Philippine Academy of Rehabilitation Medicine (PARM):

Clinical Practice Guidelines on the Diagnosis and Management of Hip Osteoarthritis

(2015)

Contents

Glossary

Analgesic – refers to an agent that relieves pain without causing loss of consciousness.

Aquatic Therapy - involves the treatment, rehabilitation, prevention, health, wellness and fitness of patient populations in a water-based environment. The unique properties of the aquatic environment enhance treatments for clients across the age span with musculoskeletal, neuromuscular, cardiovascular, pulmonary, and integumentary conditions.

Balneotherapy - the use of baths containing thermal mineral waters from natural springs at a temperature of at least 20 °C (commonly 34°) and with a mineral content of at least 1 g/l.

Capsaicin – (8-methyl-N-vanillyl-6-nonenamide) an active component found in chili peppers (plants belonging to the genus Capsicum). It is presently available as a topical analgesic, acting through local inhibition of pain neurotransmitters such as Substance P.

Chondroitin - a sulfated glycosaminoglycan (GAG) composed of a chain of alternating sugars (N-acetylgalactosamine and glucuronic acid), usually found attached to proteins as part of a proteoglycan. It is currently in use as a nutritional supplement (sometimes in combination with glucosamine) as a proposed remedy for arthritic symptoms.

Electrical muscle stimulation (EMS, ES) - refers to the procedure of applying controlled, low voltage electrical pulses to the nervous system by passing electricity through the skin via electrodes placed on the skin to elicit muscular contraction.

Glucosamine - (C6H13NO5) is an amino sugar which occurs especially as a constituent of various polysaccharides that are components of structural substances (as cartilage). It is currently in use as a nutritional supplement (sometimes in combination with chondroitin) as a proposed remedy for arthritic symptoms.

Hyaluronate – (also *Hyaluronan* or *Hyaluronic Acid*) is an anionic, non-sulfated glycosaminoglycan distributed widely throughout connective, epithelial, and neural tissues, and is found in high concentrations in joints (cartilage and synovial fluid). It is currently in use as a proposed remedy for arthritic symptoms through injection into the involved joint (*Viscosupplementation)*.

Hip Arthroplasty – surgical intervention performed by realigning and reconstructing a dysfunctional hip joint in order to relieve pain and restore function. *Total hip arthroplasty* involves replacement of the femoral head and acetabulum with prostheses (femoral and acetabular components), while in *Partial hip arthroplasty* ("hemiarthroplasty") only the femoral head is replaced.

Multimodal Therapy – a range of individual treatment modalities such as joint mobilization, relaxation techniques, electrotherapies and exercises as part of a package to address individual patient deficits

Opioid analgesics – Also known as narcotic analgesics, are pain relievers that act on the central nervous system.

Osteoarthritis – a degenerative joint disease characterized by progressive cartilage loss, subchondral bone remodeling, osteophyte formation, and synovial inflammation

Red flags - patterns of signs or symptoms (alarm signals) that may indicate serious pathology, necessitating further medical diagnostic workup

Steroid – refers to a general class of chemical substances that are structurally related to one another and share the same chemical skeleton (a tetracyclic cyclopenta[a]phenanthrene skeleton).

Tai chi - an ancient Chinese tradition presently practiced as a graceful form of exercise, which involves a series of movements performed in a slow, focused manner and accompanied by deep breathing. It is likewise a non-competitive, self-paced system of gentle physical exercise and stretching, with each posture flowing into the next without pause, ensuring that the body is in constant motion.

Transcutaneous Electrical Nerve Stimulation (TENS, TNS) – refers to the procedure of applying controlled, low voltage electrical pulses to the nervous system by passing electricity through the skin via electrodes placed on the skin to modify pain perception.

Viscosupplementation – administration of intra-articular hyaluronate, primarily in order to provide and maintain joint lubrication, increasing the viscoelastic properties of synovial fluid.

1 Introduction

1.1 THE NEED FOR A GUIDELINE

Osteoarthritis (OA) is estimated to be the fourth leading cause of disability worldwide, and most of this disability burden is attributable to the involvement of the hips or the knees (Fransen et al 2011). According to the World Health Report Archives 1995-2025: "almost 80 percent of patients with OA have some degree of limitation of movement, and 25 percent cannot perform their activities of daily life." In the Philippines, the point prevalence of osteoarthritis is 4.1 percent of an urban population, with a mean age of 34 (Dans et al 1997). There is an extrapolated osteoarthritis prevalence of 3.2 million cases in an estimated Philippine Population of 80 million (Gonzales-Penserga, 2009). OA is strongly associated with aging and the Asian region is aging rapidly. In a 2012 cohort study of Filipino patients with primary osteoarthritis, the following observations were made: a female-to-male ratio of 3:1, a mean age of diagnosis of 63 years with onset at 59 years, an association with overweight and obesity, and a relationship with co-morbid conditions such as hypertension, dyslipidemia and diabetes mellitus (Racaza et al 2012). The said study also observed a joint involvement distribution of : knees (62.5%), > hands (14.3%) > generalized joint involvement (13.5%) > hip (2.9%). Osteoarthritis imposes a burden for physical occupational activity, a means of livelihood which is essential for many people living in rural communities in developing countries. Unfortunately, joint replacement surgery, an effective intervention for severe OA, is highly inaccessible to most people in rural regions of developing countries, possibly resulting in a large and growing number of older people living many years with severe joint disease (Fransen et al 2011). With this scenario, it is vital for clinicians to employ the principles of best evidence and best practice in their management of hip osteoarthritis in order to improve the health-related quality of life of afflicted people, to reduce the economic burden and prevalence of this condition, and alleviate the impact of disability on the patients and their caregivers.

The application of evidence to guide clinical practice is a global challenge for almost all health professionals (Grol & Grimshaw 2003) and even more so in developing countries such as the Philippines where scant resources and sometimes even out of date practices are still being delivered (Agarwal et al. 2008). In South East Asia, evidence-based healthcare practices are not well established, particularly in terms of understanding evidence-based practice (EBP), development of guidelines, or application of guidelines in making decisions regarding patient care (McDonald et al. 2010, Short et al. 2010). However, there have been some pioneering initiatives in this area by medical societies in the Philippines in recent years, such as the Philippine Rheumatological Association (Guidelines for gout, osteoarthritis and osteoporosis) and the Stroke society (Guidelines

for stroke) (Li-Yu et al. 2011,; Philippine Rheumatological Association 2008a,b,; Stroke Society of the Philippines 2010). Likewise, the Philippine Academy of Rehabilitation Medicine has developed clinical practice guidelines on stroke rehabilitation, low back pain, neck pain and shoulder pain, but using the approach of contextualizing relevant Western guidelines rather than de novo synthesis (Gonzalez-Suarez et al. 2011). To practice in an evidence based manner requires a clear understanding of EBP concepts, an ability to apply the concepts in practice, and a commitment to lifelong learning, all of which are still slowly in progress in the Philippines (Dizon et al. 2012, in review). In educational institutions in the Philippines, obstacles to evidence-based learning is being addressed by practical solutions such as: conducting small group, problem-based learning activities; providing critical appraisal workshops for diagnosis and treatment; and increasing role models of evidence-based medicine practitioners (Dans and Dans,2005). In terms of adherence to evidence-based practice by clinicians in the country, present observations are inconsistent, especially regarding conformance to current Clinical Practice Guidelines (CPG). An example of this would be improved adherence to the CPG on the management of ischemic stroke in young (Espeleta et al 2011), in contrast to poor adherence to the CPG on antimicrobial prophylaxis for elective surgical procedures (Matti et al, 2002). Nevertheless, it is refreshing to see the gradually growing attention and importance being given to obtaining relevant systematic reviews, and developing of evidence-based clinical practice guidelines in developing countries including the Philippines (Garner et al, 1998). Unfortunately, there still are currently many health practices in Asia and the Philippines that are not based on current best research evidence, which may be due to limited resources (financial and intellectual), low priority being given to health research initiatives and a lack of evidence based training and skills for clinicians (Chinnock et al 2005, Agarwal et al 2008, Dizon et al, 2012, McDonald et al. 2010). With the increasing prevalence of chronic conditions, such as hip osteoarthritis, it is crucial for patients to be provided with the best preventive and rehabilitative management. Therefore there is a need for locally applicable clinical guidelines to underpin evidence based practice in the Philippines.

1.2 CLINICAL GUIDELINES SUPPORTING EVIDENCE-BASED PRACTICE

"Clinical practice guidelines are systematically developed statements to assist practitioners and patient decisions about appropriate health care for specific clinical circumstances" (Field & Lohr 1992). The key components of a high quality and trustworthy guideline include the following: a diverse and relevant guideline development group composition; a unanimous decision-making process; clearly-stated objectives and scope; explicitly-described methodology; use of high-quality systematic reviews for evidence analysis; statements of clear and evidence-based recommendations; the use of a rating system to link qualities of evidence to the strengths of recommendations; full disclosure of conflicts of interest, financial support and sponsoring

organizations; external stakeholder review prior to publication; and declaration of an anticipated review date (Qaseem et al 2012).

Over the last 15 years, well-credentialed guideline development groups have set international standards for guideline construction (e.g. Scottish Intercollegiate Guidelines Network (SIGN), New Zealand Guidelines Group (NZGG), National Health and Medical Research Council, Australia (NHMRC), UK NHS National Institute for Clinical Excellence (NICE). These groups provide clinicians, policy-makers and clinicians with ready access to high-quality clinical guidelines on a range of topics. However, despite international investment in guideline development, there remains a lack of detail in how guidelines should be developed, the evidence reported, and recommendations worded (Turner et al. 2008). Moreover, there is inconsistent nomenclature for such documents, with terms such as guidelines, recommendations, care pathways and protocols having different meanings in different health care and cultural settings (Kumar et al. 2010).

The GLIA group (GuideLine Implementability Appraisal) (Shiffman et al. 2005) provides advice on wording guideline recommendations to reflect the strength of the underpinning evidence, and to encourage implementation of best-evidence into practice. The ADAPTE group (from Canada and Europe) provides a guideline adaptation process to layer existing evidence underpinning existing recommendations with new literature (ADAPTE Collaboration 2007). Critical appraisal tools such as AGREE (Appraisal of Guidelines Research and Evaluation) provide criteria to assess the independence of guideline developers, the clarity of guideline purpose, its scope and end-users, the transparency of clinical questions, and how the literature was searched, appraised, extracted and synthesized, how recommendations were worded, and guidelines revised (AGREE 2010).

There is no widely-accepted approach to presenting or reporting the strength of the body of evidence underpinning guideline recommendations. Approaches include providing summaries of the evidence, reporting the evidence hierarchy and/ or methodological quality, providing reference lists, or a considered judgment of the strength of the body of evidence using a ranking (letter or number). The GRADE group (Guyatt et al. 2010) and Australia's National Health and Medical Research Council (NHMRC) FORM approach (Hillier et al. 2011) provide suggestions as to how to assess the strength of the body of evidence for guideline recommendations.

1.2.1 GETTING GUIDELINES INTO PRACTICE

There is increasing research regarding the importance of guideline implementation, separate to the guideline-writing process. This research highlights that no matter how well a guideline is constructed, it will not implement itself. Planned approaches are required to embed recommendations into widespread and sustainable practice, and to evaluate the effectiveness of the guideline, in changing practice and improving health

outcomes. There is also a growing body of research on adapting guidelines from Western countries for other Western countries. For instance, the ADAPTE Collaboration provides a framework on how to systematically adapt guidelines to specific cultural and organizational settings using three phases, nine modules and 24 steps (ADAPTE Collaboration 2007). However the ADAPTE framework has not been applied to resource-limited developing countries, with different healthcare systems, healthcare provider relationships and education, and patient need. It is for this reason that we propose our innovative, simple and practical approach to contextualize guidelines from developed countries, for use in the Philippines.

The production of these guidelines was based on the notion that 'contextualization' and 'adaptation' are not synonymous. Guideline writing involves semantics (ADAPTE Collaboration 2007, Kumar et al. 2010, Shiffman et al. 2005, Turner et al. 2008), where the best words are chosen to translate evidence into persuasive and adoptable clinical recommendations. The purpose behind our work was to ensure that existing high quality recommendations could be readily adopted by Filipino healthcare providers by putting them into local contexts and demonstrating their relevance. Our contextualization process fills the gap between expected (evidence-based) practice and 'usual' Filipino practice, by providing PARM Endorsements and PARM Context Points that should assist Filipino healthcare providers to understand what is currently the best available evidence, and to do the best they can, with local resources in their local environment, to put evidence into practice. Thus there was no intent to adapt existing guideline recommendations by rewording, revision or updating the evidence, as this process would not have achieved our purpose. There was no local expertise or even the will to do this, and we had limited resources and time. There was a far more urgent need to embed existing evidence widely to educate healthcare providers about evidence-based guidelines, improve local practices and make the best of available resources. Thus our intention in contextualizing existing recommendations was to make it simple for Filipino healthcare providers who knew little about evidence-based practice, to provide the best possible healthcare, with minimum training and least impost.

1.3 CLINICAL CARE PATHWAY IN HIP OSTEOARTHRITIS

The PARM hip osteoarthritis guideline developers formulated this care pathway (Figure 1) to depict the relevant procedures and processes typically encountered by patients with hip osteoarthritis. This flowchart served as a guide in focused selection of pertinent recommendations synthesized and contextualized in this guideline.

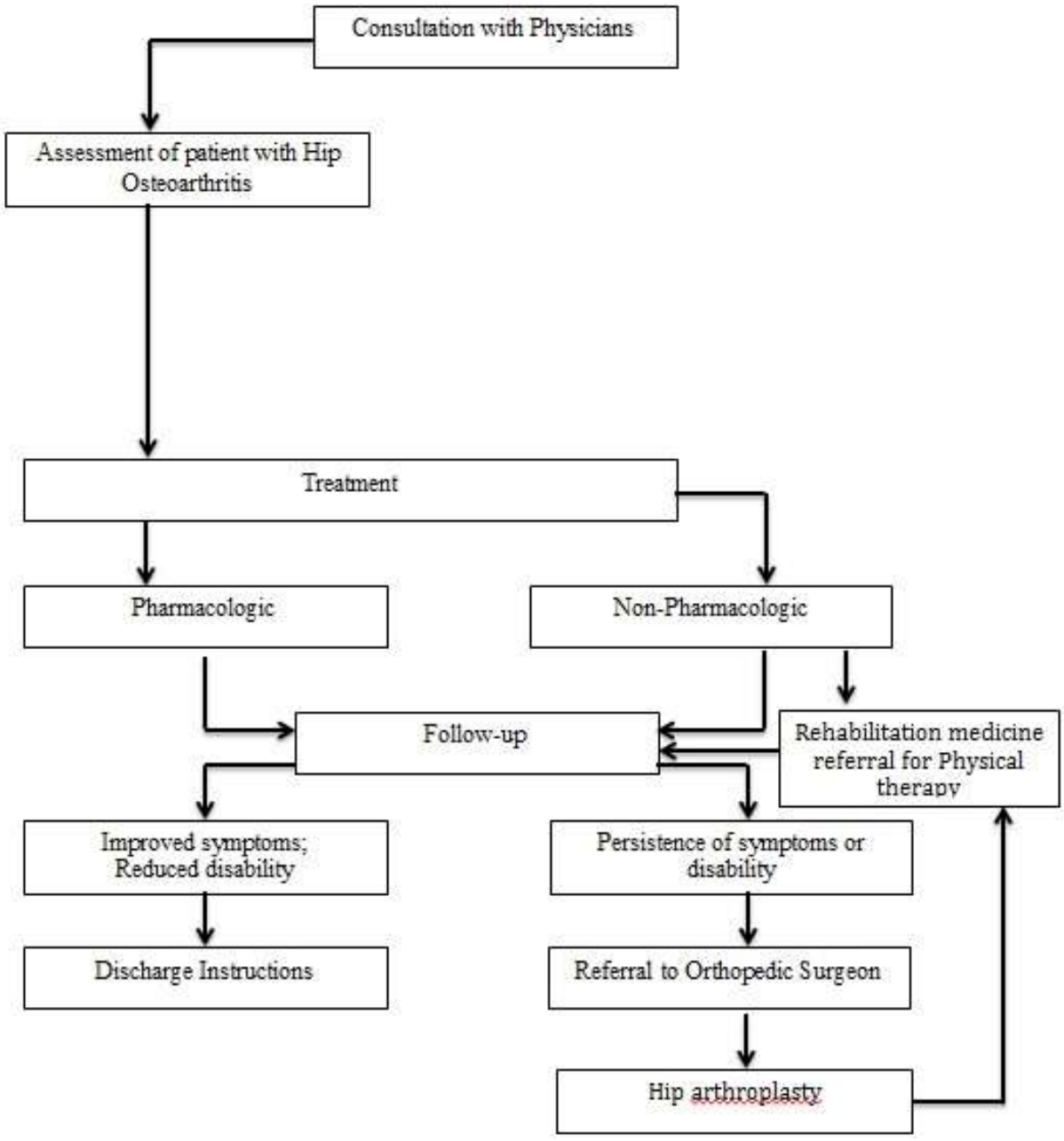

Figure 1. Example of a typical patient journey involving the evaluation and treatment of hip osteoarthritis.

2 METHODOLOGY

2.1 PURPOSE AND SCOPE

The team which prepared this document, comprising Rehabilitation Medicine Specialists (Physiatrists), aimed to establish evidence-based guidelines for the rehabilitation of patients suffering hip osteoarthritis. This encompassed recommendations for assessment, administration of various treatment modalities and criteria for referral to other specialists.

This guideline was therefore formulated in order to:

1. Identify appropriate assessment approaches for hip osteoarthritis;

2. Determine rational pharmacologic and non-pharmacologic treatment strategies for hip osteoarthritis based on current evidence, aimed at improving primary outcomes and reducing disability, and

3. Establish criteria for referral to other specialists as necessary for further management and focused care.

End users: Physiatrists handling patients with hip osteoarthritis of varying duration.

2.2 GUIDELINE SEARCH PROCESS

The following electronic databases were searched for existing international clinical practice guidelines (CPGs): PubMed, Google Scholar, National Institute for Health and Clinical Excellence (NICE), Scottish Intercollegiate Guidelines Network (SIGN), National Health and Medical Research Center (NHMRC), New Zealand Guidelines Group (NZGG), National Guidelines Clearinghouse (NGC). The key words used were: Clinical Guidelines, Practice Guidelines, hip pain, hip osteoarthritis, management and rehabilitation.

Inclusion criteria for the selected CPGs were:

1. Documents available in full text;

2. Published in the English language; and

3. Publication date from 2009-2013.

2.3 CRITICAL APPRAISAL

Selected CPGs which met the inclusion criteria were methodologically assessed using the International Center for Allied Health Evidence (iCAHE) Guideline Appraisal Checklist. This tool is composed of 6 categories (with a total of 14 items) namely: availability (3 items), dates (3 items), underlying evidence (4 items), guideline developers (2 items), guideline purpose/users (1 item) and ease of use (1 item) (Table 1). CPGs with scores of 10 or higher were eligible for inclusion. Only guidelines which provided a summary of their own recommendations were included in this project.

Table 1. iCAHE critical appraisal tool for clinical guidelines.

1. Availability
Is the guideline readily available in full text?
Does the guideline provide a complete reference list?
Does the guideline provide a summary of its recommendations?
2. Date
Is there a date of completion available?
Does the guideline provide an anticipated review date?
Does the guideline provide dates for when literature was included?
3. Underlying Evidence
Does the guideline provide an outline of the strategy they used to find underlying evidence?
Does the guideline use a hierarchy to rank the quality of the underlying evidence?
Does the guideline appraise the quality of the evidence which underpins its recommendations?
Does the guideline link the hierarchy and quality of underlying evidence to each recommendation?
4. Guideline Developers
Are the developers of the guideline clearly stated?
Does the qualifications and expertise of the guideline developer(s) link with the purpose of the guideline and its end users?
5. Guideline purpose and users
Are the purpose and target users of the guideline stated?
6. Ease of use
Is the guideline readable and easy to navigate?
TOTAL SCORE

2.4 EXTRACTION OF RELEVANT DATA FOR CARE PATHWAY

The following data or recommendations were extracted from each guideline:

a. History, physical examination and diagnostic evaluation tools;
b. Pharmacological treatment options;
c. Conservative (non-pharmacological) management;
d. Invasive management;
e. Pre- and post-operative intervention, and
f. Referral to other specialists and instructions for follow-up.

2.5 CONTEXTUALIZATION

PARM applied the fourth and fifth elements of the NHMRC FORM tool (Hillier et al. 2011) to assess the generalizability and applicability of the included recommendations to Filipino settings. There was no consideration of the first three FORM elements of evidence strength (evidence-base, consistency and clinical impact) for any included guideline, as to do so would have violated the PARM contextualization process. Moreover, the PARM group did not assign an evidence level (A-D) to the generalizability and applicability of any PARM endorsement, although this grading is the basis of the FORM guide for de novo guideline development (Hillier et al. 2011). Rather PARM focused on discussion of generalizability and applicability of summarized recommendations, to determine whether the PARM Endorsement was sufficient to guide practice decisions, or whether PARM Context Points were also required to contextualize the endorsed recommendation(s) within the patient journey. Where there was confusion in interpreting recommendations to the Filipino patient journey, or where the included guideline recommendations were contradictory, the group went back to the original references for clarification. If required, the level of the PARM endorsement was debated and consensus achieved, with a final decision from the working group chair in the absence of consensus.

To assist in standardizing the guideline contextualization process, a PARM writing guide was established (see Box 1). This guide establishes a uniform framework for summarizing differently-worded recommendations and differently-reported strengths of the body of evidence for recommendations extracted from the included guidelines that were relevant to a particular situation in the Filipino patient journey. The Guide is to be used in the event that there are:

- more than one relevant recommendation extracted from the relevant guidelines, which addresses a particular aspect of the Filipino patient journey, and/or

- different methods of reporting the underpinning strength of the body of evidence of the relevant recommendations from the included guidelines.

Box 1. PARM standard writing guide.

Key:
High quality evidence can be variously described in the included guidelines, as Levels I or II, A or B.
Moderate quality evidence can be variously described in the included guidelines as Levels II or III, B or C.
Low quality evidence can be variously described in the included guidelines as Levels III or IV, C or D.

Key:
The volume of literature underpinning the recommendations was classified as low volume (3 references or less), moderate volume (4-7 references) or high volume (8+ references). Where a recommendation in the included guidelines was supported only by Good Practice Points (expert opinion in the absence of evidence, or inconsistent evidence), these were noted in the summary table as GPPs, and not given a level of evidence

Each relevant recommendation from each included guideline was assessed using the following parameters: level of evidence, uniformity of thought, and volume, consistency and age of references. The level of evidence was rated as consistent or inconsistent based on the homogeneity of the evidence level assigned by the different clinical practice guidelines. Uniformity of thought was graded as uniform or variable based on similarity of the findings of the different clinical practice guidelines as to the effectiveness or ineffectiveness of a treatment modality and reliability of diagnostic procedure or physical examination. The volume of references was graded as low if the number of references was less than or equal to three, moderate if the number was between four and seven, and high if the volume was greater than eight. The age of the references was assessed as current if 50% of the papers cited were published later than 2008 and non-current if the majority of the papers were published prior to 2008.

All recommendations relevant to the patient journey were collated in a table for each element of the journey, along with the underpinning levels of evidence, and the guideline reference from which the recommendation had been extracted. Each included recommendation set was rated according to the Philippine Academy of Rehabilitation Medicine (PARM) guide for evidence rating, outlined in Table 2.

Recommendation	Strength of the body of evidence
1. There is strong evidence	Consistent grades of high quality evidence with uniform thought[1], and at least a moderate volume of references to support the recommendation(s)
2. There is evidence	A mix of moderate and high quality evidence with uniform thought and at least a low volume of references OR A mix of high and low quality evidence with uniform thought, and high volume of references OR High level evidence coupled with GPPs, and at least moderate volume of references OR One Level I paper with at least moderate volume references
3. There is some evidence	Single level II (A) paper OR Inconsistent grades of high and low evidence with uniform thought and moderate volume references OR Consistent grades of low level evidence with uniform thought and at least a moderate volume of references
4. There is conflicting evidence	A mix of levels of evidence with non-uniform thought, irrespective of the volume of references with or without GPPs
5. There is insufficient evidence	Low or inconsistent levels of evidence with low volume references with or without GPPs
6. There is no evidence	Absence of evidence for any aspect of the patient journey

Table 2. PARM guide for summarizing the underpinning strength of the body of evidence of included recommendations.

2.6 PARM ENDORSEMENTS

PARM determined uniform wording with which to endorse recommendations based on the level of evidence (outlined in Table 3). These descriptions ranged from clear statements about efficacy for those with strong evidence (PARM strongly endorses) to those with conflicting evidence of efficacy (PARM suggests).

Table 3. PARM guide for writing recommendations.

1. PARM strongly endorses	When there is strong evidence as determined by the criteria in the table above
2. PARM endorses	When there is evidence as determined by the criteria in the table above
3. PARM recommends	When there is some evidence as determined by the criteria in the table above
4. PARM suggests	When there is insufficient or conflicting evidence as determined by the criteria in the table above
5. PARM does not endorse	There is no evidence as determined by the criteria in the table above

2.7 PARM CONTEXT POINTS

Each set of recommendations along the patient journey, for which PARM wrote an endorsement statement, was then considered in terms of generalizability and applicability to the Filipino healthcare setting. Generalizability and applicability were addressed using a novel approach, The PARM Context Points, which were written to provide a framework in which the PARM-endorsed recommendations can be applied, considering local service delivery issues of 'how', 'who', 'when', 'why', 'what', 'what with'. The PARM Context Points considered aspects of the Donabedian (1988) quality framework (Structure, Process) in order to define the important elements of service delivery underpinning evidence-based care. This assisted PARM to take into account issues such as training of healthcare providers to comply with recommendations, availability of, and access to, trained healthcare providers across the Philippines, access to appropriate diagnostic and assessment processes, availability of resources and what to do when resources are unavailable, and alternative diagnostic or management approaches which could be adopted in the absence of capacity to provide guideline-recommended healthcare. This process of contextualizing recommendations to local conditions addressed the fourth pillar of evidence-based practice as discussed by Hoffmann et al (2010, Figure 1.1, p.4) (the other pillars being the research evidence, clinician reasoning and patient choice).

To assist in writing the PARM Context Points, a standard framework was developed, which outlined the elements that needed to be in place for minimum best-practice care to

be provided equitably across the Philippines. Elements which addressed more advanced standard care were also considered in this framework. This aimed to provide guidance to clinicians wherever they may practice in the Philippines, regarding essential equipment, standards and resources, training and workforce, in order to provide evidence-based care.

2.8 GUIDELINES

A total of four guidelines were identified in the internet search which met the inclusion criteria (available in in full text, published in English, and released not earlier than 2009). These were fitted to the patient journey, and all were retained as potentially useful.

After critical appraisal, the four CPGs were deemed fit for inclusion in this project. These guidelines are the following:

1. Hochberg MC, Altman RD, April KT, Benkhalti M, Guyatt G, McGowan J, Towheed T, Welch V, Wells G, Tugwell P; **American College of Rheumatology. American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee**. Arthritis Care Res (Hoboken). 2012 Apr;64(4):465-74. *http://www.rheumatology.org/practice/clinical/guidelines/PDFs/ACR_OA_Guidelines_FINAL.pdf2*.

2. Peter WFH, Jansen MJ, Bloo H, Dekker-Bakker LMMCJ, Dilling RG, Hilberdink WKHA, Kersten-Smit C, de Rooij M, Veenhof C, Vermeulen HM, de Vos I, Vliet Vlieland TPM. **The Royal Dutch Society for Physical Therapy (KNGF). KNGF-guidelines for physical therapy in patients with osteoarthritis of the hip or knee**. Published 2009. *http://www.fysionet-evidencebased.nl/images/pdfs/guidelines_in_english/osteoarthritis_of_the_hip_and_knee_practice_guidelines_2010.pdf*

3. Cibulka MT, White DM, Woehrle J, Harris-Hayes M, Enseki K, Fagerson TL, Slover J, Godges JJ. **Hip pain and mobility deficits--hip osteoarthritis: clinical practice guidelines linked to the international classification of functioning, disability, and health from the orthopaedic section of the American Physical Therapy Association**. J Orthop Sports Phys Ther. 2009 Apr;39(4):A1-25. *http://www.orthopt.org/ICF/HipPainMobilityDeficits-HipOA-ClinicalGuideline-2009-02-21.pdf*

4. Royal Australian College of General Practitioners (2009). **Guideline for the non-surgical management of hip and knee osteoarthritis**. RACGP: Melbourne, July 2009. *http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/cp117-hip-knee-osteoarthritis.pdf*

2.8.1 RESULTS

The four included clinical practice guidelines were critically appraised using the iCAHE tool. The iCAHE scores of the guidelines, shown in Table 4, qualified them for use as reference guidelines in our project. Appendix 1 shows the full methodology of scores for each included CPG.

Table 4. iCAHE scores of the included clinical practice guidelines and the assigned tag used in the PARM hip osteoarthritis guideline.

Clinical practice guideline	Year	iCAHE score	Assigned tag in PARM CPG
American College of Rheumatology	2012	12	ACR
Royal Dutch Society for Physical Therapy	2010	12	KNGF
American Physical Therapy Association	2009	14	APTA
Royal Australian College of General Practitioners	2009	14	RACGP

2.8.2 GUIDELINE CLASSIFICATION OF EVIDENCE STRENGTH

The tables below (Tables 5 to 9 inclusive) provide an outline of the levels of evidence and recommendation grades used by each of the clinical practice guidelines included.

Table 5. ACR guideline classification of evidence strength. Taken from Hochberg, et al. (2012).

Grades of recommendation	
Strong Recommendation to use	Most informed patients would choose the recommended management
Conditional (Weak) Recommendation to use	Majority of informed patients would choose the recommended management but many would not
No Recommendation	---
Strong recommendation not to use	Majority of informed patients would not choose the recommended management but many would
Strong Recommendation not to use	Most informed patients would note choose the recommended management
Levels of evidence	
High	Randomized trials; or double-upgraded observational studies
Moderate	Downgraded randomized trials; or upgraded observational studies
Low	Double-downgraded randomized trials; or observational studies
Very Low	Triple-downgraded randomized trials; or downgraded observational studies; or case series/case reports

Table 6. KNGF guideline classification of evidence strength. Taken from Peter, et al. (2010).

Grade of recommendations	
A1	Systematic review including at least two independent studies of A2 quality
A2	Randomized double-blind comparative clinical trial of sound quality and sufficient size
B	Comparative studies not meeting all the quality criteria mentioned under A2 (including case-control studies and cohort studies)
C	Non-comparative studies
D	Opinions of experts, e.g. the members of the Guideline Development Committee
Evidence source	
1	A study of A1 quality, or at least two independent studies of A2 quality
2	One study of A2 quality or at least two independent studies of B quality
3	One study of B or C quality
4	Expert opinion

Table 7. APTA guideline classification of evidence strength. Taken from Cibulka, et al. (2009).

Grades of recommendation		
A	Strong Evidence	A preponderance of level I and/or level II studies support the recommendation. This must include at least 1 level I study
B	Moderate Evidence	A single high-quality randomized controlled trial or a preponderance of level II studies support the recommendations
C	Weak Evidence	A single level II study or a preponderance of level III and IV studies including statements of consensus by content experts support the recommendation
D	Conflicting Evidence	Higher quality studies conducted on this topic disagree with respect to their conclusions. The recommendation is based on these conflicting studies
E	Theoretical/Foundational Evidence	A preponderance of animal or cadaver studies, from conceptual models/principles, or from basic sciences/bench research support this recommendation
F	Expert Opinion	Best evidence based on the clinical practice of the guidelines development team
Levels of evidence		
I	Evidence obtained from high-quality randomized controlled trials, prospective trials, or diagnostic studies	
II	Evidence obtained from lesser quality randomized controlled trials, prospective studies, prospective studies or diagnostic studies (e.g. improper randomization, no blinding, <80% follow-up)	
III	Case controlled studies or retrospective studies	
IV	Case series	
V	Expert opinion	

Table 8. RACGP guideline classification of evidence strength. Taken from RACGP.(2009).

Grade of recommendations	
A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situation
C	Body of evidence provides some support for recommendation (s) but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution
Evidence source	
I	A systematic review of level II studies
II	A randomized controlled trial
III-1	A pseudo-randomized controlled trial (i.e. alternate allocation or some other method)
III-2	A comparative study with concurrent controls
III-3	A comparative study without concurrent controls
IV	Case series with either post-test or pre-test / post-test outcomes

Table 9. A summary of the low and high evidence ratings for each of the included clinical guideline practices.

Guideline	Low evidence	High evidence
ACR	Low, Very Low, No recommendation	High, Moderate, Strong Recommendation, Conditional
KNGF	3, 4, B, C, D	1, 2, A1, A2
APTA	C, D, E, F, III, IV, V, VI	A, B, I, II
RACGP	C, D, III-1, III-2, III-3, IV	A, B, I, II

2.9 FILLING THE GAPS

During the discussions among the developers, some potential obstacles or deficiencies to the proper implementation of the guidelines were determined. Primarily, the health care delivery system in the Philippines is usually centered in the urban areas in different provinces. Rehabilitation Medicine centers in these cities is generally more equipped, especially in terms of diagnostic facility, highly-specialized therapeutic interventions and subspecialty care. While the availability of more specialized interventional methods is scarce in the rural areas, owing to lack of equipment or experience, it is imperative that all physiotherapy centers have the basic modalities for pain relief, such as thermal agents, traction machines and electrotherapeutic devices. Likewise, emphasis is given to the role of meticulous clinical assessment and diagnostic evaluation of patients for prompt and appropriate classification of hip pain etiology. The role of therapeutic exercises and continuation of usual activity are also reported as important components in the management of hip pain. If the need arises for specialized diagnostic modalities, invasive treatment or surgical intervention (which are currently only available in the urban areas), every physiatrist must know when it is clinically-sound to have the necessary equipment installed, or when to refer to suitable specialists in order to save patients time and financial resources which would otherwise be spent on unnecessary travel to the city.

Also, it has been observed that the knowledge on evidence based practice (EBP) of hip osteoarthritis among PARM members is minimal. They must therefore be well-versed with the principles of EBP to ensure successful implementation of the CPGs. It is suggested that all PARM members acquire appropriate training on the concepts and application of EBP through seminars and workshops.

2.10 PUBLIC CONSULTATION

Public consultation of the draft document was undertaken from August 2015 to November 2015.

The manuscript was disseminated electronically to members of the Philippine Academy of Rehabilitation Medicine for evaluation and review. Different training institutions of rehabilitation medicine, namely Philippine General Hospital (PGH), Philippine Orthopedic Center (POC), University of Santo Tomas Hospital (USTH), and Veterans Memorial Medical Center (VMMC), were made aware of the said document, in order to facilitate ease of internal consultation.

Copies of the manuscript and a feedback form were likewise circulated to different professional organizations such as the Philippine College of Physicians (PCP), Philippine Orthopedic Association (POA), Philippine Academy of Family Physicians (PAFP), and Philippine Physical Therapy Association (PPTA). The above organizations were given the opportunity to comment on the PARM CPG, and issues to do with uptake and application.

Modifications to the documents were made according to the relevant comments and suggestions received by November 2015.

2.11 IMPLEMENTATION PLANS

Following public consultation, modification and finalization of the clinical practice guidelines, the guidelines will be disseminated to personnel who are involved in the rehabilitation of patients with hip osteoarthritis. Strategies were identified by PARM CPG developers in order for the guidelines to be implemented effectively at the local level.

Strategies for the dissemination and implementation of the hip osteoarthritis guideline in the Philippine medical system are the following:

1. Endorsement by:

    - The Department of Health (DOH), Philippine Council for Health Research and Development (PCHRD), and Philippine Health Insurance Corporation (PHIC)
    - Relevant professional associations: Philippine Academy of Rehabilitation Medicine (PARM), Philippine College of Physicians (PCP), Philippine Academy of Family Physicians (PAFM), Philippine Physical Therapy Association (PPTA)

- Key training institutions: Philippine General Hospital (PGH), Philippine Orthopedic Center (POC), University of Santo Tomas Hospital (USTH) and Veterans Memorial Medical Center (VMMC)
- Drug companies (if relevant)

2. A clear outlined description of the process undertaken by PARM should be provided, using posters, webpages and short interviews

3. Public awareness: Media release prepared by PARM and newspaper articles

4. Professional awareness

- Conference presentations: PARM Midyear Convention in August 2015 and a future Philippine Medical Association (PMA) Convention
- A minimum of one peer-reviewed publication (as well as one publication outlining the methodology), sent to BMC Research Methodology. The title of article is "Correspondence: A process for contextualizing published clinical guidelines for a developing country."
- Short articles in professional newsletters and magazines
- Freely-accessible website providing details on the CPG and on Evidence-Based Practice (EBP) in general, which can be accessed by health professionals and target end-users.
- Short forms of the guideline developed, for dissemination to all physiatrists and relevant allied health professionals (laminated form for desktop use, or as wall charts, etc.) and consumer guides

5. Professional champions: Key professional people from PARM to promote the guidelines widely

6. Education: Education sessions provided widely in PARM and for other health provider groups on Evidence Based Practice (EBP), guideline development (in general), measurement of health outcomes and the future of EBP in the Philippines, not only to support this guideline, but other future guideline developments

2.12 DATE OF PRODUCTION:

June 2013 – July 2015 (Guideline Development Phase)

July 2015 –November 2015 (Guideline Consultation Phase)

December 2015– Official Release of Guideline

2.13 EXPECTED DATE OF REVISION: 2018

2.14 GUIDELINE DEVELOPERS

The PARM working committee on this guideline is composed of the following members:

Project Leader	Michael Francis B. Obispo, MD	Asian Hospital and Medical Center
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	Geraldine S. Montes, MD	Asian Hospital and Medical Center

3 Assessment of Hip Osteoarthritis

History and physical examination of patients with hip osteoarthritis is a cornerstone of the diagnostic process. Information obtained from clinical assessment can potentially alter patient management and increase the probability to improve patient outcomes.

3.1 COMPREHENSIVE ASSESSMENT (SIGNS AND SYMPTOMS)

Table 10. Comprehensive assessment of hip osteoarthritis (signs and symptoms)

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is some evidence that the following signs and symptoms are suggestive of hip osteoarthritis: -Joint pain often after weight bearing activity -Joint stiffness particularly after period of inactivity -Joint inflammation -Decrease in joint mobility and/or function -Crepitus -Joint tenderness upon palpation	RACGP	Low evidence	Grade D	Ruth et al, 2006 Hunter et al, 2006 Hinton et al, 2002 BHW, 2003 Manek et al, 2000 eTG Therapeutic Guidelines, 2007 Kelly, 2006
Moderate volume – Noncurrent				

- PARM recommends that the following signs and symptoms are suggestive of hip osteoarthritis: joint pain often after weight bearing activity, joint stiffness particularly after period of inactivity, joint inflammation, decrease in joint mobility and/or function, crepitus, and joint tenderness upon palpation.

3.2 USE OF HEALTH DOMAINS

Table 11. Use of health domains

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is insufficient evidence on the use of health domains of the ICF model (body function and structure, activities, participation, environmental and personal factors) in the assessment of hip osteoarthritis.	KNGF	Low evidence	Grade D	KNGF, 2010
Low volume - Current				

- PARM suggests the use of health domains of the ICF model (body function and structure, activities, participation, environmental and personal factors) in the assessment of hip osteoarthritis.

3.3 IDENTIFYING RED FLAG SIGNS

Table 12. Identifying red flag signs

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is insufficient evidence that red flag signs should be noted during evaluation of hip osteoarthritis.	KNGF	Low evidence	Grade D	KNGF, 2010
Low volume – Current				

- PARM suggests identifying red flag signs when evaluating patients with hip osteoarthritis (See Appendix 2).

3.4 IDENTIFYING CO-MORBIDITIES

Table 13. Identifying co-morbidities

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is some evidence that the following co-morbidities may contribute to disease progression of hip OA	RACGP	Low evidence	Grade D	NAMCAG, 2004 Ruth et al, 2006 Kelly et al, 2006
-Obesity/overweight -Cognitive impairment -Cardiovascular disease -Diabetes mellitus	KNGF	Level 4	Grade D	KNGF, 2010
Consistent level of evidence - Moderate volume - Non-current - Uniform thought				

- PARM recommends considering the following co-morbidities as contributory to the disease progression of hip OA: obesity/overweight, cognitive impairment, cardiovascular disease, and diabetes mellitus.

3.5 PSYCHOSOCIAL ASSESSMENT

Table 14. Psychosocial assessment

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is insufficient evidence that Psychosocial assessment should be considered for patients with hip OA	RACGP	Low evidence	Grade D	NAMCAG, 2004 Kelly, 2006
Low volume – Noncurrent				

- PARM suggests that psychosocial assessment should be considered with hip osteoarthritis.

3.6 FALLS RISK ASSESSMENT

Table 15. Falls risk assessment

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is insufficient evidence that falls risk assessment should be considered for hip osteoarthritis patients with history of falls.	RACGP	Low evidence	Grade D	Ruth et al, 2006
Low volume – Noncurrent				

- PARM suggests that falls risk assessment should be considered for hip osteoarthritis patients with history of falls.

3.7 MEDICATION RISK ASSESSMENT

Table 16. Medication risk assessment

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is insufficient evidence that medication and NSAID-risk assessment should be done in patients with hip osteoarthritis	RACGP	Low evidence	Grade D	Ruth et al, 2006
Low volume – Noncurrent				

- PARM suggests that medication and NSAID-risk assessment should be done in patients with hip osteoarthritis.

3.8 PATHOANATOMICAL ASSESSMENT

Table 17. Pathoanatomical assessment

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is some evidence that clinicians should assess for impairments in mobility of the hip and the strength of the surrounding muscles, especially the hip abductor muscles, when a patient presents with hip pain.	APTA	Level II	Grade C	Altman et al,1995 Arokoski et al, 2002 Karachalios et al, 2007 Lloyd-Roberts, 1953 Matles , 1975 Pearson & Riddell, 1962 Rasch et al, 2007 Steultjens et al, 2001
High volume – Noncurrent				

- PARM recommends that clinicians should assess for impairments in mobility of the hip and the strength of the surrounding muscles, especially the hip abductor muscles, when a patient presents with hip pain.

3.9 RISK FACTOR ASSESSMENT

Table 18. Risk factor assessment

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is some evidence that age, hip developmental disorders and previous hip injuries are risk factors for hip OA	APTA	Level I	C	Altman et al, 1991 Quintana et al 2008 Abraham et al 2007 Gelber et al, 2000 Gelberman et al, 1986 Gershuni, 1980 Ippolito et al, 1985 Jacobsen, 2006 Nagasawa et al, 2000 Yrjonen, 1999 Ezoe et al, 2006 Cooper et al, 1998 Tepper & Hochberg, 1993 Vossinakis et al, 2008
High volume – Noncurrent				

- PARM recommends the following as risk factors to consider in patients with hip osteoarthritis: age, hip developmental disorders, and previous hip injuries.

4 Pharmacological Management of Hip Osteoarthritis

The main goals of pharmacologic intervention for hip osteoarthritis are to relieve pain and reduce inflammation. Treatment aims to improve function and quality of life while minimizing the risk of side effects. This chapter presents recommendations for pharmacological agents (orally, topically and intra-articularly administered) for hip osteoarthritis according to current available evidence.

4.1. PHARMACOLOGIC MANAGEMENT OF HIP OSTEOARTHRITIS: ORAL AGENTS

Table 19. Oral pharmacological agents for hip osteoarthritis

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is evidence for the use of Paracetamol (max 4g/day) in hip osteoarthritis	ACR	High	Conditionally recommend	Towheed et al, 2006
	RACGP	High	Grade A	Towheed et al, 2006 Sheen at al, 2006 Temple et al, 2006
Consistent level of evidence – Low volume – Non-current – Uniform thought				
There is strong evidence for the use of oral NSAIDs and COX-2 inhibitors in hip osteoarthritis	ACR	High	Conditionally recommend	Bjordal et al, 2007 Scott , et al. 2007 Lee, et al, 2005 Chen, et. Al, 2008 Rostom, et al, 2007
	RACGP	High	Grade B	Bjordal et al, 2005 Singh et al, 2006 Svensson et al, 2006
Consistent level of evidence – Moderate volume – Non-current – Uniform thought				
There is strong evidence for the use of Tramadol and other opioids in hip osteoarthritis	ACR	High	Conditionally recommend	Avouac et al, 2007
	RACGP	High	Grade A	Avouac et al, 2007 Cepeda et al, 2006 Kivitz et al, 2006 Langford et al, 2006
Consistent level of evidence – Moderate volume – Non-current – Uniform thought				

There is conflicting evidence for the use of Chondroitin Sulfate in hip osteoarthritis	ACR	High	Conditionally recommend not to use/ Not Useful	Reichenbach et al, 2007 Bjordal et al, 2007
	RACGP	Absent	No recommendation	---
Inconsistent level of evidence – Low volume – Non-current – Variable thought				
There is conflicting evidence for the use of Glucosamine Sulfate in hip osteoarthritis	ACR	High	Conditionally recommend not to use	Towheed et al, 2008 Herrero-Beaumont et al, 2007
	RACGP	Absent	No recommendation	---
Inconsistent level of evidence – Low volume – Non-current – Variable thought				
There is no evidence for the use of Duloxetine in hip osteoarthritis.	ACR	Absent	No recommendation	---
	RACGP	Absent	No recommendation	---
Consistent level of evidence – Low volume – Non-current – Uniform thought				

- PARM strongly endorses the use of oral NSAIDs, COX2-inhibitors, tramadol and other opioids, for managing pain in hip osteoarthritis
- PARM endorses the use of Acetaminophen/Paracetamol (maximum 4g/day) for hip osteoarthritis
- PARM suggests the use of Chondroitin Sulfate and Glucosamine Sulfate as treatment options for hip osteoarthritis
- PARM does not endorse prescribing duloxetine for the treatment of hip osteoarthritis, due to absence of evidence for its effect

PARM CLINICAL PRACTICE POINTS:

- NSAIDs or COX-2 NSAIDs can be used for reducing pain in the short term treatment of hip osteoarthritis where simple analgesia and non-pharmacological measures are ineffective. Caution should be applied when using traditional NSAIDs, likewise COX-2 inhibitors, in view of their known adverse effects, especially in high risk patients such as the elderly, and those on other medications. Careful monitoring of blood pressure and renal function is indicated in these patient populations. For patients with high NSAID-risk, for whom NSAIDs are considered a necessary part of treatment, prescription of a traditional NSAID plus proton pump inhibitor (PPI) or coX-2 inhibitor should be done is recommended.

- Tramadol and other opioids (weak or strong opioids) should be used with caution for treating moderate or severe pain in hip osteoarthritis patients who have not responded to, or are unable to tolerate, other analgesic medications such as NSAIDS or COX-2 inhibitors.

4.2. PHARMACOLOGIC MANAGEMENT OF HIP OSTEOARTHRITIS: TOPICAL AGENTS

Table 20. Topical pharmacological agents for hip osteoarthritis

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is conflicting evidence for the use of topical Capsaicin in hip osteoarthritis	ACR	Absent	No recommendation	---
	RACGP	Low	Grade D	McCleane, 2000
Inconsistent level of evidence – Low volume – Non-current – Variable thought				

- PARM suggests the use of topical Capsaicin in hip osteoarthritis.

4.3. PHARMACOLOGIC MANAGEMENT OF HIP OSTEOARTHRITIS: INTRA-ARTICULAR AGENTS

Table 21. Intra-articular pharmacological agents for hip osteoarthritis

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is strong evidence for the use of intra-articular corticosteroid injections in hip osteoarthritis	ACR	High	Conditionally recommend	Bjordal et al, 2007 Lambert et al, 2007
	RACGP	High	Grade B	Bellamy et al, 2006 Qvistgaard et al, 2006
Consistent level of evidence – Moderate volume – Non-current – Uniform thought				
There is insufficient evidence for the use of intra-articular Hyaluronate in hip osteoarthritis	ACR	Low	No recommendation	Fernandez Lopez et al, 2006 Ovistgaard et al, 2006
	RACGP	Low	Grade C	Fernandez Lopez et al, 2006 Ovistgaard et al, 2006
Consistent level of evidence – Low volume – Non-current – Uniform thought				

- PARM strongly endorses intra-articular corticosteroid injections for hip osteoarthritis.
- PARM suggests the use of Intra-articular Hyaluronate (Viscosupplementation) for hip osteoarthritis.

5 Non-pharmacologic Management of Hip Osteoarthritis

Non-pharmacologic management is the cornerstone of Rehabilitation Medicine treatment for hip osteoarthritis. Prominent among these is the use of `various forms of exercise as well as the use of various physical modalities. The broadening of the profession has also seen the emergence of complimentary / integrative medicine treatments like manual therapy, and Tai Chi. Furthermore, self-help treatments are very used in this age of information.

5.1. SELF-MANAGEMENT, PSYCHOSOCIAL INTERVENTION

Table 22. Self-management, Psychosocial Intervention

Recommendation	**Guideline**	**Level of Evidence**	**Strength of Recommendation**	**Reference**
There is some evidence for the use of self-management programs in hip osteoarthritis	ACR	High (1 SR)	Conditionally recommends (High)	Chodosh et al, 2005
	RACGP	Moderate (1 RCT)	Grade C (Low)	Buszewicz et al, 2006
	KNGF	A2-B (5 RCT)	Level 2 (High)	Buszewicz et al, 2006 Heuts et al, 2005 Wetzels et al, 2008 Tak et al, 2005 Hopman-Rock et al, 2000
Inconsistent level of evidence –Moderate volume – Noncurrent – Uniform thought				
There is some evidence for the use of psychosocial intervention in hip osteoarthritis.	ACR	1 meta (High)	Conditional recommendation (High)	Dixon et al, 2007
Low volume – Noncurrent				

- PARM recommends the use of self-management programs and psychosocial intervention in patients with hip osteoarthritis.

5.2. EXERCISE THERAPY, LAND-BASED EXERCISES, AQUATIC EXERCISE, RANGE OF MOTION EXERCISES, STRENGTHENING AND ENDURANCE EXERCISES

Table 23. Exercise therapy, land-based exercises, aquatic exercise, range of motion exercises, strengthening and endurance exercises

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is evidence for the role of exercise therapy in hip osteoarthritis.	KNGF	A1 A1 A1 A1 A2 A2 A2 B	Level 1	Fransen et al, 2008 Hernandez et al, 2008 Jamtvedt et al, 2008 Moe et al, 2007 Doi et al, 2008 Jan et al, 2008 Lim et al, 2008 Aglamis et al, 2008
High volume – Noncurrent				
There is strong evidence for the use of land-based exercises in hip osteoarthritis	ACR	Moderate (1 SR)	Strongly recommend (High)	Hernandez-Molina et al, 2008
	RACGP	Good (1 SR) Moderate (2 SR) Good (1 SR) Moderate (1 RCT)	Grade B (High)	Roddy et al, 2005 Devos-Comby et al, 2006 Fransen et al, 2006 Brosseau et al, 2006 Tak et al, 2005
Consistent level of evidence – Moderate volume – Noncurrent – Uniform thought				
There is some evidence for the role of aquatic therapy in hip osteoarthritis.	ACR	High (1 Meta) High (1 RCT) High (1 RCT)	Strongly recommend (high level)	Bartels et al, 2007 Lund et al, 2008 Gill et al, 2009
	RACGP	Good (1 RCT) Moderate (1 RCT) Moderate (1 RCT)	Grade C (low level)	Cochrane et al, 2005 Hinman et al, 2007 Fransen et al, 2007
Inconsistent level of evidence – Moderate volume – Noncurrent – Uniform thought				
There is some evidence for the use of combined active and passive joint movement exercises to alleviate pain and improve physical performance in individual cases of hip osteoarthritis involving severe pain and/or highly restricted movements.	KNGF	A2 A2 A2	Moderate (level 2)	Deyle et al, 2000 Van Baar et al, 1999 Fransen et al, 2003

Low volume – Noncurrent				
There is evidence for the benefits of flexibility, strengthening, and endurance exercises in hip osteoarthritis.	APTA	II II	B (high)	Cochrane, 2005 Fransen et al, 2003 Hinmanet al, 2007 Hoopman-Rock & Westhoff, 2000 MacDonald et al, 2006 Minor et al, 1989 Pisterset al, 2007 Ravaud et al, 2004 Roddy et al, 2005 Rooks et al, 2006 Tak et al, 2005 van Baar et al, 1999 van Baar et al, 2001 van Baar et al, 1998 Zhang et al, 2007 Oostendorp et al, 1998 HernandezMolina et al,2008 Minor et al, 1988
	KNGF	A1 D	Level 4 (low)	Fransen et al, 2008 KNGF, 2010
Inconsistent level of evidence – High volume – Noncurrent – Uniform thought				

- PARM strongly endorses the use of land-based exercises in hip osteoarthritis.
- PARM endorses exercise therapy in patients with hip osteoarthritis.
- PARM endorses flexibility, strengthening, and endurance exercises for patients with hip osteoarthritis.
- PARM recommends aquatic therapy in managing patients with hip osteoarthritis.
- PARM recommends using a combination of active and passive exercises to alleviate pain and improve physical performance in individual cases of hip osteoarthritis involving severe pain and/or highly restricted movements

5.3. MULTIMODAL PT, TENS

Table 24. Multimodal PT, TENS

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is some evidence for the use of multimodal PT in hip osteoarthritis	RACGP	Moderate (1 RCT)	Grade C (Low)	Hoeksma et al, 2004
Low volume – Noncurrent				
There is insufficient level of evidence for the use of TENS in hip osteoarthritis	KNGF	B (1 non-comparative study)	Level 3 (Low)	Cottingham et al, 1985
Low volume – Noncurrent				

- PARM recommends the use of multimodal PT in hip osteoarthritis.
- PARM suggests the use of TENS in hip osteoarthritis

5.4. MANUAL THERAPY, MASSAGE

Table 25. Manual therapy, Massage

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is conflicting evidence for the use of manual therapy in hip osteoarthritis.	APTA	I High IV Low IV Low	B (recommend)	Hoeksma, et al 2004 MacDonald, et al 2006 Harding, et al 2003
	ACR	High (1 RCT)	No recommendation	Hoeksma 2004
Inconsistent level of evidence – Low volume – Noncurrent – Variable thought				
There is some evidence against the use of massage in hip osteoarthritis.	KNGF	A2	Level 2 (Cannot recommend)	Perlman et al., 2006
Low volume – Noncurrent				

- PARM suggests the use of manual therapy in hip osteoarthritis
- PARM does not recommend massage in the treatment of hip osteoarthritis

Table 26. Tai Chi, Balneotherapy

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is some evidence for the role of Tai Chi in hip osteoarthritis	ACR	Moderate (1 RCT) Moderate (1 SR) Low (1 SR)	No Recommendation (Low)	Wang et al, 2009 Escalante et al, 2010 Lee et al, 2008
	RACGP	Moderate (1 RCT)	Grade C (Low)	Fransen et al, 2007
Consistent level of evidence – Moderate volume – Current – Uniform thought				
There is some evidence for the use of balneotherapy in hip osteoarthritis.	KNGF	A1 (Good) A2 (Moderate) A2 (Moderate)	High (level 1)	Verhagen et al., 2008 Cantarini et al., 2007 Balint et al., 2007
Low Volume – Noncurrent				

- PARM recommends Tai Chi as possible intervention for hip osteoarthritis.
- PARM recommends the use of balneotherapy to alleviate pain and improve physical performance in patients with hip osteoarthritis

5.5 PRE- AND POST-ARTHROPLASTY MANAGEMENT

Table 27. Pre- and Post-arthroplasty management

Recommendation	Guideline	Level of Evidence	Strength of Recommendation	Reference
There is some evidence for not giving pre-operative physical therapy in patients preparing for total hip arthroplasty, but can be considered in individual cases involving severe pre-operative functional limitations	KNGF	A2 B B B B B B B B	Level 3-4 (Low level)	Beaupre et al, 2004 Ackerman et al, 2004 Gilbey et al, 2003 Wang et al, 2002 Gocen et al, 2004 Rooks et al, 2006 Ferrara et al, 2008 Vukomanovic et al., 2008 Topp et al, 2009
High volume – Non-current				

There is insufficient evidence that preoperative patient education is not useful as a means of shortening hospital stay, reducing postoperative pain, improving compliance with postoperative therapy, increasing patient satisfaction, improving ROM or mobility, or preventing deep vein thrombosis, but can be considered in individual cases where patients are anxious about the total hip arthroplasty and the aftercare	KNGF	A1 B	Level 3-4 (Low level)	Johansson et al, 2005 McDonald et al, 2004
Low volume – Non-current				
There is evidence for giving post-operative exercise therapy, preferably including strengthening and functional exercises, to improve patients' physical performance after total hip arthroplasty.	KNGF	A1 A2 A2 B B B B B	Level 2 – Recommend (High level)	Minns Lowe et al, 2007 Wang et al, 2002 Beaupre et al, 2004 Minns Lowe et al, 2009 Galea et al, 2008 Gilbey et al, 2003 Ferrara et al, 2008 Rooks et al, 2008
High volume – Non-current				
There is insufficient evidence for giving post-operative electric muscle stimulation as a means of improving the patient's physical performance after total hip arthroplasty.	KNGF	B	Level 3 – Recommend (Low level)	Avramidis et al, 2003 Gremeaux et al, 2008
Low volume – Non-current				

- PARM endorses giving post-operative exercise therapy, preferably including strengthening and functional exercises, to improve patients' physical performance after total hip arthroplasty.
- PARM suggests that preoperative patient education is not useful as a means of shortening hospital stay, reducing postoperative pain, improving compliance with postoperative therapy, increasing patient satisfaction, improving ROM or mobility, or preventing deep vein thrombosis, but can be considered in individual cases where patients are anxious about the total hip arthroplasty and the aftercare.
- PARM suggests post-operative electric muscle stimulation (EMS) as a possible means of improving the patient's physical performance after total hip arthroplasty.
- PARM does not recommend giving pre-operative physical therapy in patients preparing for total hip arthroplasty, but can be considered in individual cases involving severe pre-operative functional limitations.

5.6 PARM CONTEXT POINTS FOR HIP OSTEOARTHRITIS

Table 28. Context points for minimum and additional standard care of practice for management of hip osteoarthritis

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	• History-taking • Physical examination • Functional assessment: -Use of health domains • Other assessment points: -Identifying red flag signs (Appendix 2) -Identifying co-morbidities -Psychosocial assessment -Falls risk assessment -Medications risk assessment • Oral Medications (paracetamol, NSAIDs, COX2-inhibitors, chondroitin sulfate, glucosamine sulfate) • Topical agents (capsaicin) • Intra-articular agents (corticosteroids, hyaluronate) • Therapeutic exercises (land-based exercises, aquatic therapy, active and passive exercises, flexibility, strengthening and endurance exercises) • Psychosocial intervention • Multi-modal PT, TENS • Massage • Manual therapy	
Workforce	• Physiatrist • Physical therapist	• Physiatrist • Physical therapist
Resources	• Physical therapy room	• Physical therapy room
Training	• Within competency	• Within competency
When is it done	• Upon consultation	• Upon consultation
Reassessment using at least one standard outcome measure	• Two to four weeks	• Two to four weeks

Table 29. Context points for minimum and additional standard care of practice for the management of pre- and post-arthroplasty hip osteoarthritis

	Minimum standard care of practice	**Additional standard care of practice**
Practice method	• Pre-operative physical therapy in individual cases (i.e. patients with severe pre-operative functional limitations; or patients who are anxious about the surgical procedure and aftercare) • Post-operative exercise therapy (including strengthening and functional exercises) • Post-operative electrical stimulation	
Workforce	• Physiatrist • Physical therapist	• Physiatrist • Physical therapist
Resources	• Physical therapy room	• Physical therapy room
Training	• Within competency	• Within competency
When is it done	• Upon consultation	• Upon consultation
Reassessment using at least one standard outcome measure	• Two to four weeks	• Two to four weeks

Abbreviations

ACR	American College of Rheumatology
AGREE	Appraisal of Guidelines Research and Evaluation
APTA	American Physical Therapy Association
CPG	Clinical Practice Guidelines
EBP	Evidence Based Practice
EMS/ES	Electrical Muscle Stimulation
GDG	Guideline Development Group
GPP	Good Practice Points
iCAHE	International Centre for Allied Health Evidence (University of South Australia)
KNGF	Royal Dutch Society for Physical Therapy
NHMRC	National Health and Medical Research Center
NICE	National Institute for Clinical Excellence
NSAIDs	Non-steroidal Anti-inflammatory Drugs
NZGG	New Zealand Guidelines Group
OA	Osteoarthritis
PARM	Philippine Academy of Rehabilitation Medicine
RACGP	Royal Australian College of General Practitioners
SIGN	Scottish Intercollegiate Guidelines Network
TENS/TNS	Transcutaneous Electrical Nerve Stimulation

Index

FIGURES

TABLES

APPENDICES

Appendices

Table A1. iCAHE scores for each included clinical practice guideline.

Criteria	ACR	KNGF	APTA	RACGP
1. Availability				
Is the guideline readily available in full text?	1	1	1	1
Does the guideline provide a complete reference list?	1	1	1	1
Does the guideline provide a summary of its recommendations?	1	1	1	1
2. Date				
Is there a date of completion available?	0	0	1	1
Does the guideline provide an anticipated review date?	0	0	1	1
Does the guideline provide dates for when literature was included?	1	1	1	1
3. Underlying evidence				
Does the guideline provide an outline of the strategy they used to find underlying evidence?	1	1	1	1
Does the guideline use a hierarchy to rank the quality of the underlying evidence?	1	1	1	1
Does the guideline appraise the quality of the evidence which underpins its recommendations?	1	1	1	1
Does the guideline link the hierarchy and quality of underlying evidence to each recommendation?	1	1	1	1
4. Guideline developers				
Are the developers of the guideline clearly stated?	1	1	1	1
Does the qualifications and expertise of the guideline developer(s) link with the purpose of the guideline and its end users?	1	1	1	1
5. Guideline purpose and users				
Are the purpose and target users of the guideline stated?	1	1	1	1
6. Ease of use				
Is the guideline readable and easy to navigate?	1	1	1	1
TOTAL SCORES	**12**	**12**	**14**	**14**

* 1 = criterion met ; 0 = criterion not met

Table A2. Red flag signs for hip osteoarthritis

Red Flag signs for Osteoarthritis
• unexplained raised temperature, swelling and redness of the joint (bacterial infection?) • unexplained (severe) pain in hip and/or knee joint • swelling in the groin (malignancy?) • severe blocking of the knee joint • (severe) pain at rest and swelling, without trauma (malignancy?)
If patient has one or more prosthetic joints: • fever • infection • unexplained severe pain in hip and/or knee

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