalidation in their training, which has been extended to 5 years (since 1999) in the north of the country, whereas it still takes 4 years in the south of the country and has not always included the same teaching units (16).

However, as part of the conservative management of KHOA, physiotherapists feel that they are the most appropriate carers to offer (1) exercise therapies adapted to the patient, (2) support for weight management, and (3) support for changes in the patient's lifestyle, taking into account the patient's BPS factors (47,48,50).

Despite this, the conservative management of KHOA in physiotherapy is still based on an extremely biomechanical paradigm which does not help patients to adhere to conservative treatment (29,51,52). Stakeholders (as well as the evidence) point out that, if BPS factors are to be integrated - as in all chronic patients - as well as elements linked to the co-morbidities of patients suffering from KHOA, this requires sufficient training and the current format of individual 30-minute sessions leaves little room for the integration of BPS aspects and the phenotypic particularities of patients alongside effective active exercises (49,52).

Physiotherapists stress the difficulty of being able to support patients in making lifestyle changes (weight loss, physical activity, etc.) without having been able to develop ad-hoc skills themselves (relating to stimulating patient motivation) or having been trained in cognitive-behavioural techniques to help them manage their pain. (53,54).

Stakeholders also stress the considerable impact of the messages communicated to patients by the prescribing doctor about physiotherapy treatment: if the patient perceives the doctor's doubts about the effectiveness of the physiotherapy sessions prescribed, it is very difficult for the physiotherapist to be able to forge a genuine therapeutic alliance with the patient and obtain the necessary compliance with the treatment, especially when it involves non-passive techniques that are little desired by patients (such as therapeutic exercises).

Finally, one of the biggest obstacles to the current conservative management of KHOA in Belgium, as highlighted by the stakeholders, is the impossibility of managing patients through therapeutic group exercises, which are strongly recommended. They point out that current evidence no longer leaves room for doubt about the extremely positive impact of group sessions on the effectiveness of therapeutic exercises, in terms of social support from peers, but also in terms of the quality and diversity of active exercises that can be proposed and adjusted to the patient's abilities.

### **Barriers from the orthopaedic surgeon's perspective**

Orthopaedic surgeons, like the literature, emphasise that, without having been referred by a general practitioner, they cannot have all the BPS elements of patients when the latter come

for a consultation with an orthopaedic surgeon for the first time, due to a lack of time and elements relating to the patient's file. (42).

In this sense, orthopaedic surgeons have a very distinct perception of the roles of each care provider in the care pathway of the patient suffering from KHOA, wishing that the integration of all the patient's BPS aspects could have been carried out by the GP, prior to the patient's visit to orthopaedic surgery and are reassured on this point when they receive a patient referred by his GP.

Orthopaedic surgeons would like patients to have access to information and the full range of conservative treatments for KHOA in 1<sup>ère</sup> line of care, prior to their consultation in 2<sup>ème</sup> line of care, and support the idea that better organisation of the care pathway for patients suffering from KHOA between 1<sup>ère</sup> and 2<sup>ème</sup> line of care would make it possible to observe better results in these patients. (24).

Stakeholders point to the fact that they themselves lack information on the evidence of the benefits/risks provided by the various conservative treatment modalities for KHOA and would like to have more evidence-based guidance in the future in order to offer patients treatment modalities that they would not (yet) have benefited from in 1<sup>ère</sup> line of care. (41,42).

### **Barriers across the first line caregivers**

The literature and all the stakeholders highlight the lack of interprofessional communication, not only within the 1<sup>ère</sup> care line, but also between care lines, due to the lack of support/platforms enabling efficient communication and guaranteeing the protection of information (44,46,55). The result of this lack of interprofessional communication is a lack of awareness and understanding of the respective roles of each person in the course of a care pathway, inconsistency in the discourse of carers and an inability to support transdisciplinarity in the management of patients suffering from KHOA.

### **Current initiatives and previous implementation efforts**

The 29 primary studies of interventions/implementation strategies for the conservative management of KHOA are listed in [Appendix 5](#). Models of possible interventions/strategies were presented to stakeholders at meetings on 11/04/2023 (NL) and 19/04/2023 (FR).

#### *A decision grid for shared decision on treatment options*

In order to support patient-caregiver consultation for a shared decision on the management of KHOA in Great Britain, a decision support grid (presenting the different therapeutic options) was proposed to caregivers (56). Initially perceived as a tool which could increase the workload of carers, they eventually saw the advantage it could offer in communicating with the patient in order to reach a shared decision.

#### *Stepped care strategy for Knee/Hip osteoarthritis: the outline of a care pathway*

As part of a programme to promote multidisciplinary, staged and conservative management of KHOA in Holland, (1) educational interventions were disseminated via a brochure ("Care for osteoarthritis") and newsletter to 313 patients, (2) information to 70 general practitioners (as well as specialists) and physiotherapists was communicated via visits to practices with

distribution of material, and (3) training for general practitioners and physiotherapists was provided by seminars. (57). After 2 years of implementation of this programme, the staged and conservative management of KHOA had been implemented, with an improvement in adherence to this management (82% use of patient education, 73% advice given on lifestyle, 63% participation in therapeutic exercises) and, paradoxically, an increase in consultations with specialists was observed (from 21% to 45% of patients for visits to the orthopaedic surgeon), but only 18% of the patients included finally had recourse to surgery. The weakness of this staggered management approach remains the use of the services of a dietician for needy patients and the more difficult adherence to conservative treatment for patients with passive *coping styles*.

#### *Lifestyle management programmes, a long term goal*

Lifestyle change programmes are long-term and need to include several disciplines. In a recent British experiment, a weekly programme of supervised physical exercise lasting 32 weeks and including an 8-week weight management programme was implemented. Patients confirmed the beneficial effects of psychological and social support during the programme (58).

#### *Therapeutic group exercises: well known positive effects*

An adapted version of the GLA:D® programme ("*Good Life with osteoarthritis in Denmark*") has been implemented in Canada in 58 patients with moderate to severe KHOA. The programme consists of 2 educational sessions, followed by 12 twice-weekly sessions of supervised group exercise given by physiotherapists trained in the GLA:D® programme. After 6 weeks, patients are encouraged to gradually engage in physical activities of their choice. In addition to improvements in patients' health (reduced pain, improved functionality and increased participation in physical activities), the programme has resulted in increased adherence and patient satisfaction. Physiotherapists stress the importance of social support between patients during group sessions, catalysing their empowerment (59).

#### *Interactive workshops for physiotherapist, involving patient interviews*

A training course for physiotherapists, including e-learning, followed by interactive workshops focusing on exercise therapy and the management of co-morbidities in the management of KHOA (with patient interviews), led to an improvement not only in the participants' knowledge and clinical reasoning skills, but also in their satisfaction with and adherence to the recommendations. (60-64). The authors note that the main barriers associated with these strategies, which are directed exclusively at physiotherapists, are the lack of collaboration with general practitioners (60).

#### *Need for integrated multidisciplinary approach of KOA/HOA management (Eular survey)*

As long as 20 years ago, the results of the Eular survey, carried out in 5 countries (France, Spain, Belgium, Switzerland and Italy) among 4204 respondents (general practitioners, rheumatologists, rehabilitation physicians and orthopaedic surgeons) had already highlighted the tendency for each professional to approach the management of KHOA only

from the prism of their own skills and the divergences between the different approaches proposed by the various therapists (21). The conclusion underlined the need for a multidisciplinary approach to the management of KHOA, which is confirmed in more recent literature (15,21).

#### *Skills-based trans-disciplinary framework (OARSI Initiative)*

More recently, the OARSI survey, which involved 173 respondents (18 disciplines and 26 patient representatives) in 31 countries, went a step further by proposing a model comprising 70 transdisciplinary skills covering 13 areas, in order to offer high-quality osteoarthritis management (65). This range of skills includes positive communication, patient-centred care, clinical assessment, history-taking and diagnosis, interventions and treatment planning, prevention and lifestyle changes, revalidation interventions, pharmacological management, surgical interventions, referral and transdisciplinarity, support for behavioural change and self-management, and the development of services and professions (65).

#### *Triage for referral to orthopaedic surgeon in Australia: a concept that raises the issue of direct access to orthopaedic surgeon in Belgium*

In Australia, the issue of patient access to orthopaedic surgery consultation was addressed by a system of patient triage by other carers prior to the orthopaedic consultation, and highlighted the importance of patient triage and preparation of candidate patients for arthroplasty. Firstly, the severity of the osteoarthritis was assessed (using the Multi-attribute Prioritisation Tool-MAPT), then advice and/or referral to non-surgical management and/or preparation for surgery was provided to patients with the appropriate profiles. The results were observed only in the context of surgical procedures, for which the length of hospital stays was reduced and patients' functional recovery required less recourse to revalidation services (66).

#### *Jigsaw-E, a resource platform for all stakeholders*

The UK initiative Jigsaw-E (*Joint Implementation of Osteoarthritis Guidelines Across Western-Europe*: <https://jigsaw-e.com/delivery-toolkit/training-materials/training-guides/>) offers patients and the carers who support them all the resources they need to inform, educate and train all those involved in the management of osteoarthritis. Structured around an evidence-based 4-pillar model, the platform offers: (1) information for patients, designed by patients (2) models of clinical consultations for osteoarthritis, for carers (3) the development of quality indicators (4) material for training carers. Jigsaw-E is also stimulating projects and research into the implementation of osteoarthritis management based on the principle of local champions (patients and carers), the development of applications designed by and for patients to improve their pain management, etc...

#### *Some Belgian initiatives that deserve to be redeployed for future projects*

##### *Trainings & e-learning for physiotherapists*

Between 2012 and the present day, few training courses have been offered as part of the continuing education of physiotherapists via POK: 2 continuing education courses in 2019-2020 for French speakers ("*Kinésithérapie de la coxarthrose/gonarthrose - résumé des guidelines* -

Ulg"), 2 continuing education courses for Dutch speakers organised in 2021-2022 by the WVVK ("De behandeling van heup-knie artrose - WVVK"), an e-learning course (in cooperation with Prof Demoulin Chr.- Ulg, Van Assche D.-KUL, Axxon and Ebpractcienet) and 6 LOKKs in a decade on the subject. Ulg, Van Assche D.-KUL, Axxon and Ebpractcienet) and 6 LOKKs in a decade on the subject.

#### The belgian Move-up App

As far as mobile applications in the context of the KHOA are concerned, MoveUp has distinguished itself in the Belgian landscape by offering post-arthroplasty tele-education and has just published its first promising results, with 77% of patients using the application adhering to it. (67). The application is currently in the development phase of a tele-rehabilitation programme for the conservative management of KHOA.

#### Interdisciplinary meetings accredited in the north of the country (Medisch Kinesitherapeutisch Overleg-MKO)

AXXON (professional association of physiotherapists), Domus Medica (professional association of general practitioners) and Huis voor Gezondheid have launched a project in 2019 to improve **cooperation between general practitioners and physiotherapists**, in the form of accredited bi-disciplinary meetings focusing on 5 ready-to-use themes, including local cooperation between general practitioners and physiotherapists ([Medisch-Kinesitherapeutisch Overleg - Huis voor Gezondheid](#)).

#### Indicators for arthroscopic meniscectomy in patients over 50 years

This April 2023, the RIZIV announced the implementation of a new indicator limiting the arthroscopic meniscectomy service for subjects aged over 50, who should represent less than 45% of the orthopaedic surgeons' patient base, thereby limiting recourse to knee arthroscopy and certainly supporting recommendations for conservative management of this arthrosis ([Indicator for arthroscopic meniscectomy in patients over 50 - INAMI \(fgov.be\)](#)).

## Step 3 : Implementation plan

### Matching barriers to actions

On the basis of the analysis of barriers and existing interventions, as well as the prioritised recommendations, we suggest that strategies to improve evidence-based practice for the conservative management of KHOA should focus on the following selection of barriers (described according to the *Theoretical Domains Framework* for the individual level and according to the *CFIR* for the organisational level) (22,68) :

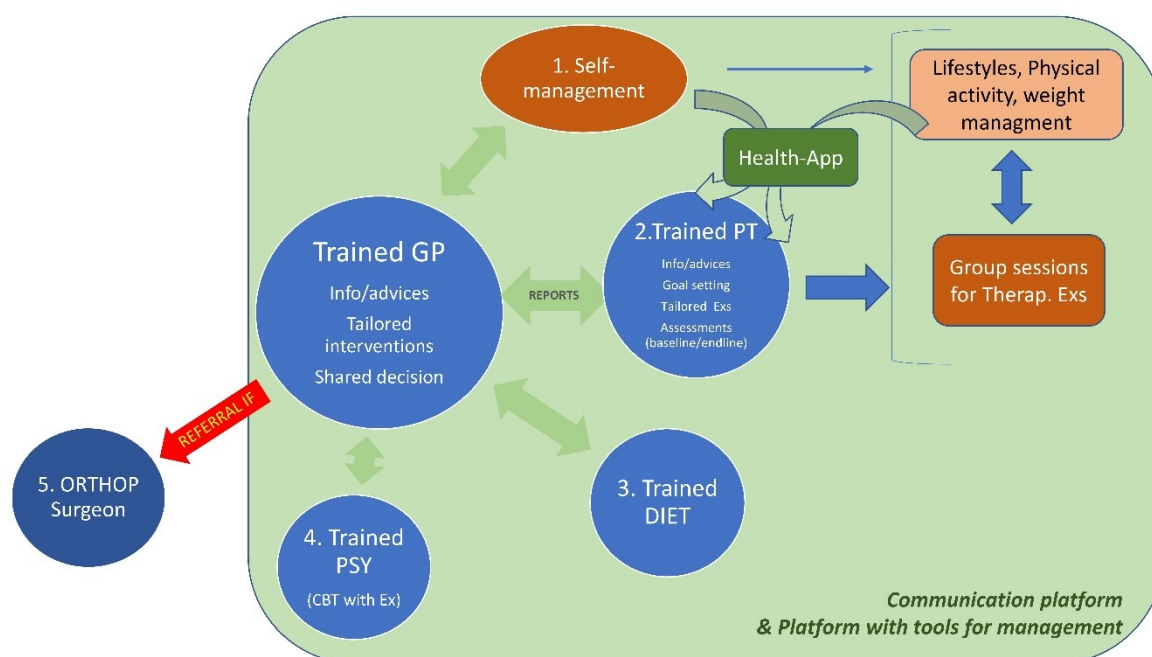
1. As far as patients are concerned, *beliefs about consequences and outcome expectancies, knowledge about the condition/scientific rationale and representations, coping strategies and self-efficacy*, and *motivations and goals* in the context of both supervised and unsupervised *self-management* of KHOA are important barriers for which targeted interventions should be considered.
2. For carers involved in the management of KHOA in 1<sup>ère</sup> line of care, the barriers linked to *beliefs about capabilities, beliefs about consequences, skills assessment*,



*interpersonal skills, pessimism, knowledge about the condition/scientific rationale, representations, and the environment (organisational culture/climate, available time resources), require interventions enabling them to better understand and manage KHOA according to a BPS model, its therapeutic options, the issues involved in its management through therapeutic exercises, changes in the patient's lifestyle and weight management, the impact on the patient's pain, as well as the patient's self-management. Attention must also be paid to the inter-professional relationships between carers, by developing the skills of carers in terms of mutual support and professional confidence (professional confidence, organisational commitment).*

3. As far as exercise therapy is concerned, the greatest difficulty currently faced by physiotherapists is being able to offer effective BPS management, including support for lifestyle changes and dietary advice (1) within a limited time window defined by the nomenclature and (2) without having the necessary support (peers or other forms of support) to sustain patients in this commitment (CFIR - Available Resources including money, training, education, physical space, and time).
4. Finally, a major barrier to the conservative and staged management of KHOA in 1<sup>ère</sup> line of care concerns networking and interprofessional communication (CFIR-The nature and quality of webs of social networks), affecting the nature and quality of formal and informal communications between the various carers and limiting the adaptation of management to the patient's particular situation.

By matching potential interventions to the barriers outlined, the illustrative intervention strategy we propose (see Figure 1) is to implement a care pathway for the conservative management of KHOA in 1<sup>ère</sup> line of care, which hinges on better training for therapists, better communication with patients and between different 1<sup>ère</sup> line care providers. Implementing this care pathway is not the only option available, but it can be seen as an example of how implementation efforts must match barriers to be successful.



*Figure 1 Outline of proposed care pathway for the conservative management of knee-hip osteoarthritis in primary care.*

This care pathway could be conceived within the framework of a formal and structural commitment, in the form of a contract linking the various care providers (general practitioner, trained physiotherapist, dietician and psychologist), the patient and the insurance company's medical adviser, such as that proposed in the context of existing transmural care pathways ([Type 2 diabetes and chronic renal failure care pathways - INAMI \(fgov.be\)](#)).

GPs and physiotherapists will be trained in patient communication techniques for the conservative management of KHOA (information and advice, treatment options, shared decision-making, motivational interviewing, therapeutic group exercises). Accredited training and e-learning courses on the conservative management of KHOA and on motivational interviewing have already been drafted in the field of physiotherapy ([PE-online](#)) and, in collaboration with general practitioners, dieticians and psychologists, existing material could be integrated into the future implementation project.

Depending on the obstacles encountered when implementing conservative management of KHOA, different strategies for supporting carers can be envisaged (resource platform, local champions, process facilitators, etc.).

During the consultation with the GP, and after the GP has provided the patient with information and discussed the therapeutic options for managing KHOA, the choice will be made between self-management or therapeutic exercise (with or without support from a dietician and/or psychologist, in accordance with KNGF recommendations).

(1) If self-management is chosen, the patient will be able to access information and tools for self-management via a dedicated resource platform and/or will also be able to obtain advice and support from the physiotherapist through occasional visits, and/or take part in self-management support sessions organised by healthcare professionals (psychologists, physiotherapists, dieticians), and/or find answers to her questions via a mobile application. In the event of pain, patients can always return to their GP to adapt their pharmacological treatment and/or opt for physiotherapy with supervised exercises.

(2) If the patient chooses to be treated with therapeutic exercises by a physiotherapist, the latter will inform the patient about the chosen treatment modalities and pain management, and will draw up a treatment plan based on an initial assessment (in accordance with KNGF recommendations) and the patient's objectives. He will inform the GP of the patient's assessment, treatment plan and objectives via a platform dedicated to interdisciplinary communication in 1<sup>ère</sup> care line. At regular intervals (3 months, 6 months, 9 months), a reassessment of the patient will be carried out and communicated to the GP. If, as the patient progresses, the exercises need to be supported by a change in pharmacological treatment, the physiotherapist will be able to contact the doctor via the interdisciplinary communication platform.

Supervised exercise management will be carried out in groups, in order to take advantage of the positive externalities on patients' mental health, to find peer support during the more

difficult moments experienced by patients and, finally, to improve the results sought. Sessions of at least one hour should be envisaged in order to achieve the objectives, and to this end patients will be cared for in small groups of no more than a certain size, under a nomenclature that allows it and with physiotherapists trained in the management of KHOA.

The aim of therapeutic exercise management is to gradually lead the patient towards lifestyle changes, unsupervised exercise and ultimately the adoption of physical activities into the patient's life. The use of a mobile application could help this gradual transition towards tele-rehabilitation and ultimately the patient's autonomy.

(3) For the patients concerned, and in specific situations where dietary advice alone would not prove sufficient, the patient will be referred to a dietician (in accordance with KNGF recommendations) who will communicate the prescribed diet via the interdisciplinary communication platform to the other carers, so that they can take note of it and support the patient in this prescription.

(4) For patients with extreme or chronic pain or depression, the KNGF recommendations suggest cognitive-behavioural treatment with an exercise component. The psychologist in charge of the patient will be able to find out about the content of the exercises with which the patient is having difficulty via the interdisciplinary communication platform, in order to guide the patient's treatment and, in turn, provide information to other carers about the progress of the psychotherapeutic treatment, so that they can incorporate the psychologist's prescriptions into their own treatment.

The aim of this interdisciplinary communication platform is to ensure that better communication between all those involved in the care process can resonate coherently with the patient, so that the prescriptions of some are supported by the discourse of other therapists, and that this contributes to giving the patient the feeling of overall, coherent management of his or her condition. As well as being a vehicle for interdisciplinary communication - and technical aspects permitting - this same platform could bring together all the resource information needed by carers, along the lines of (or inspired by) a platform such as JIGSAW-E ([JIGSAW-E - EIT Health](#)).

It should be noted that this interdisciplinary communication platform will be the beginnings of an extremely valuable tool, which will find use in the context of multiple chronic pathologies, for which multidisciplinary management and a transdisciplinary approach are required in 1<sup>ère</sup> line of care.

The FPS Public Health's Roadmap 4.0 or action plan 2022-24 ([Roadmap 4.0 | eHealth \(fgov.be\)](#)) has put on the agenda a project for a common portal for healthcare providers, which could probably include the interdisciplinary communication platform ([Actieplan eGezondheid 2022-2024 protocolakkoord.pdf \(fgov.be\)](#)).

Similarly, for patients who have to manage unsupervised exercise and/or physical activity, the use of a mobile application will enable them to keep in regular contact with their physiotherapist and to engage more confidently in this physical activity. In this sense, this application will be an invaluable catalyst in the patient's progressive and reasoned self-



management (empowerment). The MoveUp application, a Belgian initiative, has already paved the way for rehabilitation after knee and hip prostheses, and could be a source of inspiration/collaboration for the conservative management of KHOA ([personalised healthcare at your fingertips \(moveup.care\)](#))).

(5) After 3 to 9 months of conservative management of KHOA, if this does not prove convincing and by mutual agreement with the patient, the general practitioner will be able to refer the patient to the orthopaedic surgeon, informing him of all the strategies deployed and the important BPS elements for the patient, in the context of a detailed report. Patients who have undergone the conservative approach and who are candidates for arthroplasty will be able to benefit from more targeted information about the surgery that awaits them, but they will already be physically prepared for the surgery.

## Conclusion : Recommendations for implementation projects on the management of knee/hip osteoarthritis

The conservative management of KHOA in 1<sup>ère</sup> line of care is not currently in line with clinical practice guidelines: the lack of use of all the resources offered by conservative management is evident, due to a lack of awareness of these resources, both by patients and by all the carers involved, and could explain the increasing incidence of knee and hip arthroplasties.

The obstacles encountered in the conservative management of KHOA echo obstacles often highlighted in other contexts: lack of knowledge of treatments proposed by other carers, lack of confidence in the efficacy of treatments proposed by other carers and lack of support for interprofessional communication, which is the missing link for integrated, multidisciplinary management in chronic situations.

On the basis of an analysis of the main obstacles and an evaluation of existing implementation interventions, we suggest that efforts be continued in multidisciplinary training in the conservative management of KHOA, so that the healthcare providers concerned can improve their knowledge of the condition and of treatments; but can also refine their skills in communicating with their patients and find support for communication between carers; all this in order to offer the patient sustained, coherent care in which the BPS dimensions can be integrated.

The implementation of a staggered care pathway for the management of KHOA in 1<sup>ère</sup> lines of care, according to the recommendations - like that for other chronic pathologies - requires the support of deeper, more structural changes in the primary care landscape. These include support for interprofessional communication and collaboration, facilitating transdisciplinarity and a more coherent discourse for patients, as well as therapeutic group exercise sessions, delivered by trained professionals.

This will make it possible to achieve the objective of observing in Belgian practice the positive results on health reported in other countries via the literature, it will contribute to

improving the quality of physiotherapy and will make it possible to offer an innovative basis for the management of other chronic pathologies in 1<sup>ère</sup> line of care.

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## Appendix 1: Summary of the KNGF recommendations (KNGF, 2018)

SUMMARY of Recommendations from the KNGF guideline, 2018 (related to conservative pre-operative management)

### 1. **Make a clinical diagnosis of KOA and/or HOA, without imaging**

The clinical diagnosis of osteoarthritis of the hip and/or knee can be made based on a medical history and physical examination and the clinical classification criteria as defined by the American College of Rheumatology (ACR). The clinical diagnosis can be made without performing X-ray diagnostics. The criteria for making the diagnosis of hip or knee osteoarthritis based on both clinical and radiological characteristics have been developed in the secondary care setting and could therefore be less relevant in the primary care setting.

### 2. **Offer information and advice to all patients with KOA/HOA in the conservative phase**, in order to increase knowledge about the condition and to increase treatment options and promote self-management (this information and advice can be provided verbally, but should be supported in writing and/or digitally, depending on the wishes, preferences and health skills of the patient).

### 3. **Offer exercise therapy to all patients with KOA/HOA in the conservative phase and make use of the FITT (Frequency, Intensity, Type, Time duration)**

- *There is evidence of moderate quality to suggest that exercise therapy is effective in improving physical functioning (moderate effect) and pain (moderate effect). Based on the likelihood of a (moderate) effect, the limited side effects, the demonstrated cost-effectiveness and a high acceptability of exercise therapy, the working group is of the opinion that the intervention can be strongly recommended ("offer the intervention").*
- *There is evidence of moderate to high quality to suggest that exercise therapy is effective in improving physical functioning (moderate effect), pain (major effect) and quality of life (minor effect). Based on the (significant) likelihood of a (moderate to high) effect, the limited side effects, the demonstrated cost-effectiveness and a high acceptability of exercise therapy, the working group is of the opinion that the intervention can be strongly recommended ("offer the intervention").*

**Red flags and Contra-indications considerations :**

- If there are no absolute contra-indications related to red-flags and co-morbidity, but co-morbidity is present, then assess to what extent this co-morbidity affects the physical functioning of the patient and the exercise therapy
- If there are absolute contra-indications for exercise therapy related to co-morbidity, then do not offer exercise therapy and refer the patient back to the general practitioner or specialist → not relevant in the Belgian context !!!)
- If the co-morbidity has an effect on physical functioning and exercise therapy (such as unstable diabetes mellitus type II that is hard to control with medication), then offer exercise therapy with modifications specific for the co-morbidity
- If the co-morbidity has no or little effect on the physical functioning and exercise therapy (such as a cardiac arrhythmia that is properly controlled with medication), then offer exercise therapy based on the general FITT principles)

4. For patients with KOA/HOA and inadequate pain coping (e.g. fear of movement, passive coping style, pain catastrophizing, low self-efficacy, anxiety, depression), consider applying

- **exercise therapy according to a time contingent approach** (graded activity)
- combining it with **pain education** and
- **training of pain coping skills.**

5. **Support weight management** for patients with KOA/HOA and overweight (BMI of 25-30 kg/m<sup>2</sup>) or obesity (BMI > 30 kg/m<sup>2</sup>).

6. The following non-exercise therapeutic interventions should preferably not be offered OR not be offered to patients with KOA/HOA (in order to improve their physical Functioning) :

- a) Preferably do not offer massage therapy to patients with KOA/HOA.
  - *There is evidence of a very low quality that suggests that massage - in addition to exercise therapy may be effective in improving physical functioning (small effect) and reducing pain. Based on the large uncertainty concerning the effect, the duration of the intervention that was examined (30-60 minutes) and the expected negligible added value of the intervention over standard care (i.e. exercise therapy and education/advice) on the one hand and the value that some patients may attach to this intervention and the potential effect on pain (thereby possibly supporting the exercise*

*therapy) on the other hand, the working group is of the opinion that the intervention should be conditionally discouraged for both hip and knee osteoarthritis ("preferably do not offer").*

- b) Preferably do not offer treatment with TENS to patients with KOA/HOA .

Consider the use of TENS only as a brief intervention for pain reduction to support the exercise therapy, if the exercise therapy is being hampered by severe pain symptoms.

*- There is evidence of a very low quality that suggests that TENS may not be effective in improving physical functioning, but may be effective in reducing pain. Based on the large uncertainty concerning the effect and the expected negligible added value of the intervention over standard care (i.e. exercise therapy and education/advice) on the one hand and the potential effect on pain (thereby possibly supporting the exercise therapy) on the other hand, the working group is of the opinion that the intervention should be conditionally discouraged for both hip and knee osteoarthritis ("preferably do not offer"). In addition, the working group is of the opinion that the intervention should only be considered as a brief intervention to support the exercise therapy, if the exercise therapy is being hampered by severe pain symptoms.*

- c) NOT IN THE SCOPE: *continuous passive motion* (following joint replacement surgery)

- d) Do not offer treatment with an electromagnetic field to patients with KOA/HOA .

*- There is evidence of a very low quality that suggests that treatment with an electromagnetic field may be effective in improving physical functioning (small effect). Based on the large uncertainty concerning the effect and the expected negligible added value of the intervention over standard care (i.e. exercise therapy and education/advice), the working group is of the opinion that the intervention should be strongly discouraged for both hip and knee osteoarthritis ("do not offer the intervention").*

- e) Do not offer treatment with low level laser therapy to patients with KOA/HOA

*- There is evidence of a very low quality that suggests that treatment with LLLT may not be effective in improving physical functioning. There is evidence of a very low quality that suggests that treatment with LLLT as an addition to exercise therapy may be effective in improving physical functioning (small effect). Based on the large uncertainty concerning the effect and the expected negligible added value of the intervention over standard care (i.e. exercise therapy and education/advice), the working group is of the opinion that the intervention should be strongly discouraged for both hip and knee osteoarthritis ("do not offer the intervention").*

- f) Do not offer treatment with passive mobilisations to patients with KOA/HOA.

- *There is evidence of a low quality that suggests that passive mobilisations as an addition to exercise therapy may not be effective in improving physical functioning. Based on the large uncertainty concerning the effect and the expected negligible added value of the intervention over standard care (i.e. exercise therapy and education/advice), the working group is of the opinion that the intervention should be strongly discouraged for both hip and knee osteoarthritis ("do not offer the intervention").*
- g) Do not offer treatment with shock wave to patients with KOA/HOA .
  - *There is contradicting evidence of very low quality to support the effect of shock wave on improvements in physical functioning. Based on the large uncertainty concerning the effect and the expected negligible added value of the intervention over standard care (i.e. exercise therapy and education/advice), the working group is of the opinion that the intervention should be strongly discouraged for both hip and knee osteoarthritis ("do not offer the intervention").*
- h) Do not offer treatment with taping to patients with KOA/HOA .
  - *There is evidence of low quality to suggest that taping may not be effective in improving physical functioning. Based on the large uncertainty concerning the effect and the expected negligible added value of the intervention over standard care (i.e. exercise therapy and education/advice), the working group is of the opinion that the intervention should be strongly discouraged for both hip and knee osteoarthritis ("do not offer the intervention").*
- i) Do not offer thermotherapy to patients with KOA/HOA to improve their physical functioning
  - *There is no evidence to support an effect of thermotherapy on the improvement of physical functioning. Based on the lack of literature and the expected negligible added value of the intervention over standard care (i.e. exercise therapy and education/advice), the working group is of the opinion that the intervention should be strongly discouraged for both hip and knee osteoarthritis ("do not offer the intervention").*
- j) Do not offer treatment with ultrasound to patients with KOA/HOA .
  - *There is evidence of low quality to suggest that ultrasound may not be effective in improving physical functioning. Based on the large uncertainty concerning the effect and the expected negligible added value of the intervention over standard care (i.e. exercise therapy and education/advice), the working group is of the opinion that the intervention should be strongly discouraged for both hip and knee osteoarthritis ("do not offer the intervention").*

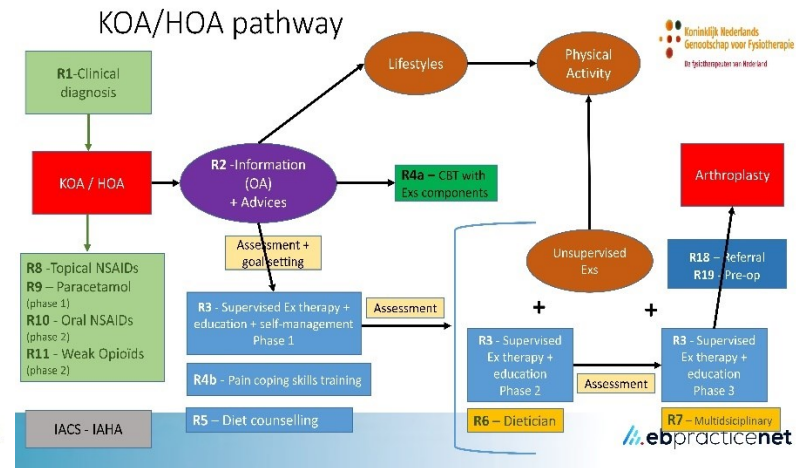
7. Offer **information and advice to all patients undergoing joint replacement surgery for KOA/HOA**, to expand their knowledge about the surgery, to ensure that they are well prepared for the surgery and to promote recovery after surgery. This information and advice can be provided verbally, but should be supported in writing and/or digitally, depending on the wishes, preferences and health skills of the patient.

8. Consider **offering exercise therapy in the pre-operative phase if there is an increased risk of delayed recovery following joint replacement surgery for HOA**. Follow the FITT principles.

- *There is evidence effect). Based on the reasonable likelihood of a (moderate) effect, the limited side effects and the likely acceptability of exercise therapy, the working group is of the opinion that the intervention can be considered for specific patients ("consider implementation").*
- *There is evidence of low quality to suggest that exercise therapy is effective in improving physical functioning (moderate effect). Based on the major uncertainty due to the low quality of the evidence, the limited side effects and the likely acceptability of exercise therapy, the working group is of the opinion that the intervention can be considered for specific patients ("consider implementation").*

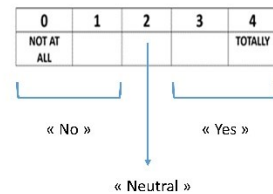
## Prioritization of the recommendations

Results of the survey (meeting 1)



## PRIORITIES on WHAT to change stakeholders' prioritization of recommendation (survey)

1. Is this recommendation already implemented in practice?
2. Does failure to comply with this recommendation have serious consequences?
3. Does adherence to this recommendation differ between different groups of providers and patients, which could lead to health inequalities (inequitable adherence)?
4. Is this recommendation feasible for the provider?
5. Is the implementation of this recommendation a priority?



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## Summary of KNGF recommendations (taking into account the OARSI & NICE guidelines)

### Clinical diagnosis

**Recommendation 1** (KNGF-NICE) : Make a **clinical diagnosis** of KOA and/or HOA, without imaging

### Informations/advices (KNGF-OARSI) (Consensus)

**Recommendation 2** (KNGF-OARSI-NICE) : Offer **information and advice** to all patients with KOA and/or HOA in the conservative phase of the management,

Which **must** include :

- Information on what is osteoarthritis (symptoms, evolution, misconceptions...)
- Information on the conservative management of osteoarthritis and the role of the patient
- Pain education
- Self-management empowerment
- Shared decision process

Which **may** include :

- Group session
- Baseline assessment



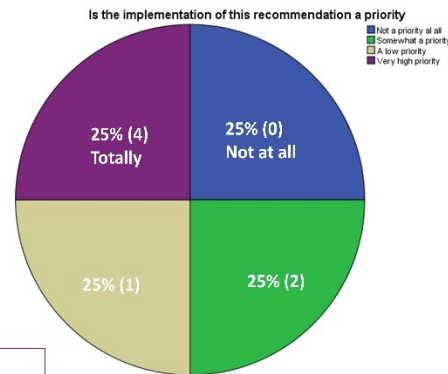
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### Rec 1 : Clinical diagnosis

N=8

- Already implemented in practice ?  
62.5% No – 12.5% neutral – 25% Yes
- Failure have serious consequences?  
62.5% No – 25% neutral – 12.5% Yes
- Adherence differ between different groups (health inequalities) ?  
50% No – 12.5% neutral – 37.5% Yes
- Feasible for the provider?  
50% No – 12.5% neutral – 37.5% Yes

- Is the recommendation a priority ?  
50% No – 25% neutral – 12.5% Yes



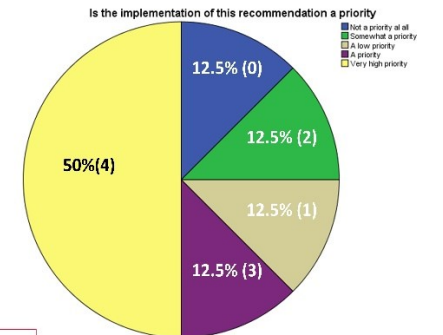
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### Rec 2 : Informations/advices

N=8

- Already implemented in practice ?  
50% No – 25% neutral – 25% Yes
- Failure have serious consequences?  
12.5% No – 37.5% neutral – 50% Yes
- Adherence differ between different groups (health inequalities) ?  
25% No – 25% neutral – 50% Yes
- Feasible for the provider?  
25% No – 25% neutral – 50% Yes

- Is the recommendation a priority ?  
25% No – 12.5% neutral – 62.5% Yes



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# Summary of KNGF recommendations (taking into account the OARSI & NICE guidelines)

## Exercise therapy (KNGF) (1B)

**Recommendation 3** (KNGF-OARSI-NICE) : Offer **exercise therapy** to all patients with KOA and/or HOA in the conservative phase and make use of the FITT principles (taking into account contra-indications),

Which **must** include :

- Supervised and unsupervised tailored exercises
- Exercise therapy according to a time contingent approach (if needed)
- Muscle strength training + Aerobic/cadio training + Functional/balance/neuromuscular training

Which **may** include :

- Group exercises
- The use of e-health Apps
- Aquatic exercises
- Mind-body techniques
- Pain coping skills training (if needed)
- Walking aids / gait aids

Strength of recommendation : 1=strong ; 2=weak  
Level of evidence : A=good ; B=moderate ; C=low ; D=very low



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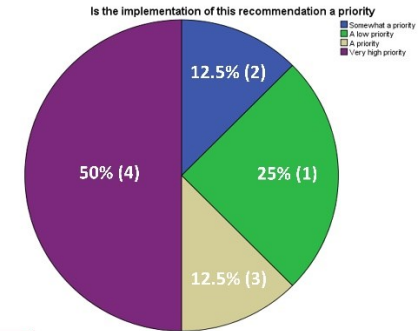


## Rec 3 : Exercise Therapy

N=8

- Already implemented in practice ?  
62.5% No – 12.5% neutral – 25% Yes
- Failure have serious consequences?  
25% No – 12.5% neutral – 50% Yes
- Adherence differ between different groups (health inequalities) ?  
25% No – 12.5% neutral – 62.5% Yes
- Feasible for the provider?  
12.5% No – 50% neutral – 37.5% Yes

Is the recommendation a priority ?  
25% No – 12.5% neutral – 62.5% Yes



0	1	2	3	4
NOT AT ALL				TOTALLY

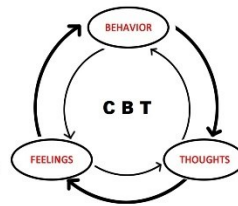
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# Summary of KNGF recommendations (taking into account the OARSI & NICE guidelines)

Cognitive behavioural therapy with exercises components (*weak recommendation*)

**Recommendation 4a** (OARSI-NICE) : Offer **Cognitive Behavioural therapy with exercise component** for patients with KOA and/or HOA and with severe pain disorders and/or depression

**Recommendation 4b** (KNGF) : **Pain coping skills training** is advised for patients with inadequate pain coping (e.g. fear of movement, passive coping style, pain catastrophizing, low self-efficacy, anxiety, depression) (*moderate level of evidence*)



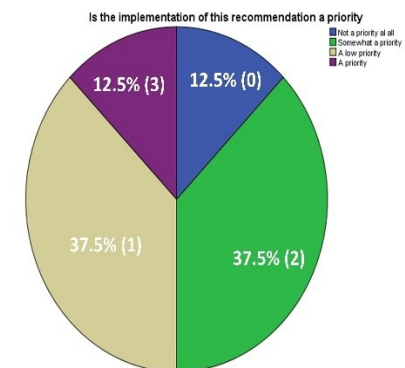
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## Rec 4a : Cognitive Behavioral Therapy

N=8

- Already implemented in practice ?  
87.5% No – 12.5% neutral – 0% Yes
- Failure have serious consequences?  
62.5% No – 25% neutral – 12.5% Yes
- Adherence differ between different groups (health inequalities) ?  
50% No – 0% neutral – 50% Yes
- Feasible for the provider?  
62.5% No – 12.5% neutral – 25% Yes

Is the recommendation a priority ?  
50% No – 37.5% neutral – 12.5% Yes



0	1	2	3	4
NOT AT ALL				TOTALLY

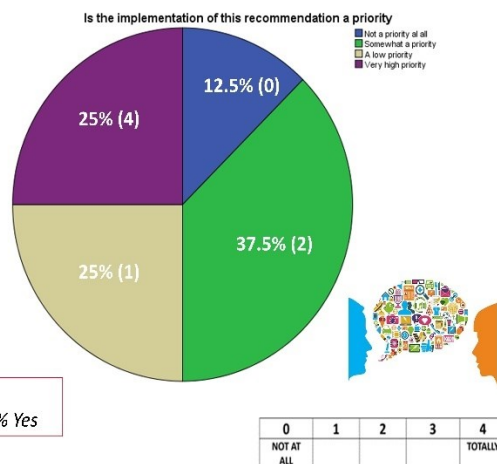
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## Rec 4b : Pain Coping Skills Training

N=8

- Already implemented in practice ?  
100% No – 0% neutral – 0% Yes
- Failure have serious consequences?  
62.5% No – 12.5% neutral – 25% Yes
- Adherence differ between different groups (health inequalities) ?  
50% No – 0% neutral – 50% Yes
- Feasible for the provider?  
75% No – 0% neutral – 25% Yes

- Is the recommendation a priority ?  
37.5% No – 37.5% neutral – 25% Yes



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## Summary of KNGF recommendations (taking into account the OARSI & NICE guidelines)

Stepwise dietary management for patients with overweight (BMI>25 kg/m<sup>2</sup>) or obesity (BMI>30 kg/m<sup>2</sup>) (*good clinical practice statement*)

**Recommendation 5** (KNGF-NICE-OARSI) : For patients with overweight or obesity, offer **counselling/advices at the first phase (0-3 months)** of conservative management of KOA and/or HOA

**Recommendation 6** (KNGF) : For patients with overweight or obesity, **refer to a dietician at the second phase (3-6 months)** of conservative management of KOA and/or HOA

**Recommendation 7** (KNGF) : For patients with overweight or obesity, **propose a multidisciplinary team management at the third phase (up to 6 months)** of conservative management of KOA and/or HOA



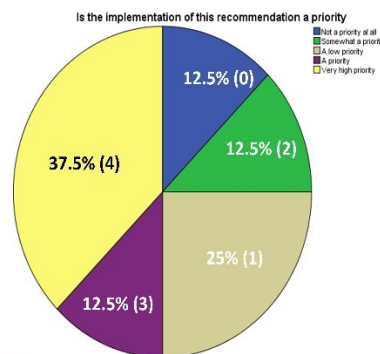
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## Rec 5 : Diet - Counselling

N=8

- Already implemented in practice ?  
50% No – 0% neutral – 50% Yes
- Failure have serious consequences?  
25% No – 25% neutral – 50% Yes
- Adherence differ between different groups (health inequalities) ?  
50% No – 0% neutral – 50% Yes
- Feasible for the provider?  
37.5% No – 0% neutral – 62.5% Yes

• Is the recommendation a priority ?  
37.5% No – 12.5% neutral – 50% Yes



0	1	2	3	4
NOT AT ALL				
TOTALY				

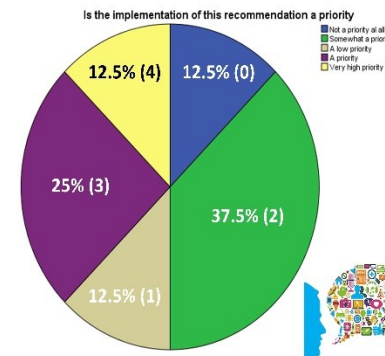
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## Rec 6 : Diet - Dietician

N=8

- Already implemented in practice ?  
87.5% No – 12.5% neutral – 0% Yes
- Failure have serious consequences?  
50% No – 25% neutral – 25% Yes
- Adherence differ between different groups (health inequalities) ?  
62.5% No – 12.5% neutral – 25% Yes
- Feasible for the provider?  
37.5% No – 12.5% neutral – 37.5% Yes

• Is the recommendation a priority ?  
25% No – 37.5% neutral – 37.5% Yes



0	1	2	3	4
NOT AT ALL				
TOTALY				

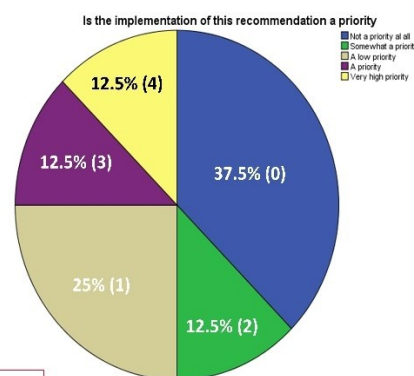
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## Rec 7 : Diet – Multidisciplinary Team

N=8

- Already implemented in practice ?  
100% No – 0% neutral – 0% Yes
- Failure have serious consequences?  
50% No – 12.5% neutral – 37.5% Yes
- Adherence differ between different groups (health inequalities) ?  
50% No – 12.5% neutral – 37.5% Yes
- Feasible for the provider?  
62.5% No – 25% neutral – 12.5% Yes

• Is the recommendation a priority ?  
62.5% No – 12.5% neutral – 25% Yes



0	1	2	3	4
NOT AT ALL				
TOTALY				

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## Summary of KNGF recommendations (taking into account the OARSI & NICE guidelines)

Supportive pharmacologic treatments for KOA and/or HOA conservative management

**Recommendation 8** (KNGF-OARSI-NICE) : Offer topical NSAID to support therapeutic exercises of a patient with KOA and/or HOA (at the lowest effective dose, during the shortest possible time)

**Recommendation 9** (KNGF) : Offer paracetamol to support therapeutic exercises of a patients with KOA and/or HOA, at the first phase (0-3 months) of conservative management of KOA and/or HOA

**Recommendation 10** (KNGF-OARSI) : Offer oral NSAID to support therapeutic exercises of a patient with KOA and/or HOA, while not having comorbid conditions, taking into account toxicity and the risk factors of the patient at the second phase (3-6 months) of conservative management of KOA and/or HOA (at the lowest effective dose, during the shortest possible time)

**Recommendation 11** (KNGF-NICE) : Offer week opioids to support therapeutic exercises of a patient with KOA and/or HOA, if all other pharmacological treatments are contraindicated, not tolerated or ineffective and at the second phase (3-6 months) of conservative management of KOA and/or HOA



Strength of recommendation : 1=strong ; 2=weak  
Level of evidence : A=good ; B=moderate ; C=low ; D=very low

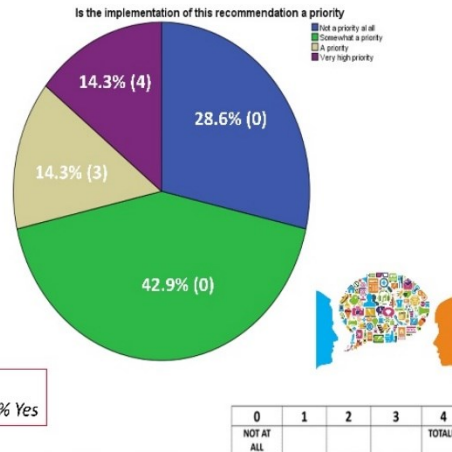
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## Rec 8 : Topical NSAID

N=7

- Already implemented in practice ?  
42.9% No – 28.6% neutral – 28.6% Yes
- Failure have serious consequences?  
71.4% No – 0% neutral – 28.6% Yes
- Adherence differ between different groups (health inequalities) ?  
42.9% No – 0% neutral – 57.1% Yes
- Feasible for the provider?  
28.6% No – 25% neutral – 71.4% Yes

- Is the recommendation a priority ?  
28.6% No – **42.9% neutral** – 28.6% Yes



37.5%

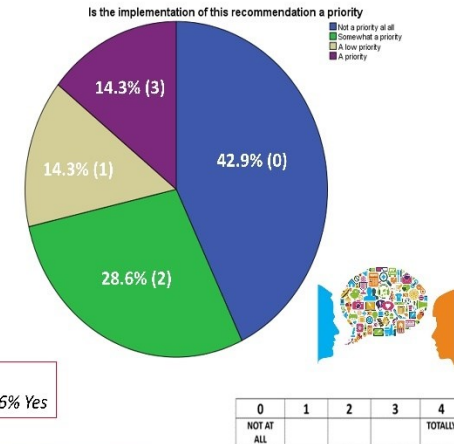
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## Rec 9 : Paracetamol

N=7

- Already implemented in practice ?  
14.3% No – 14.3% neutral – 71.4% Yes
- Failure have serious consequences?  
85.7% No – 0% neutral – 14.3% Yes
- Adherence differ between different groups (health inequalities) ?  
71.4% No – 0% neutral – 28.6% Yes
- Feasible for the provider?  
28.6% No – 25% neutral – 71.4% Yes

- Is the recommendation a priority ?  
**42.9% No** – 28.6% neutral – 28.6% Yes



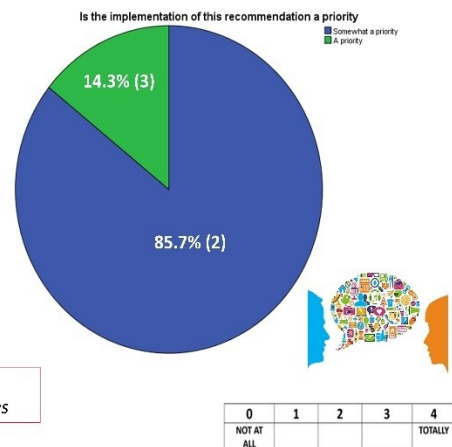
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## Rec 10 : Oral NSAID

N=7

- Already implemented in practice ?  
42.9% No – 0% neutral – 57.2% Yes
- Failure have serious consequences?  
57.2% No – 28.6% neutral – 14.3% Yes
- Adherence differ between different groups (health inequalities) ?  
57.2% No – 0% neutral – 42.9% Yes
- Feasible for the provider?  
42.9% No – 0% neutral – 57.2% Yes

- Is the recommendation a priority ?  
0% No – **85.7% neutral** – 14.3% Yes



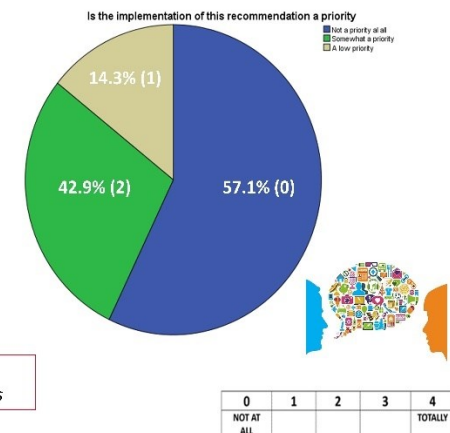
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## Rec 11 : Weak opioids

N=7

- Already implemented in practice ?  
57.1% No – 28.6% neutral – 14.3% Yes
- Failure have serious consequences?  
57.1% No – 14.3% neutral – 28.6% Yes
- Adherence differ between different groups (health inequalities) ?  
57.1% No – 0% neutral – 42.9% Yes
- Feasible for the provider?  
42.9% No – 0% neutral – 57.1% Yes

- Is the recommendation a priority ?  
**71.4% No** – 42.9% neutral – 0% Yes



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# Summary of KNGF recommendations (taking into account the OARSI & NICE guidelines)

## Other physiotherapeutic techniques

**Recommendation 12** (KNGF-OARSI) : (Preferably) do not offer MASSAGE THERAPY to patients with KOA/HOA (2C)

**Recommendation 13** (KNGF-OARSI) : (Preferably) do not offer treatment with TENS to patients with KOA/HOA . Consider the use of TENS only as a brief intervention for pain reduction to support the exercise therapy, if the exercise therapy is being hampered by severe pain symptoms (2D)

**Recommendation 14** (KNGF) : Do not offer PASSIVE MOBILISATION to patients with KOA/HOA (1C)

**Recommendation 15** (KNGF-OARSI) : Do not offer THERMOTHERAPY (hot/cold) to patients with KOA/HOA (1D)

**Recommendation 16** (KNGF-OARSI) : Do not offer ULTRASOUND to patients with KOA/HOA (1C)

**Recommendation 17** (NICE) : Do not routinely offer INSOLES, BRACES, SPLINTS, SUPPORTS, *unless*:

- there is joint instability or abnormal biomechanical loading and
- therapeutic exercise is ineffective or unsuitable without the addition of an aid or device
- the addition of an aid or device is likely to improve movement and function



Strength of recommendation : 1=strong ; 2=weak  
Level of evidence : A=good ; B=moderate ; C=low ; D=very low

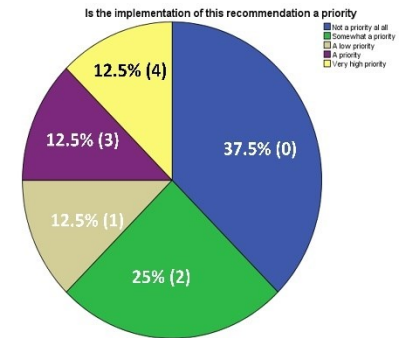
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## Rec 12 : Massage Therapy

N=8

- Already implemented in practice ?  
50% No – 25% neutral – 25% Yes
- Failure have serious consequences?  
75% No – 0% neutral – 25% Yes
- Adherence differ between different groups (health inequalities) ?  
37.5% No – 0% neutral – 62.5% Yes
- Feasible for the provider?  
12.5% No – 0% neutral – 87.5% Yes

- Is the recommendation a priority ?  
50% No – 25% neutral – 25% Yes



0	1	2	3	4
NOT AT ALL				TOTALY

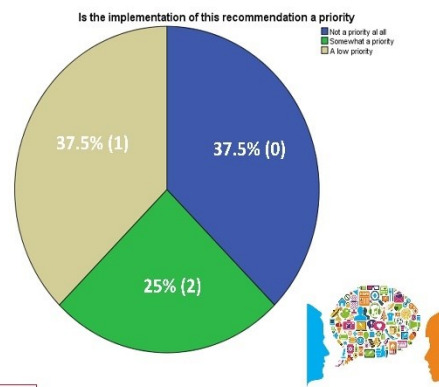
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## Rec 13 : TENS

N=8

- Already implemented in practice ?  
50% No – 25% neutral – 25% Yes
- Failure have serious consequences?  
87.5% No – 0% neutral – 12.5% Yes
- Adherence differ between different groups (health inequalities) ?  
37.5% No – 25% neutral – 37.5% Yes
- Feasible for the provider?  
12.5% No – 25% neutral – 62.5% Yes

- Is the recommendation a priority ?  
37.5% No – 25% neutral – 37.5% Yes



0	1	2	3	4
NOT AT ALL				TOTALY

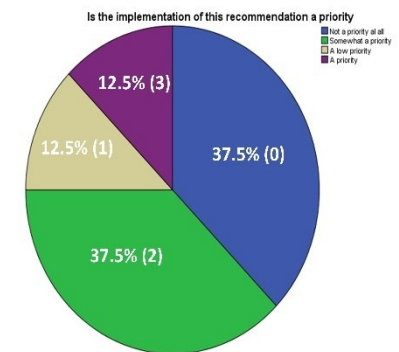
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## Rec 14 : Passive Mobilisation

N=8

- Already implemented in practice ?  
75% No – 0% neutral – 25% Yes
- Failure have serious consequences?  
50% No – 37.5% neutral – 12.5% Yes
- Adherence differ between different groups (health inequalities) ?  
12.5% No – 50% neutral – 37.5% Yes
- Feasible for the provider?  
0% No – 25% neutral – 75% Yes

- Is the recommendation a priority ?  
50% No – 37.5% neutral – 12.5% Yes



0	1	2	3	4
NOT AT ALL				TOTALY

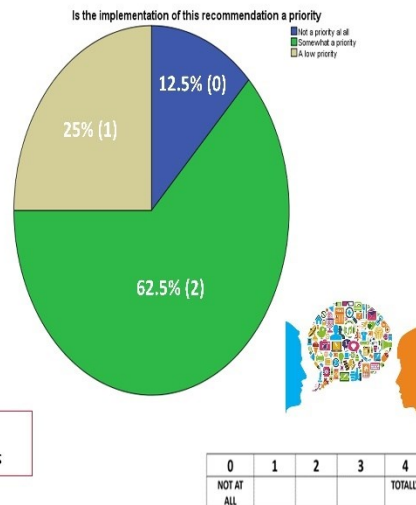
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## Rec 15 : Thermotherapy

N=8

- Already implemented in practice ?  
50% No – 37.5% neutral – 12.5% Yes
- Failure have serious consequences?  
87.5% No – 0% neutral – 12.5% Yes
- Adherence differ between different groups (health inequalities) ?  
37.5% No – 37.5% neutral – 25% Yes
- Feasible for the provider?  
12.5% No – 25% neutral – 62.5% Yes

- Is the recommendation a priority ?  
37.5% No – **62.5% neutral** – 0% Yes



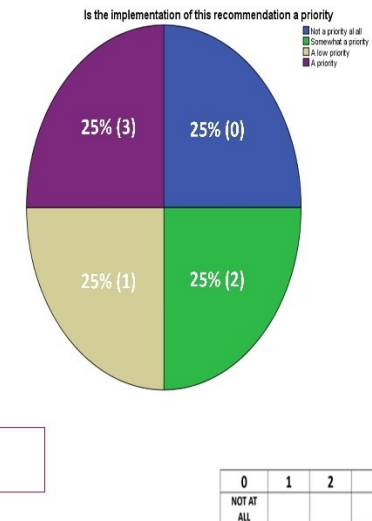
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## Rec 16 : Ultrasound

N=8

- Already implemented in practice ?  
75% No – 12.5% neutral – 12.5% Yes
- Failure have serious consequences?  
87.5% No – 12.5% neutral – 0% Yes
- Adherence differ between different groups (health inequalities) ?  
25% No – 37.5% neutral – 37.5% Yes
- Feasible for the provider?  
0% No – 25% neutral – 75% Yes

- Is the recommendation a priority ?  
**50% No** – 25% neutral – 25% Yes



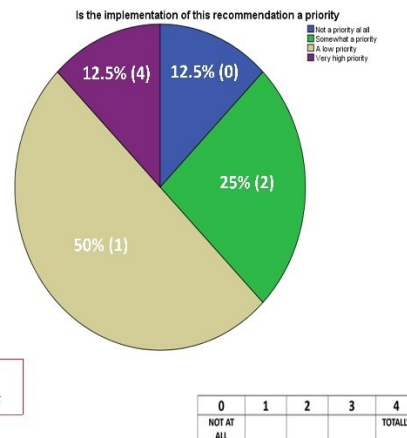
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## Rec 17 : Onsoles, braces...

N=8

- Already implemented in practice ?  
62.5% No – 25% neutral – 12.5% Yes
- Failure have serious consequences?  
50% No – 12.5% neutral – 37.5% Yes
- Adherence differ between different groups (health inequalities) ?  
25% No – 12.5% neutral – 62.5% Yes
- Feasible for the provider?  
12.5% No – 25% neutral – 62.5% Yes

- Is the recommendation a priority ?  
**62.5% No** – 25% neutral – 12.5% Yes



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## Summary of KNGF recommendations (taking into account the OARSI & NICE guidelines)

Referral to orthopedic surgeon – to joint arthroplasty

**Recommendation 18** (NICE-KNGF) : Consider referring for joint replacement after 3-6 months of conservative management if :

- symptoms (pain, stiffness, reduced function or progressive joint deformity) are substantially impacting QoL

and

- non-surgical management is ineffective or unsuitable
- Use clinical assessment (instead of systems scoring severity of OA)
- Do not exclude from referral for joint replacement because of age, sex or gender, smoking, comorbidities, overweight or obesity (based on BMI)



**Recommendation 19** (KNGF) : Consider offering **exercise therapy** (based on the FITT principles) in the **pre-operative** phase if there is an increased risk of delayed recovery following joint replacement surgery for HOA (28)



Strength of recommendation : 1=strong ; 2=weak  
Level of evidence : A=good ; B=moderate ; C=low ; D=very low

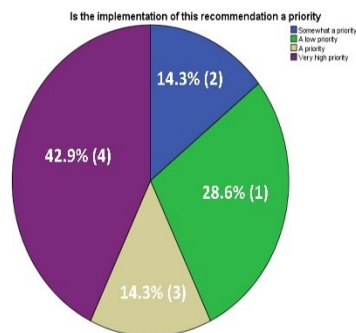
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## Rec 18 : Referral OS

N=7

- Already implemented in practice ?  
14.3% No – 28.6% neutral – 57.1% Yes
- Failure have serious consequences?  
14.3% No – 28.6% neutral – 57.1% Yes
- Adherence differ between different groups (health inequalities) ?  
28.6% No – 14.3% neutral – 57.1% Yes
- Feasible for the provider?  
14.3% No – 0% neutral – 85.7% Yes

- Is the recommendation a priority ?  
28.6% No – 14.3% neutral – 57.1% Yes



0	1	2	3	4
NOT AT ALL				TOTALLY

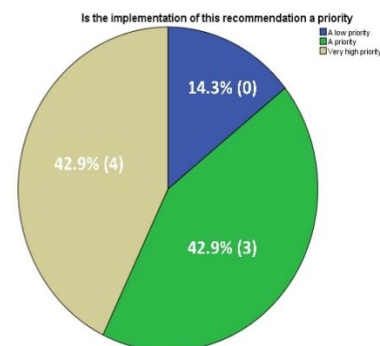
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## Rec 19 : Pre-operative Exercise Therapy

N=7

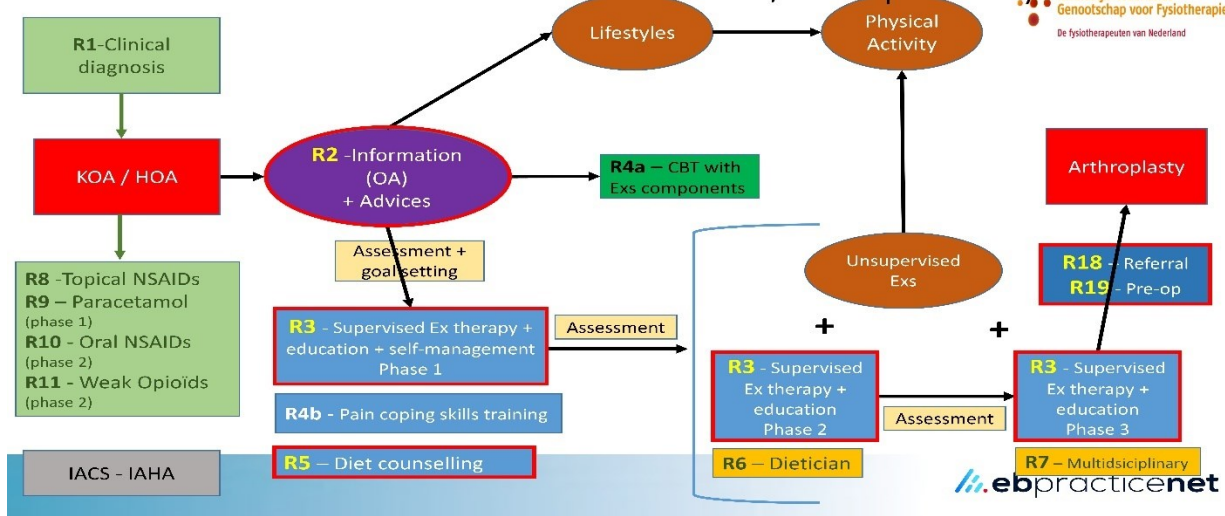
- Already implemented in practice ?  
57.1% No – 14.3% neutral – 28.6% Yes
- Failure have serious consequences?  
14.3% No – 0% neutral – 85.7% Yes
- Adherence differ between different groups (health inequalities) ?  
0% No – 28.6% neutral – 71.4% Yes
- Feasible for the provider?  
0% No – 28.6% neutral – 71.4% Yes

- Is the recommendation a priority ?  
14.3% No – 0% neutral – 85.7% Yes



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## Prioritized recommendations in the KOA/HOA pathway



### Appendix 3: Protocol of the Rapid Review on determinants and intervention for conservative management of knee/hip osteoarthritis

## **Evidence-Based Conservative Care for Knee & Hip Osteoarthritis: A Rapid Reviews of Barriers, Facilitators, and Implementation Strategies for the Conservative Management of Knee and/or Hip Osteoarthritis**

*Thomas Janssens, Nathalie Pauwen, Marine Markaryan, EBPracticenet*

**Contact information:** Thomas Janssens, UZ Leuven Campus St. Rafael, Kapucijnenvoer 33, 3000 Leuven

**Support for this review:** Ebpracticenet

Ebpracticenet is funded by the National Institute for Health and Disability Insurance (NHIDI) in the context of the Belgian network for Evidence-Based Practice. This review was carried out to inform a planned call for implementation projects for conservative treatment of knee & hip osteoarthritis. Member organization of the Belgian EBP-network were involved in selecting the topic for implementation, but were not involved in the development of the review protocol.

**Protocol Worksheet**



Phenomenon of Interest	Design	Evaluation	Research Type
Implementation of evidence-based practice (ebp) for conservative treatment for hip and/or knee osteoarthritis (hip/knee OA).	<p>Systematic reviews of qualitative designs or survey designs.</p> <p>Systematic reviews of implementation intervention studies.</p> <p>(Recent) primary studies of any design.</p>	<p>Determinants (barriers and facilitators) of implementation. This may include characteristics of OA interventions, patient/health care provider beliefs, other patient/provider characteristics, as well as characteristics of the health care environment/context.</p> <p>Different interventions or strategies used to improve the implementation of ebp related to conservative care of hip and knee OA.</p>	Qualitative, quantitative, mixed method.
<p><b>Sample</b></p> <p>Studies conducted with health care providers (e.g., general practitioners, physiotherapists) or patients with hip/knee OA, across different care settings.</p> <p><b>Criteria for including systematic reviews in the rapid review</b></p> <p>Population : Primary/ambulatory care clinicians applying, or primary/ambulatory care patients receiving hip/knee OA guidelines, recommendations, or evidence-based practice related to conservative management of hip/knee OA (see Bannuru et al., 2019; NICE guideline, 2022 ; KNGF guideline, 2018).</p> <p>Experience/ intervention : The context of implementation (from the patient or healthcare professional perspective) of established evidence-based intervention. Studies published in the English language.</p> <p>Outcomes: <u>Actual, experienced, anticipated, perceived, predicted or expected</u> barriers, facilitators, influential factors (at micro-meso-macro level). Any intervention aimed at implementing the guidelines, recommendations or evidence-based into practice.</p> <p>Setting: Primary care / ambulatory care / general practice.</p> <p>Study design: Systematic Reviews.</p> <p><b>Criteria for excluding systematic reviews in the rapid review</b></p> <p>Population: Primary care clinicians applying, or primary care patients receiving intervention for OA other than located to knee or hip. Primary care clinicians applying, or primary care patients receiving hip/knee OA guidelines, recommendations, or evidence-based practice related to pre and/or post-operative surgical management of hip/knee OA.</p> <p>Experience/ intervention: Development of an intervention, Intervention/innovation not informed by evidence-based guidelines or recommendations, Studies not published in the English language.</p> <p>Outcomes: Treatments outcomes, any outcome related to surgical procedure.</p> <p>Setting: Secondary care.</p>			

<p>Study design: Any other design than systematic review or systematic review and meta-analysis</p> <p>Publication date : before 2017.</p> <p><b>Criteria for including primary studies from systematic reviews in the rapid review</b></p> <p>Population : Primary/ambulatory care clinicians applying, or primary/ambulatory care patients receiving hip/knee OA guidelines, recommendations, or evidence-based practice related to conservative management of hip/knee OA (see OARSI guideline : Bannuru et al., 2019; NICE guideline, 2022 ; KNGF guideline, 2018).</p> <p>Experience/ intervention : The context of implementation (from the patient or healthcare professional perspective) of established evidence-based intervention. Studies published in the English language.</p> <p>Outcomes: <u>Actual, experienced, anticipated, perceived, predicted or expected</u> barriers, facilitators, influential factors (at micro-meso-macro level). Any intervention aimed at implementing the guidelines, recommendations or evidence-based into practice.</p> <p>Setting: Primary care / ambulatory care / general practice.</p> <p>Study design: Qualitative empirical studies, Quantitative reporting of findings, Qualitative component included as an appendix or additional file, such that qualitative methods and reporting are NOT the primary focus.</p> <p><b>Criteria for excluding primary studies from systematic reviews in the rapid review</b></p> <p>Population: Primary care clinicians applying, or primary care patients receiving intervention for OA other than located to knee or hip. Primary care clinicians applying, or primary care patients receiving hip/knee OA guidelines, recommendations, or evidence-based practice related to pre and/or post-operative surgical management of hip/knee OA.</p> <p>Experience/ intervention: Development of an intervention, Intervention/innovation not informed by evidence-based guidelines or recommendations, Studies not published in the English language.</p> <p>Outcomes: Treatments outcomes, any outcome related to surgical procedure.</p> <p>Setting: Secondary care.</p> <p>Study design: Abstracts or conference proceedings; studies in which findings/ recommendations are not based not on observations.</p> <p>Publication date : before 2012.</p>	
<p><b>Research question:</b></p> <ul style="list-style-type: none"> <li>a) What are determinants (barriers and facilitators) of the implementation of/adherence to clinical practice guideline recommendations in the conservative care for patients with hip/knee osteoarthritis?</li> <li>b) What interventions/strategies have been used to improve the implementation of/adherence to clinical practice guideline recommendations in the conservative care for patients with hip/knee osteoarthritis.</li> <li>c) Do implementation interventions/strategies for hip/knee osteoarthritis identified in the rapid review match potentially efficacious strategies for addressing the determinants identified the rapid review</li> </ul>	
<p><b>Key search terms for systematic reviews :</b></p> <p><b>Implement*, barrier*, facilitat*, determinant*, beliefs, attitudes, CFIR, TDF, PARIHS</b></p> <p><b>implementation strategies", "implementation intervention", "implementation trial", "quality improvement", "guideline implementation".</b></p>	<p><b>Databases to Search:</b></p> <p>PUBMED (limited to 1 database, Rapid Review) and PROSPERO (to investigate systematic reviews protocols that might be in the process of publication).</p> <p><b>Dates of search:</b> 2017-2022 (systematic reviews).</p>

<p><b>Search string (pubmed):</b></p> <p>((implementation science [MeSH Terms]) OR ((Implement*[Title/Abstract]) OR (barrier*[Title/Abstract]) OR (facilitat*[Title/Abstract]) OR (determinant*[Title/Abstract]) OR CFIR OR TDF OR PARIHS OR ERIC OR (challeng*[Title/Abstract]) OR (obstacle*[Title/Abstract]) OR (perception*[Title/Abstract]) OR (perceive*[Title/Abstract]) OR (attitude*[Title/Abstract]) OR (belief*[Title/Abstract]) OR (experience*[Title/Abstract])) AND (((osteoarthritis [MeSH Terms]) OR (osteoarthritis, knee [MeSH Terms]) OR (osteoarthritis, hip [MeSH Terms])) OR (osteoarthritis[Title/Abstract])) NOT Covid*[Title/Abstract])</p> <p><b>Search string (PROSPERO):</b></p> <p>(Implement* OR quality improvement OR barrier* OR facilitat* OR determinant* OR CFIR OR TDF OR PARIHS OR ERIC OR challeng* OR obstacle* OR perception* OR perceive* OR attitude* OR belief* OR experience*) AND osteoarthritis NOT Covid*</p> <p><b>Hand search: for identified systematic reviews and : included cited papers and papers citing the focus paper</b></p>	<p><b>Status :</b> Published systematic reviews.</p> <p>Implementation science is a young science. Furthermore, older systematic reviews may have been carried out in different contexts and may be of limited interest to current policy makers. Recent primary studies are included that may not have been included in systematic reviews (yet).</p>
<p><b>Why is this QES important</b></p> <p>Hip and knee osteoarthritis are the most common and most disabling forms of osteoarthritis (Cross et al., 2010; Murray et al., 2010; Vina et al., 2018). Clinical practice guidelines stress the importance of conservative management of hip and knee osteoarthritis, based on the biopsychosocial model, including physical activity/supervised exercise with pharmacological support and therapeutic education (weight management, pain management - general/local, self-management) and, if necessary, psychosocial interventions with interdisciplinary management; and advice against arthroscopic surgery for all degenerative knee problems including knee osteoarthritis (OARS guideline : Bannuru et al., 2019; NICE guideline, 2022 ; KNGF guideline, 2018). Physiotherapy guidelines stress adequate frequency, intensity, type, and duration of activities (KNGF, 2018).</p> <p>However, investigation of current practice shows a large evidence-practice gap, highlighting the need for implementation interventions (Huynh et al., 2018; Holden et al., 2021; Egerton et al., 2018). However, as evidence-</p>	<p><b>Author Team:</b> Thomas Janssens, Nathalie Pauwen, Marine Markaryan</p>

<p>practice gaps also permeate the design of implementation intervention, we aim to review implementation determinants and existing implementation interventions. The results of this study can further improve the design of novel implementation interventions for hip/knee osteoarthritis care.</p>	
<p><b>Would critical Appraisal be conduct? If so - which framework will be used?</b></p> <p><b>Critical appraisal of systematic reviews</b></p> <p>The critical appraisal of systematic reviews will be carried out with the JBI Checklist for systematic reviews and research synthesis</p> <p>(<a href="https://www.jbi.global/">© Joanna Briggs Institute 2017 Critical Appraisal Checklist for Systematic Reviews and Research Syntheses (jbi.global).</a>)</p> <p>Systematic reviews that have met the inclusion criterion and not met the exclusion criterion for systematic reviews will be included in the Rapid Review and the primary studies included in these included systematic reviews will be extracted.</p> <p>In order to conduct a rapid review, we will rely on the critical appraisal conducted within the included systematic reviews and will not conduct a second assessment of the primary studies etracted (included in these systematic reviews).</p> <p>Primary studies extracted from the included systematic reviews that have met the inclusion criterion and not met the exclusion criterion for primary studies will be included in the Rapid Review and analysed.</p>	<p><b>Will you register or publish your protocol?</b></p> <p>Yes, we will register our review within PROSEPRO (<a href="https://www.crd.york.ac.uk/prospero/">https://www.crd.york.ac.uk/prospero/</a>).</p> <p><b>What reporting guideline would you use?</b></p> <p>Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) checklist.</p>
<p><b>Will you use an existing logic model/ theory/ conceptual framework? / Will you build a new one?</b></p> <p>At the level of systematic review, we will use the JBI data extraction form for review for ststematic reviews and research syntheses ( <a href="https://jbi-global-wiki.refined.site/space/MANUAL/4687036/Appendix+10.3+JBI+Data+Extraction+Form+for+Review+for+Systematic+Reviews+and+Research+Syntheses">https://jbi-global-wiki.refined.site/space/MANUAL/4687036/Appendix+10.3+JBI+Data+Extraction+Form+for+Review+for+Systematic+Reviews+and+Research+Syntheses</a> )</p> <p>In principle and by default, we will inventory the determinants of implementation using the Consolidated Framework for Implementation Research (CFIR); implementation strategies will be coded according to the revised ERIC taxonomy (Powell et al. 2015); and congruence between determinants and implementation strategies will be assessed using the CFIR-ERIC matching tool (Waltz et al. 2019). However, depending on the logical framework used in the selected studies to report their results, these frameworks could be adapted.</p>	

Note. Covidence tool is available here: [https://get.covidence.org/covidence-vs-distillersr?campaignid=14927618302&adgroupid=127002766943&gclid=CjwKCAjwo\\_KXBhAaEiwA2RZ8hIqc4TtfhtNuYXv-XMQCt5S5YNXe1IEiuXCCvz1Z94WMaUPDr3za7xoCQZEQAvD\\_BwE](https://get.covidence.org/covidence-vs-distillersr?campaignid=14927618302&adgroupid=127002766943&gclid=CjwKCAjwo_KXBhAaEiwA2RZ8hIqc4TtfhtNuYXv-XMQCt5S5YNXe1IEiuXCCvz1Z94WMaUPDr3za7xoCQZEQAvD_BwE)

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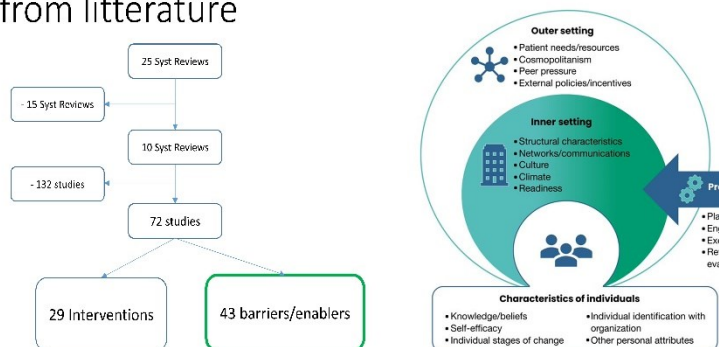
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## Appendix 6: Summary of the stakeholders' determinants from primary studies (according to the CFIR model)

### Déterminants (barriers & enablers) from literature



Damschroder, 2009

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### Barriers from the patient's perspective

Characteristics of individuals	Inner settings	Outer settings
Miss information about OA (symptoms, evolution, treatment options...)	Poor communication from HCPs (limited time)	Great importance to information from social environment
Misconceptions about OA, treatments and physical activity	HCPs do not provide tailored treatment options	Fear of surgery (testimonials)
Reluctance to use medication → switch to alternative medicine	No recognition from HCPs of the medical problem of OA	Aids and devices =stigmatization
Not in accordance with GL (Xrays, diet, physical activity, age, lifestyle changes)	Lack of support by HCPs	Difficulty in accommodating work
Fear of /experiencing pain → no physical activity/PT and/or discontinuation in physical activity/PT	Lack of communication between HCPs	Limited sessions for physical therapy (treatment not sustainable)
Perceived self-efficacy in physical activities		No tailored physical activities available

Spitaels, 2017 – Belgium ; Brembo, 2016 – Norway ; Hammer, 2015 – Denmark ; Webber, 2018 – Canada ; Wallis, 2020 – Australia

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### Barriers from the GP's perspective

Characteristics of individuals	Inner settings	Outer settings
Fatalistic view of OA	GP's perceived role	Affordability of the recommended management of OA
Imaging are needed to diagnose OA	Need of preventive options / earlier management of OA	
Lack of knowledge in OA management (from guidelines)	Referral to PT (related to specific criteria)	
Belief that the joint replacement = only efficient treatment	Referral to OS for joint replacement surgery (related to specific criteria)	
Skills on how to deal with treatment options (few expectations)	Need for channels of communication with other HCPs	
Lack of trust in exercise therapy & obesity management	System-related factors (time, ease of referrals, access)	
Fear of loss of control of Pa care	Influence from patients	

Hill & Boyd, 2018 – UK ; Reid, 2014 – New Zealand ; Selten, 2017 – Netherlands ; Christaenssens, 2017 – Canada ; Egerton, 2017 – Australia ; Egerton, 2018 – Australia

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### Barriers from the physiotherapist's perspective

Characteristics of individuals	Inner settings	Outer settings
Lack of knowledge in the bio-psycho-social management of OA	Suboptimal organization of care	Access to timely PT in the community and healthcare system
Misconceptions on EB treatments , "feeling-based" approach	PTs perception of their rôle within the OA management	Time session to dedicate to the patient
Lack of self-efficacy in weight management	Difficulty to access EB information	
The 'quick fix' of the patient	Rôle of other HCPs in referrals and messaging to the Pa	
Tailored & goal-oriented treatments	Difficulty in contacting dietician	
Confidence in the ability to manage OA with exercises	Communication between disciplines	

Mackay, 2018 – Canada ; Tang, 2020 – Australia ; Reid, 2014 – New Zealand ; Selten, 2017 – Netherlands ; Teo, 2020 – Australia ; Allison, 2019 – Australia

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## Barriers from the physician's perspective (OS – Rheumato)

Characteristics of individuals	Inner settings	Outer settings
Perceived lack of expertise (knowledge on OA + supportive skills)	Suboptimal organization of care (interdisciplinary communication /roles and responsibilities)	
Lack of information about options, benefits, risks of each optional management	Dialogue between disciplines (easy lines of communication needed)	
Perceived lack of EB treatments related to lifestyles (weight, physical exercises)	Perceived role of the other HCPs	
	Mistrust in dietetic and/or physiotherapeutic interventions	
	The BMI-threshold above which OS should not perform a joint replacement	

*Long, 2016 – Netherlands ; Selten, 2017 – Netherlands ; Hill & Freudmann, 2018 – UK ; Reid, 2014 – New Zealand.*