ACI Musculoskeletal Network

Osteoarthritis Chronic Care Program

Site Manual

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General Information: Osteoarthritis Chronic Care Program - OACCP

New South Wales (NSW) health care sites have made attempts in recent years to implement a conservative program of care for people awaiting elective joint replacement. Furthermore, some sites have attempted to provide this service as first line management of joint disease and prior to referral to a surgeon for treatment. For a variety of reasons these attempts have not succeeded or have not been sustained.

In response, the NSW Ministry of Health has supported the Agency for Clinical Innovation (ACI) and eight clinical sites to provide a clinician- and consumer-developed comprehensive chronic care program for a period of twelve months, with a further 12 months approved following preliminary review in early 2012. During this funded period, the ACI and the clinical sites are charged with developing, delivering and evaluating the program in order to determine its effectiveness from two perspectives:

- the individuals participating in the program of chronic care;
- better use of the public health system in NSW.

The aims of the program are:

- to reduce pain, increase function and improve quality of life for participants;
- to contribute to the existing body of evidence concerning multi-disciplinary chronic care management of musculoskeletal disease.

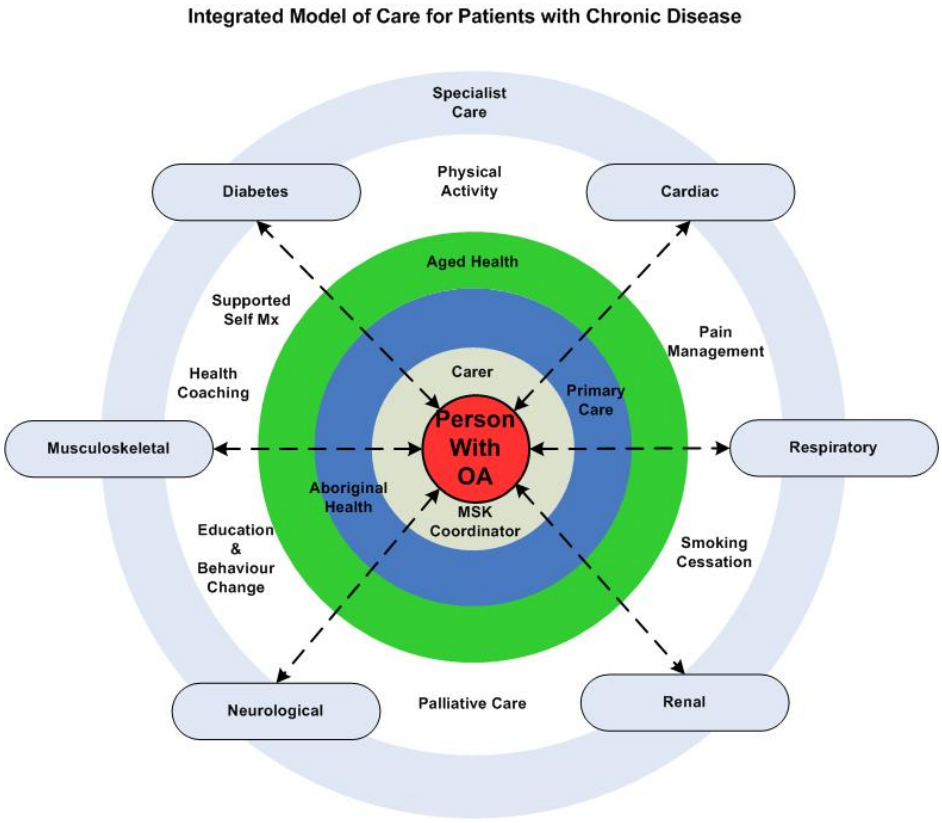
The eight project sites funded by the NSW Ministry of Health are Bowral Hospital, Fairfield and Campbelltown Hospitals, Gosford and Wyong Hospitals, Nepean and Blue Mountains Hospitals, Port Macquarie Base and Kempsey District Hospitals, Royal Newcastle Centre, Sutherland and St George Hospitals and Wollongong Hospital.

In addition, the OACCP is being implemented at three self-funded sites: Dubbo Base Hospital commenced in November 2011, and Royal North Shore/Ryde Hospitals and Grafton Base Hospital commenced in March 2012.

The ACI provides assistance for coordination, implementation and evaluation of the Osteoarthritis Chronic Care Program (OACCP). The ACI provides support at the sites, helping to trouble-shoot logistical concerns and assisting with advocacy for the teams as necessary. It is hoped this collaborative, supported approach will enable an effective chronic care service to be delivered to participants, who will be empowered to self-manage their chronic disease. Measurement of outcomes will contribute to the limited existing knowledge of a chronic care approach for musculoskeletal health. Each site has agreed to report to the ACI a set of standardised indicators for the evaluation of the program.

Each site works with their local advisory group and engages with each other and the ACI to transfer knowledge of successes and barriers to care delivery. This collaborative model supports continuous evaluation and allows for early modifications of the services in order to facilitate best possible outcomes for participants. In order to facilitate this, the ACI hosts regular meetings of the site representatives and the OACCP Working Group, and conducts site visits to increase information sharing, identify opportunities for program improvement and discuss issues to be addressed by ACI. Meetings of each group are convened at least quarterly, and may be held more often as need arises. Email discussions are encouraged across sites.

The following diagram depicts the model of care graphically, while the full written description of the model of care is available in the *NSW Model of Care Osteoarthritis Chronic Care Program (2012)*.



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ACI Osteoarthritis Model of Care Executive Summary

INTRODUCTION

Musculoskeletal conditions affect hundreds of millions of people around the world. In people over the age of 60, joint diseases account for more than half of their chronic conditions. In Australia, arthritis affects more than 15% of the population and projections are that this will increase to almost 25% by 2050. Whilst arthritis can affect people at any age, it is more prevalent in older people, with evidence of osteoarthritis in more than 50% of Australians over the age of 65. In addition, the condition is associated with considerable economic consequence for both the individual and the community. In 2007, Australian health system expenditure on arthritis exceeded $4 billion. This was more than was spent on coronary heart disease, diabetes, depression, stroke or asthma. In economic terms, the total annual cost of arthritis in Australia, attributable to the burden of disease, productivity costs, and direct health costs, is almost $24 billion.

Osteoarthritis is the clinical and pathological outcome of a range of disorders that result in structural and functional failure of synovial joints. This progressive process of joint failure can cause pain, stiffness and loss of joint function. It will result in disability and compromised quality of life for almost one third of those reporting the disease. As a chronic, non-fatal condition, consideration of osteoarthritis as an inevitable part of growing older has been a common misconception. As the Australian population ages, and the prevalence of obesity and concomitant joint injury increases, musculoskeletal conditions will place a significant and expanding burden on individuals, societies and health care systems.

BACKGROUND

The recognition of the growing burden of osteoarthritis and its related conditions, and the need for action to address the unsustainable growth in health care costs, has necessitated action at international, national and state levels. The World Health Organisation launched the Bone and Joint Decade in January 2000 to raise awareness of the growing societal impact of musculoskeletal conditions.

In 2002, the Australian Government identified arthritis and other musculoskeletal conditions as a national health priority and commissioned the National Arthritis and Musculoskeletal Conditions Advisory Group to develop a national action plan and a national service improvement framework for osteoarthritis, rheumatoid arthritis and osteoporosis. These were endorsed as key strategic documents in the Better Arthritis and Osteoporosis Care initiative 2006-2010. This initiative aimed to improve the primary, secondary and tertiary prevention and management of these conditions. The Department of Health and Ageing commissioned the Royal Australasian College of General Practitioners to develop guidelines for these three conditions, and the National Health and Medical Research Council approved these guidelines for publication in 2009 and 2010.

Focusing on arthritis-related initiatives at state level, projects for the early identification and comprehensive, conservative management of individuals with osteoarthritis have been implemented in some settings in Victoria and Queensland. In New South Wales, individual sites have investigated a variety of models. Outcomes of all projects have been variable and NSW has to date not provided a coordinated approach to address the problem.

CURRENT CONTEXT

Many international, national and state guidelines report positive outcomes of conservative, multidisciplinary management for individuals with osteoarthritis. Strategies for slowing disease progression, relieving pain and minimising disability are at the forefront of conservative management of arthritic conditions. Evidence supports the inclusion of exercise, injury avoidance, weight loss, pharmacologic treatment and timely access to surgery as safe and cost effective treatments for osteoarthritis.

Unfortunately, clinical practice diverges from these recommendations, and instead, the current management is episodic, uncoordinated and often lacking in evidence-base. Since best practice treatment for hip and knee osteoarthritis involves a diverse team of health care practitioners providing a comprehensive and integrated program, it is appropriate to consider the management of osteoarthritis within a chronic disease model of care rather than the current approach of episodic provision of care.

To address this divergence between best practice and current clinical practice, the Agency for Clinical Innovation (ACI) is recommending a model of care for people with osteoarthritis using a chronic disease management model.

NSW OSTEOARTHRITIS CHRONIC CARE PROGRAM (OACCP)

The model developed by the ACI uses best practice evidence to improve the coordination of care by designing an inter-disciplinary, conservative management model for individuals with osteoarthritis. The objective of the OACCP is to reduce pain, improve function and quality of life of residents of NSW with osteoarthritis, who have elected conservative management of their joint disease, or who are waiting to undergo elective lower limb joint replacement surgery as treatment for their osteoarthritis. Central to this model is face to face participant access to clinical staff and health service resources to support self management.

People with osteoarthritis of the hip or knee are eligible to participate in the OACCP. First priority is given to those on the elective joint replacement surgery waitlist. A musculoskeletal (MSK) coordinator assesses participants in collaboration with the multidisciplinary team and links them with relevant health care providers to support timely and effective care that is flexible and responsive to the person's needs. The coordinator engages and maintains relationships with relevant stakeholders, and creates a facility-based service that incorporates all components of a chronic disease rehabilitation program. Furthermore, the coordinator participates in ACI-supported activities such as meetings, teleconferences and email conversations. The coordinator is responsible for timely and accurate data collection and entry into the central data system, and participates in evaluation of the program.

The ACI is responsible for central coordination, support of implementation and assistance with evaluation of each local OACCP. ACI provides the model of care documentation, an intranet-based data system, and this 'live' manual.

Key points for inclusion in the OACCP are:

- a medical officer who is an active team member and provides medical governance;
- a Musculoskeletal Coordinator who leads a multidisciplinary team to deliver the program;
- face-to-face screening and follow-up assessments using defined tools to record functional capacity and co-morbidity management;
- interventions to increase functional capacity and manage morbid risks through nutrition and physical activity (strength & aerobic) support;
- maximisation of self management support;
- tracking of individual and service outcomes using ACI developed tools;
- enabling access to appropriate and timely surgery based on clinical need.

NSW OACCP Working Group

TERMS OF REFERENCE 2011-2013

Role

To oversee and report to the Musculoskeletal Network on the development, implementation and evaluation of the NSW Osteoarthritis Chronic Care Program (OACCP) pilot project, 2011 to 2013.

Philosophy

People in NSW who have osteoarthritis have the right to effective, safe and timely care in a setting appropriate to their needs and to the capacity of the NSW Health system. In recognition of the growing burden of osteoarthritis and its related conditions, the NSW OACCP Working Group aims to support the development, implementation and evaluation of a comprehensive, multidisciplinary program for people who have osteoarthritis.

Functions

- Develop and support the implementation of an evidence-based, best practice model of care for people with osteoarthritis of the hip and knee in NSW.
- Work collaboratively across NSW with interested multidisciplinary clinicians, health service managers, researchers, consumers and consumer organisations in all activities of the working group whilst maintaining confidentiality of data.
- Be guided by policy, guidelines and evidence from government and non-government organisations and peer-reviewed journals, noting that expert opinion may be required in some instances.
- Work towards equity of access to public, primary and community health care, regardless of social, geographic, cultural or other related issues for all residents of NSW who have osteoarthritis.
- Engage with health care providers in the private sector to explore opportunities for provision of service in accordance with the model of care.
- Include acknowledgement of all active members of the Working Group in all publicly available documents, including presentations at conferences, seminars and other forums.
- Continue the development and refinement of the program evaluation tools to monitor implementation of the model of care, in order to inform future adjustments to the model of care.
- Lead and participate in relevant research as opportunities and need arise. Authorship of any publications resulting from Working Group efforts will be determined at the outset of publication development and will recognise ACI as the authorising sponsor.
- Ensure all activities are in accordance with ACI functions, policy and philosophies.

Membership

The membership of the Working Group is drawn from the following representative groups:

- Consumers and consumer organisations;
- Medical, nursing and allied health professionals working in public and private settings;
- Researchers;
- Management from Local Health Districts;
- ACI Musculoskeletal Network Manager and OACCP Project Officer;
- ACI Networks and executive staff as appropriate from time to time.

Working Group lead

- The Working Group lead will be determined by the Working Group membership and ratified by the Musculoskeletal Network Co-Chairs.

- The appointment of the Working Group lead will be reviewed with the Terms of Reference.
- The Working Group lead will:
  - Report progress to each Musculoskeletal Network meeting;
  - Chair Working Group and OACCP Site Representatives meetings;
  - Advise on and approve meeting agendas;
  - Support the Working Group to enhance the implementation and continued improvement of the program;
  - Engage with clinicians, managers and consumers to ensure the sustainability of the program;
  - Actively seek opportunities to represent and advocate for the ACI Musculoskeletal Network and OACCP.

Meetings

- Quarterly, at least 14 days before the quarterly Site Representatives meetings, with the possibility of additional meetings if deemed necessary by the Working Group.
- In a manner as required, e.g. face-to-face, teleconference, email.
- Quorum is not necessary, as all Working Group members will be included in electronic messages at each encounter.

Secretariat

- ACI Osteoarthritis Chronic Care Program (OACCP) Project Officer.

Accountability

- The ACI NSW Osteoarthritis Chronic Care Program Working Group reports to the ACI Musculoskeletal Network through the Working Group lead.
- The Musculoskeletal Network Manager will provide reports of the progress of the Working Group to the ACI Chief Executive and Board as required.
- Any contentious issues or conflicts of interest will be reported to the ACI Chief Executive and managed according to the NSW Health Code of Conduct.

Review of Terms of Reference

- Due May 2013.

Osteoarthritis Program Elements

CHRONIC DISEASE MANAGEMENT

The concepts of chronic disease management (CDM) are central tenets of the OACCP. This is a shift from traditional musculoskeletal care which is usually episodic and provided at exacerbations of pain and worsening function, resulting in reduced quality of life. Useful information on CDM in NSW can be found at:

http://www.health.nsw.gov.au/cdm/publications.asp

For assistance in implementation of a chronic disease rehabilitation program, please refer to the NSW Health guideline on implementing chronic disease rehabilitation:

http://www.health.nsw.gov.au/policies/gl/2006/pdf/GL2006_022.pdf

ELIGIBILITY FOR THE OACCP

There are two criteria for participation in the program:

- A visual analogue scale measure of pain of ≥ 4 out of 10 at assessment
- Pain in the affected joint on most days of the past month

NOTE: Each person identified as possibly eligible for the OACCP (for example, those on an elective surgery wait list) should be strongly encouraged to attend an initial assessment, where their eligibility and willingness to participate can be established. Participants referred from surgical waitlist who do not meet eligibility criteria should be assessed, with particular attention to their suitability for joint replacement, compared to conservative management.

IMPLEMENTATION OF THE OACCP

Meet with facility executive

Site experiences highlight the need to have good communication with the health service executive. The ACI has invited a representative from the site executive, or someone who reports to the executive, to be a member of the OACCP Site Representatives' quarterly meetings. The ACI will encourage this throughout the funded program. The ACI strongly recommends Coordinators meet with their executive representative on a regular basis to discuss successes and concerns. Transparency is the key to overcoming problems and gaining recognition for the hard work the teams undertake.

Program location

The obvious location for the OACCP may be the physiotherapy department, but this may not be the best place. Consider the needs of your population, the resources available and access to your champions, all of which will help participants understand the value of the program as an ongoing self-management initiative. Some chronic care programs create reliance on the health system purely by locating the program at a hospital. Be open to discussion at your site and talk to your colleagues across sites to determine new ideas.

Team member roles

The MSK Coordinator of each funded OACCP is a senior physiotherapist who develops a management plan with participants using health coaching methodology. However, the Coordinator does not have to do all parts of each assessment. Each site determines which team member is in the best position to do each aspect of the assessments. The OACCP is designed as a multidisciplinary chronic care program, not a sole physiotherapy intervention.

Some ideas on separation of aspects of the assessment (example only) are:

- Participant - DASS-21, EQ-5D-5L;
- MSK Coordinator - KOOS/HOOS, goal setting, management plan;

- Nurse - chronic disease discussion, physiological measures, medications;
- Other physiotherapist - TUG, 6MWT, disease specific interventions or treatments;
- Other Allied Health – social supports, home environment/modifications.

Access to services and resources

Available resources and access to other necessary services will differ from site to site. A service redesign, such as the OACCP, needs to be flexible and responsive to these variations to allow adaptation of the program for implementation across other locations. This pilot program will identify barriers to successful implementation across sites, and will inform the ACI on strategies to enable further roll out of the program.

Documentation provided by ACI

Specific document templates and data collection tools are provided by ACI as follows:

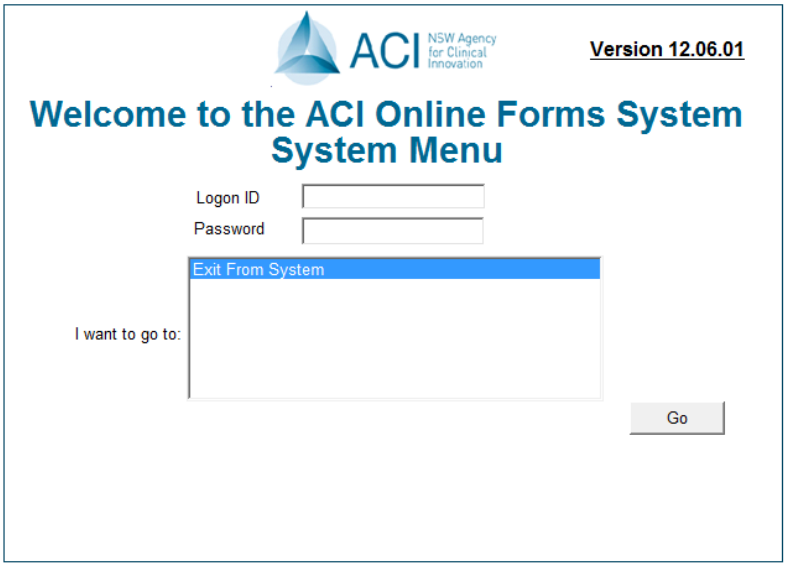
- Validated assessment tools, including translations where available
- Initial assessment letter
- Review letters
- Discharge letter
- NSW Health-hosted database for capture of participant data, automatic scoring of validated tools and automated population of data into reports and letters.

MSK OACCP Database

The ACI Musculoskeletal Network has developed a customised database for recording participant details, assessments, reviews and specific outcomes for the OACCP. Each OACCP site has online access to the database through the NSW Health intranet. This currently requires intranet access via cable, i.e. is not available wirelessly or remotely.

Access to the database is via user-specific passwords, and data is stored and backed up centrally on a HealthShare SQL server. The database is designed to support participant management, rather than be used purely as a data entry and storage system. To use the database, start your Internet browser and navigate to the following address:

http://aciwebforms.hss.health.nsw.gov.au/lfserver/ACIMenu



Logon ID: firstnamelastname (all lower case and no spaces)
Password: allocated by ACI

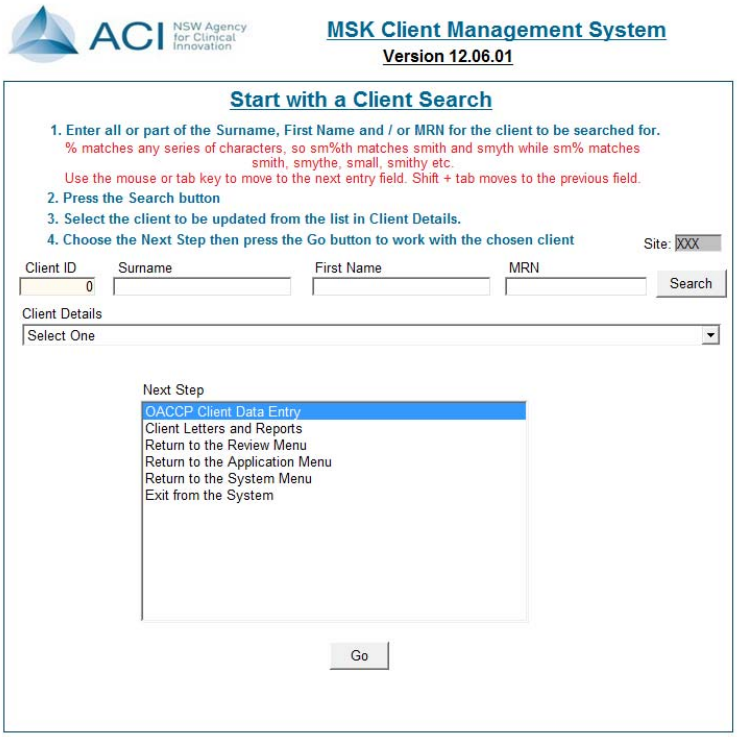
After entering your password, press the “Tab” key to bring up the OACCP menu option, then press “Go”.

Please contact the OACCP Project Officer to obtain unique login IDs and passwords for every new user. It is critical that each user ID is only in use on one computer (by the owner of the user ID) at any one time, and that users log off promptly when they have finished using the database. If a user ID is being used on two or more computers simultaneously, the data entry system cannot distinguish which one is entering data for which participant. In addition, only one user can be entering data for an individual participant at any one time.

CLIENT MANAGEMENT SYSTEM

The first screen has three search fields where you can enter all or part of a participant’s surname, first name or Medical Record Number (MRN). Enter all or part of any of the three fields, then click the Search button. For example, entering M in the surname field will retrieve all participants with surnames starting with “M”.

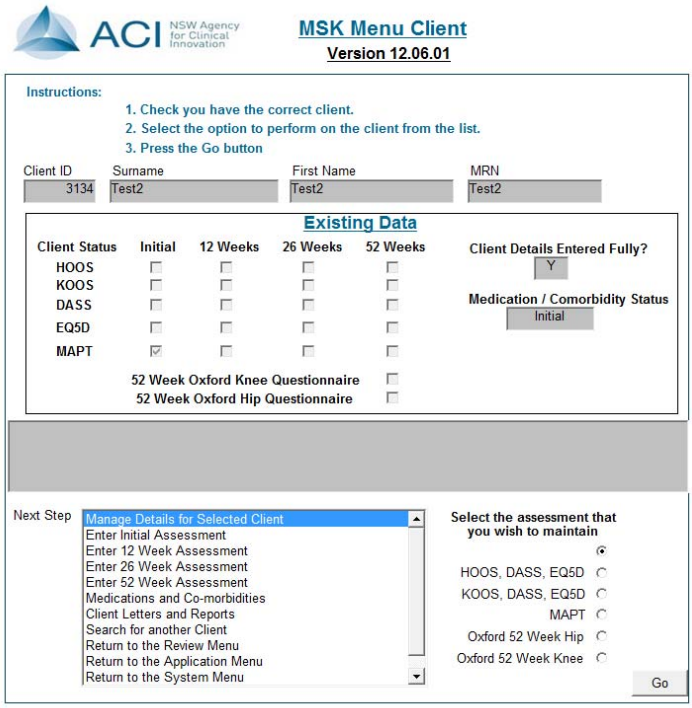
If the name or MRN is recognised you will have the option of selecting the correct, matching client, or creating a new record. If the name or MRN has not already been entered, you will be prompted to enter new client details. Clients may also be selected using the Client ID number, which is unique to the participant.



CLIENT MENU

Client details and assessment forms are managed from the “MSK Menu Client”. This menu allows selection of the form to enter and shows what has already been completed. It also provides warnings if any assessments are not as expected, for example, if the Week 12 assessment has been done but the medications have not been updated at Week 12.

Mandatory data entry requirements are also managed through the menu on this screen. If a participant only has the minimum data set for referrals entered in client details, it will not allow any assessments to be completed until all mandatory client details are saved. Similarly, an initial assessment must be saved before any subsequent assessments can be completed.



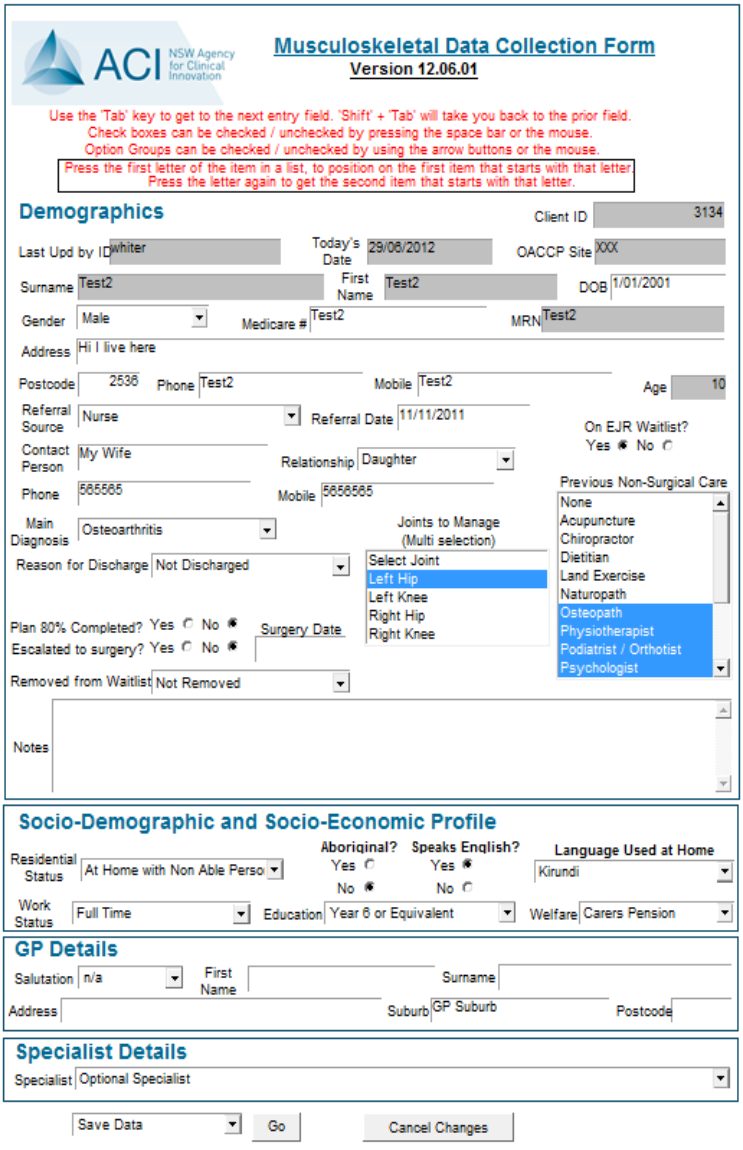
Select the relevant time point (Initial or Week 12/26/52) to enter an assessment, and the tool or set of tools to complete. The standard set is HOOS or KOOS plus DASS and EQ-5D, which also contains the main assessment page and the assessment notes page. The selection of HOOS/KOOS must match the participant's joint(s) to manage.

The Oxford Hip/Knee Scores can only be selected with Week 52 assessment, as they are to be completed only at the final pre-operative assessment. Selecting the Oxford will also bring up the assessment notes page, allowing you to add notes and save the Oxford.

To complete a MAPT, select this instrument and the time point. The MAPT is no longer part of the OACCP data set to be reported, but has been retained in the data system.

CLIENT DETAILS

This section records participant demographics and socio-economic details. A key performance indicator for the OACCP is the proportion of people referred, who are assessed and participate in the program. The time from receipt of a new referral to the date of initial assessment is also reported. These provide an indication of capacity and demand for the program. The referral date is the date the person was waitlisted, for participants referred from the surgical waiting list, or the date they were referred by their GP, surgeon or other health professional. The referral date MUST be prior to the assessment date AND the date entered.



The OACCP Working Group has made several fields mandatory for completion before the client details can be saved. Ideally, these details will be completed at the time the referral is first received by the OACCP. The mandatory fields to capture a referral to OACCP are:

- First Name, Surname
- Date of Birth
- Gender
- Postcode
- Referral Source, Referral Date
- Joint(s) to Manage

When a referral becomes an OACCP participant, the following are mandatory fields to be added before any assessment data:

- Telephone
- On Elective Joint Replacement Waitlist
- Contact Person Relationship
- Main Diagnosis
- Residential Status
- Aboriginality
- Speaks English?
- Language Used at Home
- Work Status
- Education Level
- Welfare Benefit

Orthopaedic surgeons may be selected from the “Specialist” drop-down menu box in the client details form, and are specific for each site. Each site should enter and edit names and contact details of the orthopaedic surgeons for their site, using the “Orthopaedic Surgeon Maintenance” option from the main menu. Once entered, all orthopaedic surgeons for that site will be available from the drop-down menu in the client details form.

Waitlist removal

For participants who are recorded as “On EJR Waitlist”, if they are subsequently removed from the waitlist, select the appropriate “Waitlist Removed” reason and date of removal. Please minimise the use of “Other” for the reason, and if selected provide a brief explanation in the Client Notes.

Discharge

When a participant who has attended an assessment leaves the program, go to the Client Details form, select a “Discharge Reason” (avoid “other” where possible) and fill in the date of discharge. There is no need to discharge clients who decline to participate, if they have not been assessed. On discharging a participant, choose “Yes” or “No” for “Plan 80% Completed”. This requires an element of subjective judgment as to a participant’s efforts to undertake the activities and work towards the agreed goals in their management plan.

For participants proceeding to surgery, record the date of surgery, plus Escalated to Surgery if prioritisation has changed. The date of discharge from the program should be no later than the date of surgery, but may be sooner, for example, at the Week 52 assessment.

Participants who have been enrolled for longer than 52 weeks, have not yet had surgery and, in the opinion of the MSK Coordinator, would benefit from further participation in the program, may continue without re-referral. However, no further assessment points are provided by the database and all participant outcomes will be assessed at Week 52. Such participants should be discharged in the database when their active management by the OACCP ceases or they proceed to elective joint replacement surgery, whichever is sooner.

Re-enrolment

If a participant returns after being discharged, e.g. after elective joint replacement surgery, or if they did not previously meet eligibility criteria, they should be re-enrolled using the new date of surgical waitlisting or referral. As the database will still recognise their name, their first enrolment should be changed to, for example, John Smith\L, where the first enrolment was for the left knee and they have returned for management of the right knee. The MRN is also a unique identifier, so this also needs to be changed for the second enrolment, by adding a "0" to the start of the number. For example, a participant with an MRN of 324632 would become 0324632 for the second enrolment.

ASSESSMENTS

Automatic and Required Fields

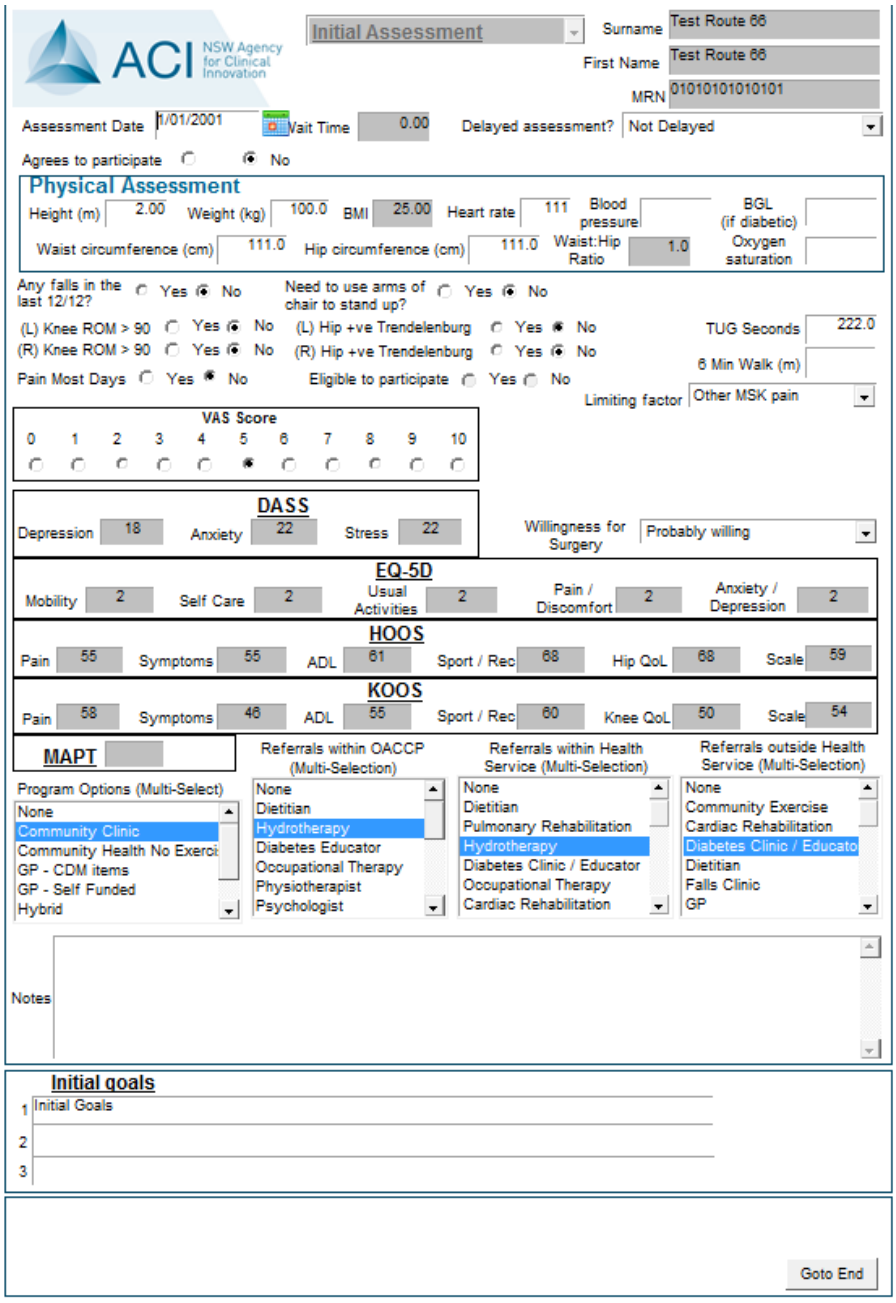
Demographic details are automatically filled from previously entered information. Each page of the assessments is automatically populated in the top, right-hand corner with the participant's name and MRN. Greyed boxes are automatically calculated and filled once the relevant tool has been completed, or the necessary information has been entered.

The initial assessment has mandatory fields for Agrees to Participate (indicates consent for treatment), Assessment Date, Pain Most Days, Willingness for Surgery, "Any falls in the last 12 months?" and "Need to use the arms of a chair to stand up?" If the participant has had a fall, the outcome must also be selected from the drop down list.

The week 12 and 26 assessments have mandatory fields for Agrees to Participate (indicates consent for treatment), Assessment Date, Pain Most Days, Willingness for Surgery, "Any falls since the last assessment?" (and the outcome if "Yes") and "Need to use the arms of a chair to stand up?". The week 52 assessment has mandatory fields for Assessment Date, Pain Most Days, Willingness for Surgery and the falls questions.

At weeks 12, 26 and 52, subjective improvement questions may also be answered, with a drop down selection of answers from "much improved" to "much worse":

- Since my first assessment in the program,
    - My walking on level ground has...
    - In general, my hip/knee has...



PHYSICAL ASSESSMENT

1. Height

Ask the participant to remove their shoes and stand tall against a wall, which has a scale measure. Ask the participant to take a deep breath in. Let the lever rest gently on their head and record the result in the database in metres, to two decimal places.

2. Weight

Remove shoes and empty pockets. Weigh and record the result in the database in kilograms (to one decimal place). Subsequent measurements should occur on the same set of scales, ideally at the same time of day and after usual activity.

3. BMI

Body mass index is calculated [weight in kg / (height in metres)^2] by the database.

4. Heart rate, blood pressure and oxygen saturation

These parameters should be measured and recorded for all participants, before exercise testing. Heart rate is measured and entered in beats per minute; blood pressure as systolic/diastolic in mmHg; and peripheral oxygen saturation as %.

5. BGL

Blood glucose level should be measured for participants with known diabetes (Type I or Type II) at each assessment before undertaking any exercise testing. Participants should be instructed to bring their own glucose monitor, glucose replacement and diary to each assessment and perform their own test under supervision. This provides an opportunity to assess participants' self-management skills and understanding of the importance of monitoring and recording their BGL regularly, including prior to undertaking exercise. Record the result of this test (mmol/L) in the database. At the first assessment, participants should also measure their BGL after completing exercise testing.

Further information on physical and medical assessment recommended to be undertaken prior to exercise testing can be found at Appendix 2.

6. Waist Circumference

Waist circumference measurement is a clinically useful tool in assessing individual risk for chronic disease and for detecting obesity and where body fat is located. It is also useful in detecting changes in early fat loss. It can be an important sign of risk of developing an ongoing health problem, such as Type II diabetes, heart disease and hypertension.

An indication of increased risk of developing chronic disease is a waist circumference of more than 94cm in men and more than 80cm in women, and indication of a greatly increased risk is a circumference of more than 102cm in men and more than 88cms in women. Accepted standards for uniform measurement of waist circumference are:

- Measure from the front while participant stands erect and at the end of a gentle exhalation;
- Measure the waist at the minimum diameter between the rib cage and the hips (the smallest possible measure);
- Measure to the nearest centimetre.

7. Hip Circumference

Hip circumference measurement is used to determine the waist/hip ratio. Accepted standards for uniform measurement of hip circumference are:

- Measure from the side at the maximum protrusion of the buttocks, attempting to maximise the hip measure (the biggest possible measure);
- Measure to the nearest centimetre.

8. Waist : Hip Ratio

The waist-hip ratio is the best predictor of risk factors for cardiovascular disease deaths: better than waist circumference alone, and waist circumference is a better predictor than body mass index (BMI). A healthy ratio for women is ≤ 0.8, and for men ≤ 0.9. The ratio is automatically calculated in the database once the hip and waist circumferences are entered.

FUNCTIONAL MEASURES

9. Falls history and risk

Many OACCP participants are at risk of falls, and/or have already fallen. A simple falls risk screen, used for people in the community, is to ask the following questions:

- Has the person had a fall in the last 12 months?
- Does the person take 4 or more medications?

- Does the person have Parkinson's disease or have they had a stroke?
- Does the person have balance or mobility problems?
- Does the person need to use the arms of a chair to stand up?

People answering yes to 2-3 of the above are considered at risk of falls, and further assessment and intervention are indicated. This could involve referral to falls clinic/program, or OT, as appropriate at the site.

Thorough musculoskeletal assessment covers many aspects of falls risk assessment, such as mobility and balance (also measured by the Timed Up and Go). The number of medications taken is captured in the OACCP data set, and neurological disorders (including Parkinson's and stroke) are covered in the comorbidities questionnaire.

For further information, the NSW Falls Prevention Network website is:
http://fallsnetwork.neura.edu.au
An app to measure fear of falling (IConFess) is available from www.neura.edu.au/apps

To complete the simple screen above, two additional questions specific to falls history and risk are to be answered at each assessment:

- Has the person had any falls in the last 12 months (initial assessment) / any falls since the last assessment (subsequent assessments)?
- Does the person need to use the arms of a chair to stand up?

If a participant answers "yes" to the first question, select the outcome of the fall from the following list (if more than one fall occurred, record the **worst** outcome):

- Fracture, hospital admission
- No fracture, hospital admission
- Fracture, treated in ED
- No fracture, treated in ED
- Fracture, managed by GP
- No fracture, managed by GP
- Did not seek medical treatment

If none of these apply, "other" may be selected, but this should be minimised. If sites note outcomes other than those listed, please advise the Project Officer so these can be made available in the drop down list.

10. Knee Range of Motion

Goniometric measurement of active range of motion of the knee is commonly included in musculoskeletal assessments. It has been established that a ROM ≤ 90^{o} of knee flexion is an indicator of moderate to severe disability, and is a predictor of worse outcome following total knee replacement.

In a seated position, instruct the participant to slide their foot backwards as far as possible. Align the long arm of the template with the long axis of the femur and the centre of the knee joint. Observe whether the short arm of the template aligns with the participant's lower leg (lateral malleolus). If it does not, note whether the knee has < or > 90 degrees of flexion. Enter the result into the database by ticking >90^{o} or <90^{o} flexion for the "index" knee. If the participant is referred to the OACCP for both knees, enter the result for both knees.

11. Trendelenburg Sign

The Trendelenburg sign is a common orthopaedic and neurological sign found during gait analysis. It is a physical examination finding associated with various hip abnormalities which affect muscle, joint or nerve integrity and result in abductor muscle weakness, causing the pelvis to sag on the side opposite the affected side during single leg stance on the affected

side. During gait, compensation may occur by leaning the torso toward the involved side during stance on the affected extremity.

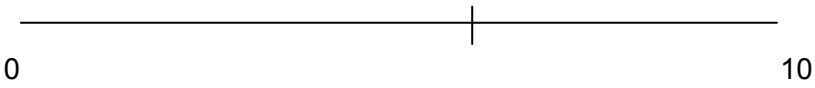
This sign has been associated with early onset of osteoarthritis of the hip. Enter the result into the database as +ve or –ve Trendelenburg for each affected hip.

12. Pain Most Days and Pain on Visual Analogue Scale

Ask the participant whether they have had pain on most days in the past month, and record the answer using the Yes/No radio buttons.

The Visual Analogue Scale (VAS) is a widely used, validated measure. In the OACCP it is used as a measure of pain severity at assessment, and measures the pain a participant has today. It should be completed by the participant without prompting of an answer.

Ask the participant to indicate on a 0 to 10 scale the severity of their pain **today**. Ask them to do this by drawing a mark on a 10cm line or by selecting the most appropriate score on the VAS online tool. 0 is no pain and 10 is severe, extreme and unremitting or constant pain. “Where is your pain today”? If the manual version of VAS is used, a ruler is used to measure the VAS from zero, and the score is recorded to the nearest full number rounding up or down as appropriate.



At initial assessment, if Pain (VAS) ≥ 4 and Pain Most Days is “Yes”, then Eligible to Participate will be set to “Yes”. If the VAS < 4 (or not answered) and/or Pain Most Days is “No”, then Eligible to Participate will be set to “No”. In this case, the participant does not meet stated OACCP eligibility criteria.

The eligibility criteria are intended to help in managing demand, particularly when participants are referred from GPs or other sources. When participants are referred from surgical waitlist, it is highly desirable to thoroughly assess them, regardless of “eligibility”, and discuss the risks and benefits of surgical management for them at this stage of their joint disease. “Ineligible” participants may be the most likely and appropriate candidates for waitlist removal and conservative management, and this option should be explored. Eligibility is not required at subsequent (review) assessments: it is a program entry criterion.

13. Timed Up and Go (TUG)

This is a reliable test for assessment of frail and/or elderly people in a chronic disease rehabilitation setting. It is a simple and quick option to measure functional mobility and change in this mobility over time. Any member of the MSK team can oversee this test, but ideally, it would be the same team member at each review of the participant.

Use a standard chair with arm rests and a floor to seat height of approximately 460 mm and floor to arm rest height of 670 mm. The aim is to have both feet in contact with the floor and the knees at 90° before initiation of the test. The participant wears their usual foot wear and performs the test using their usual walking aid over a 3m course measured and marked from the front legs of the chair. They are timed (in seconds) using a stop-watch.

Standard instructions for performing the test are:

- begin seated with back supported
- feet resting flat on the floor
- chair facing the 3m course
- perform one practice test

- use instructions such as:

  On the word "go", I want you to stand up and walk at your regular pace, comfortably and safely, to this mark on the floor (indicate mark to participant). Turn around at the mark and walk back to the chair and sit down again.

Record the result and enter into the database. Interpretation of the result is as follows:

- < 10 seconds = normal
- 10 to 20 seconds = independently mobile or independent with a stick; reasonable balance
- 20 to 30 seconds = greater variability in balance performance
- 30 seconds = needs assistance with mobility tasks

There is evidence that a result ≥ 13.5 seconds is predictive of an increased risk of falls, and that > 30 seconds suggests the person is functionally dependent.

14. Six Minute Walk Test

The 6MWT is a commonly used measure of functional walking capacity for people with chronic disease. It is useful in tracking participants' progress and to measure the clinical and service outcomes of chronic care programs. Ideally, the MSK Coordinator oversees the 6MWT, but a less senior team member may conduct the test.

Ideally, to account for a learning effect, the baseline measure is created by a minimum of two walks performed on the same day with a 40-60 minute rest between tests, or by completion of the second test at the next visit. In view of the time taken to perform a repeat test and the time involved for the first assessment, only one 6MWT will be undertaken for the OACCP.

The track used must be flat, with no corners and measure at least 25m in length. Participants should be instructed to use bronchodilators and supplemental oxygen as required, and this must be standardised between tests for each participant. The test track must be standardised between participants, so results are accurate and reproducible. Measure and record oxygen saturation and heart rate prior to the test (baseline), at the three-minute mark (halfway) and at test completion. For participants with respiratory or cardiac concerns, these measures may be prudently taken at one-minute intervals during the test.

Standard instructions for performing the 6MWT include outlining the expectations of the test, a description of the 6MWT and familiarisation with the track to be used in the test. An example of instruction is below:

> *"The objective of this test is to walk as quickly as you can up and down the track for six minutes so you cover as much distance as possible. You may slow down, if necessary, but if you stop, you need to start to walk again as soon as possible. You will be regularly informed of the time that has passed, and you will be encouraged to do your best. Your goal is to walk as far as possible in six minutes. Please do not talk during the test unless you have a problem or I ask you a question. You must let a staff member know if you have any chest discomfort, dizziness or pain anywhere in your body. When the six minutes are up, you will be asked to stop exactly where you are. Do you have any questions?*

Encouragement must be standardised to ensure performance of the test is the same at each visit. Examples of encouragement include:

> *At one minute: "five minutes remaining [NAME]. Do your best!"*
> *At two minutes: "four minutes remaining [NAME]. You are doing well - keep it up!"*
> *At three minutes: "Half way there – three minutes to go [NAME]. Do your best!"*
> *At four minutes: "Two minutes remaining [NAME]. You are doing well - keep it up!"*
> *At five minutes: "One minute left [NAME]. Do your best!"*
> *At six* minutes*: "Stop – stay exactly where you are!"*

Each site should use instructions and encouragements that are suitable and appropriate to their participants. Although they do not have to be exactly as written above, they do need to remain consistent between tests and between participants.

Consider discontinuation of the 6MWT if the participant exhibits any of the following signs or symptoms:

- chest pain or discomfort
- mental confusion
- lack of coordination
- dizziness
- intolerable dyspnoea
- leg cramps or extreme muscle fatigue
- persistent oxygen saturation < 85% (for people with existing respiratory disease)
- other clinically warranted reasons

The test may continue in the presence of the above signs and symptoms at the discretion of the senior clinician. For further guidance on safety in exercise testing, please see Appendix 2. If the test is stopped it should be rebooked at a satisfactory time for the participant after management and resolution of the problem.

During the test, record each lap on a note pad. Six minutes after commencement, instruct the participant to “stop and stay where you are” while they continue walking on the same spot. Walking on the spot at completion averts ‘pooling’ of blood in the peripheral vasculature and a potential vaso-vagal event. Place a marker on the spot where the person stopped and then ask the person to continue walking slowly for a few minutes before sitting down. At completion of the test, record the person’s oxygen saturation and heart rate. Continue to observe the participant for at least 15 minutes following an uncomplicated test.

Results: Using a trundle wheel, measure the distance walked on the last lap. Tally the number of laps and multiply by the length of test track. Add the distance walked on the last lap to this figure. Enter the distance into the database in metres. Record the factor that most limited the person’s distance walked or main reason for stopping, from the following list:

- Pain in index joint
- Other musculoskeletal pain
- Breathlessness
- General fatigue
- Stopped for medical reason
- Other

A few participants will find they are not limited, in which case, record the reason as “other” and note that the participant reported no limitation in the assessment notes.

Program Options and Referrals

Each site will use different options for the provision of the OACCP. Select the most suitable description for each participant from the multi-select drop down menu, allowing a combination of program options.

Participant referrals made at OACCP assessments fall into three categories: within OACCP, within health service and outside health service. Referrals should only be categorised “within OACCP” where the practitioner or service is employed under OACCP funding. Other services and treatments provided within the LHD but not funded by OACCP should be categorised “within health service”. Groups, practitioners or treatments seen privately, in the community or through GP Chronic Disease Management MBS items are “outside health service”, i.e. not funded by NSW Health. If specific practitioners or services are not listed individually, please choose “other” and use the assessment notes to record further detail.

Participant Goals

At the initial assessment, the database allows up to three “Initial Goals” to be set for each participant. At least one goal must be entered to satisfy the requirements of KPI1. At the Week 12 assessment, each goal may be ticked either “Achieved” or “Abandoned”, as appropriate, or left blank if the participant is still working towards that goal.

Further goals may be set to replace any that have been achieved or abandoned. For example, if 3 goals were set initially and two have been achieved at Week 12, another two new goals could then be set, to be reviewed at Week 26. The database will only allow a participant to have up to 3 “live” goals at any one time, which are carried forward to the next assessment.

Participant goals should be set by the participant with input and assistance from the MSK Coordinator as needed. They should be meaningful to the participant, specific, measurable and reflective of a health coaching approach. The goals set will inform the development of the participant’s management plan, where greater detail can be recorded about the steps to be taken towards achieving each goal.

Assessment tools for the OACCP

The assessment tools have been determined by the OACCP Working Group after vigorous discussion of all possible options. The overall requirement was to address all factors that impact on a participant’s outcomes. While chronic care is now an accepted norm in health care, much is yet to be determined on outcomes, and even less is known about any form of musculoskeletal chronic care. This program is an opportunity to address these questions.

Factors considered in the decision making process included the validity, reliability and appropriateness of the tool, the time taken to complete the measure, cost and availability of languages other than English. Continuity between the OACCP and other chronic disease management and rehabilitation programs was also considered.

DISEASE-SPECIFIC AND HEALTH-RELATED QUALITY OF LIFE TOOLS

There are multiple methods of gaining the completion of the following tools in clinical practice, including completion directly to the online version, paper-based completion by the participant independently or with help of a friend, family member, clinician or interpreter. In a research study, the same method would be used at all times for all participants.

In the OACCP any of these methods may be used, but each participant should use the same method at each data collection point, and instructions for completion must be standardised. Record the method of administration at the initial assessment, and repeat this method at each subsequent assessment.

Available translations for each instrument are listed in Appendix 1. Instruments in the participant’s preferred language should be used if available. To provide comprehensive assessment and allow for planning of care for each participant, it may be necessary to use an English language instrument with the assistance of an interpreter. The method used to complete each instrument should be recorded and repeated at each assessment.

NOTE: Once a questionnaire has been commenced, all items must be completed before data can be saved. However, if an incorrect instrument is started, the questionnaire may be “Reset” to blank, which allows the assessment to be saved without that instrument.

1. Hip disability and Osteoarthritis Outcome Score (HOOS) and Knee injury and Osteoarthritis Outcome Score (KOOS)

The HOOS and the KOOS are questionnaires designed to measure symptoms and functional limitations associated with hip and knee osteoarthritis, and track disease progression. They are used in the OACCP because they are readily available via the internet, include questions

relevant to younger populations and incorporate the well-researched Western Ontario and McMaster Universities Arthritis Index (WOMAC). The introductory document, questionnaire, scoring tools and translated versions are available from the website:

http://www.koos.nu/index.html

The HOOS and KOOS are designed to be completed by participants with discussion and review of their answers with a clinician. This allows clarification around any inconsistent responses and creates an opportunity to discuss more specific, whole person issues raised by the answers given. For participants who complete the HOOS/KOOS on paper, transfer their responses to the online version as part of the assessment process.

What if questions are left unanswered, particularly in the Function, Daily Living and Sport/Recreation sections? If participants do not answer a question or comment "N/A" or "unable" that question should be scored as the worst answer, i.e. "Extreme" or "4".

On completion and saving of the online HOOS/KOOS, the scores for each subscale are automatically calculated (pain, symptoms, function in daily living (ADL), function in sport and recreation, and hip- or knee-related quality of life).

2. Euro Quality of Life (EQ-5D-5L)

The EQ-5D is a widely used instrument to measure health-related quality of life. It is applicable to a wide range of health conditions, and provides a simple descriptive profile and a single index value for health status. Each question is scored as a single number (1 to 5) and recorded as a five digit number, e.g. 13453. There is also a 0-100 visual analogue scale, on which the participant reports their health-related quality of life, which is reported as answered, e.g. 93/100. Information concerning the EQ-5D-5L is available at:

http://www.euroqol.org/

The EQ-5D-5L should be completed by the participant prior to the OACCP assessment. It may be sent out with appointment letters, completed at home and handed to staff at assessment or completed while waiting for assessment. Sites should use the most effective and efficient process for their participants and teams.

3. Depression Anxiety Stress Scale 21-item version (DASS-21)

The DASS-21 is a validated tool, developed in Australia (University of NSW), to measure psychological discomfort in the domains of depression, anxiety and stress. The DASS-21 is the short form version of the DASS-42. DASS-21 is used widely in chronic care populations and is one of the preferred depression tools used in NSW chronic care settings. It is a short and easy tool for consumers to use, and is available in many languages common to NSW residents. Further information on the DASS-21 can be found at:

http://www2.psy.unsw.edu.au/groups/dass//

The DASS-21 should be administered to all participants at or prior to initial assessment to screen for psychological distress, which may not have been previously reported or recognised. Ideally, participants will self-report the DASS-21 questionnaire. It may be sent out with appointment letters and handed to staff at assessment or completed while waiting for assessment.

Each item is scored 0-3 based on frequency/severity of symptoms. If the participant scores "2" or "3" on any item at initial assessment **OR** displays new signs of distress, the DASS-21 should be repeated at subsequent assessments.

Once item answers are entered into the database, scores are automatically calculated for each subscale. The results should be discussed with the OACCP participant. DASS-21 scores are doubled to reflect the full 42-item survey and interpreted as follows:

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	37+

What if the scoring is moderate to high? Discussion of the results should form part of participants' management. If a reasonable explanation of moderate to high scores can be identified, for example, the person is distressed at having recently been advised to have orthopaedic surgery, the team member and participant may agree to short-term review and the form that this review will take. At review, a repeat DASS-21 could be completed and if scores remain moderate to high then further discussion with respect to appropriate management would be undertaken with the participant.

At all times, clinical judgement is needed to determine the most appropriate management process. Some initial moderate to high scores may require immediate intervention, and some individuals who score in the normal or mild categories may still require a formal review. Local health service policy and procedures for high risk mental health issues must be instigated immediately if thoughts of self harm are exhibited.

4. Oxford Hip / Knee Score

The 12-item Oxford Hip Score and Oxford Knee Score are widely used tools to measure pain and function in people with symptomatic hip and knee joint dysfunction. They are the preferred tools of many orthopaedic surgeons due to ease of administration, widespread use and participant completion. The Oxford Scores are also used as part of the NHS Patient Reported Outcomes Measures (PROMs) program and by New Zealand's Ministry of Health.

The Oxford Hip/Knee Score is used in the OACCP to provide an opportunity for the future collection of comparative post-operative measures and the ability to compare across jurisdictions. Ideally, Oxford Scores will be collected routinely for anyone undergoing hip and knee joint replacement surgery, regardless of whether they participated in the OACCP.

The Oxford Hip/Knee Score is administered to OACCP participants proceeding to elective joint replacement surgery at their final pre-operative assessment, labelled Week 52. If possible, it should be completed no more than 1 week prior to surgery. The Oxford should be completed by the participant prior to undertaking the other measures in the final assessment, with assistance if needed by an accompanying person. Answers are then reviewed by an OACCP team member to ensure all items have been completed.

When the Oxford is submitted electronically, the score is automatically calculated. Each item is scored from 0-4, with the highest score being the best pain and function. Maximum (best) score is 48; minimum (worst) score is 0. There is reasonable evidence that an Oxford Score below 20 indicates a need for referral for discussion of joint replacement surgery.

Information on each of the scores can be found at:

http://www.isis-innovation.com/outcomes/orthopaedic/ohs.html
http://www.isis-innovation.com/outcomes/orthopaedic/oks.html
http://www.orthopaedicscore.com/scorepages/How%20bad.pdf

NOTE: When originally developed, each item of the Oxford Hip and Knee Scores was scored at 5 for best and 1 for worst, giving final scores between 60 and 12. The 0-48 calculation used by the OACCP is the preferred international scoring system.

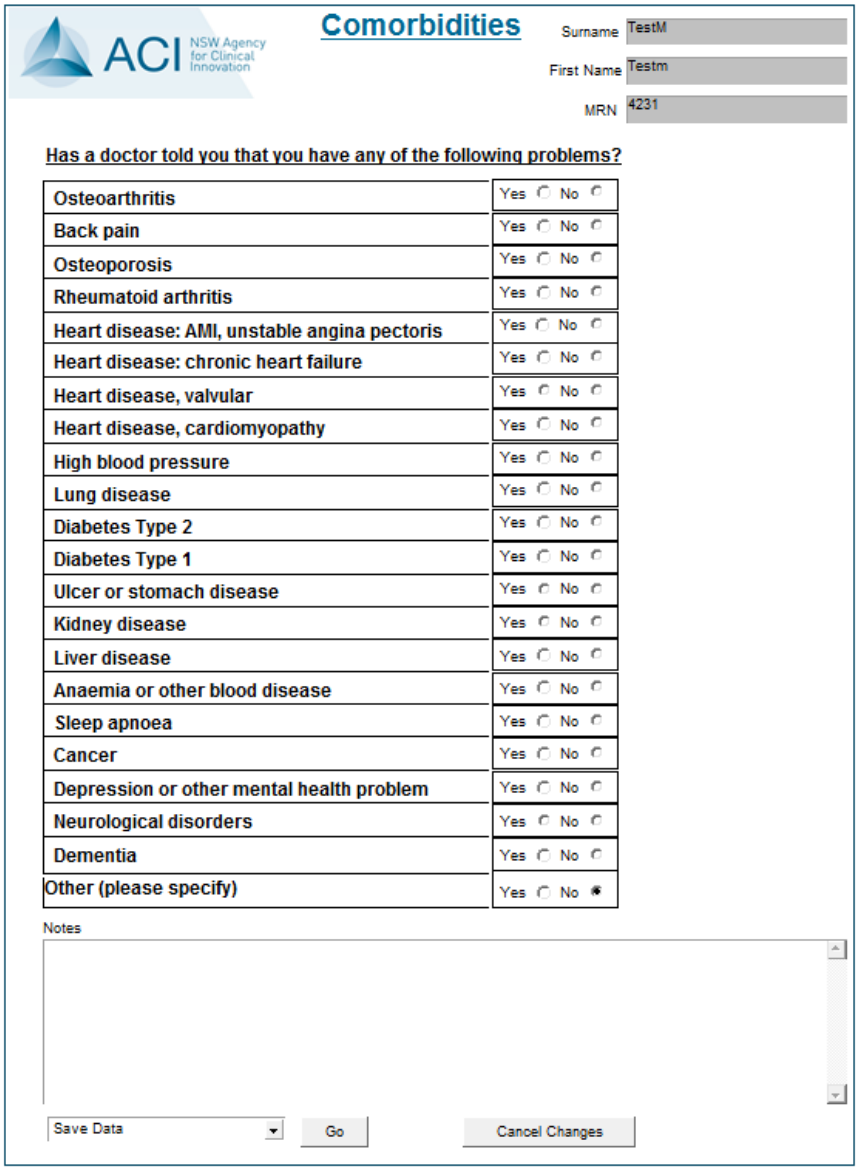
PARTICIPANT MEASURES

5. Clinician Assisted Co-morbidity Assessment

A modified Katz Co-morbidity questionnaire is used to assess the presence of other conditions that may require management. It should be completed by the participant, with or without assistance from their family/friend, and reviewed by a member of the OACCP team in conjunction with the participant as part of their initial assessment. The questionnaire is available in Word format to allow printing and providing to participants for completion. The following instructions should be provided to the person completing the questionnaire:

> *Indicate if you currently have the condition by selecting No (I do NOT have the condition) or Yes (I DO have the condition). Please answer the questions in the order asked. At the end of the page, indicate all other medical conditions that you have not previously mentioned.*

If participants have additional co-morbidities not listed, please select “Yes” at “Other”, delete “Other (please specify)” and type in the details.



ACI NSW Agency for Clinical Innovation

Comorbidities

Surname: TestM
First Name: Testm
MRN: 4231

Has a doctor told you that you have any of the following problems?

Osteoarthritis	Yes ○ No ○
Back pain	Yes ○ No ○
Osteoporosis	Yes ○ No ○
Rheumatoid arthritis	Yes ○ No ○
Heart disease: AMI, unstable angina pectoris	Yes ○ No ○
Heart disease: chronic heart failure	Yes ○ No ○
Heart disease, valvular	Yes ○ No ○
Heart disease, cardiomyopathy	Yes ○ No ○
High blood pressure	Yes ○ No ○
Lung disease	Yes ○ No ○
Diabetes Type 2	Yes ○ No ○
Diabetes Type 1	Yes ○ No ○
Ulcer or stomach disease	Yes ○ No ○
Kidney disease	Yes ○ No ○
Liver disease	Yes ○ No ○
Anaemia or other blood disease	Yes ○ No ○
Sleep apnoea	Yes ○ No ○
Cancer	Yes ○ No ○
Depression or other mental health problem	Yes ○ No ○
Neurological disorders	Yes ○ No ○
Dementia	Yes ○ No ○
Other (please specify)	Yes ○ No ●

Notes

Save Data | Go | Cancel Changes

Adapted from the Self-Administered Co-morbidity Questionnaire 2003: Arthritis & Rheumatism [Arthritis Care & Research], Vol. 49[2], pp 156–163.

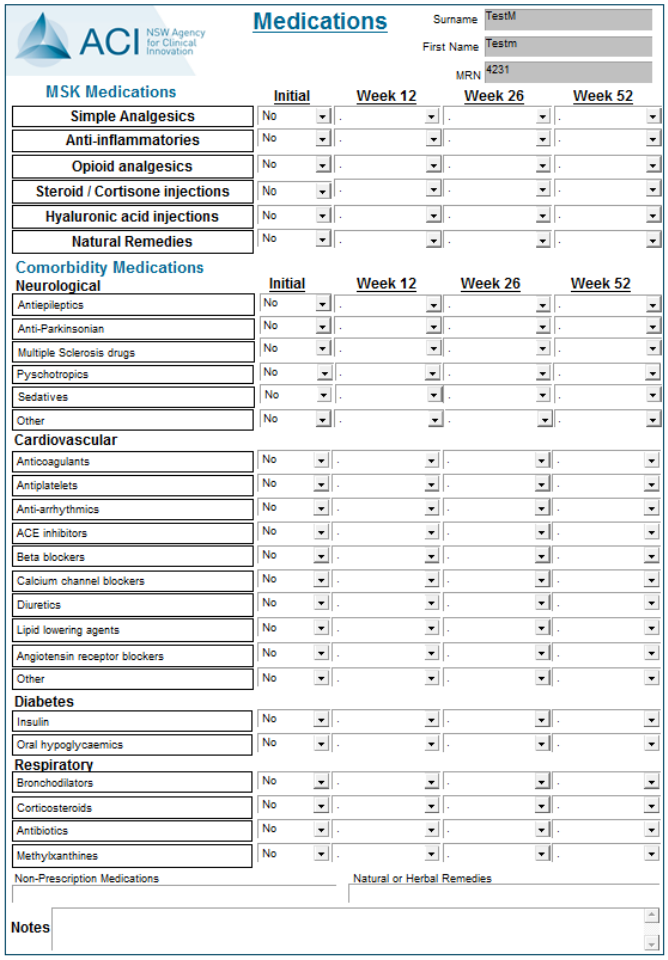
6. Clinician Assisted Medication Assessment

Medications commonly prescribed for osteoarthritis and other conditions are grouped by body system, e.g. neurological, cardiovascular, then by type of medication. The medications relevant to each group are listed at Appendix 3. For prescription medications not covered by the groups shown below, please use the notes field at the bottom of the page. If you identify a medication or group of medications used by many of your participants, please advise the Project Officer so consideration can be given to amending the groups listed.

At each review, the medication form should be reviewed to record whether participants have increased, decreased, ceased or not changed medications taken at the initial assessment, and whether any new medications have been started. If an assessment is skipped, please enter "unchanged" at the missed time point, unless, for example, the participant states that they made a change immediately after the last assessment. Then record changes or unchanged at the time point the participant actually attended, as appropriate.

> *Example: Mr Smith reports taking simple analgesics at his initial assessment, so this is recorded as "yes". He then goes on holidays for 2 months and misses his Week 12 assessment. When he comes back for his Week 26 assessment, he reports that he has recently increased his use of simple analgesics. In this case, record "unchanged" next to simple analgesics at Week 12 and "increased" at Week 26.*

For medications not used at initial assessment, the only change that can be recorded at subsequent assessments is "started". You cannot record "unchanged" for a medication that is not being taken.



REPORTS AVAILABLE

1. Assessment Review Reports

These reports provide a list of review assessments (Weeks 12, 26 and 52) for the user's site. For all clients found by the search, the reports display their expected date of appointment, name, MRN, address, phone and type of assessment due.

There are two reports available; the first identifies clients whose next appointment is within the date range entered. The default date range is from "today" to "today plus 14 days", but can be reset by the user as desired. The other report is similar, but uses a set number of days after "today" as the date range; the default value is "today plus 28 days", which can also be changed by the user.

To also identify participants with overdue reviews (i.e. due *before* today), select the date range report and set the "from" date in the past, and the "to" date as far into the future as desired.

2. Full Client Report

This report exports all client data: details, assessments, medications and comorbidities, into a form suitable for PDF and printing. Sites may use this report to append to the medical record, as agreed with local medical records form committees.

3. Letters

The database provides automated export of data into letter templates through LO as follows:

- Participant enrolment, results of initial assessment, referrals made and needed, and management plan (including, where appropriate, ineligibility for OACCP)
- Results of Week 12 and 26 assessments, further referrals and changes to management plan
- Discharge letter summarising all results and progress through program and future plan (usually including surgery)

To optimise the appearance of letters when printing, select "File: Page Setup" on the top left of the browser window then:

- ensure all headers and footers are set to "empty"
- reduce margins to the minimum allowable (usually 5 or 6 mm)
- ensure "Shrink to Fit" is **un**selected (if available).

The letters print in a well-presented format when only 1 page long, but are problematic if they run to a second page. To reduce the length of the letters, use the "-" buttons next to table rows to remove any results or referrals that are not a priority to communicate to the GP or surgeon receiving the letter. All text areas of the letters are modifiable: text may be inserted or removed as desired.

Key Performance Indicators of the OACCP

Assessment of clinical outcomes for participants of the OACCP will be through the repeat completion of the specific tools, while the designated key performance indicators (KPI) are to assess the program in a system-wide chronic care model. In NSW, the KPIs for chronic care are related to access. If people are not able or willing to participate in the OACCP then the measurement of clinical indicators is useless. The program KPIs will be reviewed with quarterly reporting to the NSW Ministry of Health, LHD executives, the ACI Board and OACCP teams.

The KPIs which will be reported are:

1. Number of people assessed and who have a care plan developed measured as a percentage of the total referred for assessment.
2. Number of people commencing their recommended care plan within three months of assessment measured as a proportion of people assessed and who have a care plan developed. Objective success will be 80%.
3. Number of people completing* their recommended care plan as a proportion of people assessed and who have a care plan developed. Objective success will be 80%.

*completion is implementation of 80% of the recommended care plan measured at 12 months and achievements are assessed through the reported progress of the agreed goals in the ACI OACCP data system.

The KPIs will be measured by the database as follows:

- Total referred for assessment: All clients with minimum mandatory details entered for that site within a given referral period
- Number of people assessed and who have a care plan developed: Have an Initial Assessment, where Agrees to Participate = Yes, Eligible to Participate = Yes AND Goal 1 = any content
- Number of people commencing their recommended care plan: Have a Week 12 Assessment within 100 days of Initial Assessment, and Commenced = Yes
- Number of people completing their recommended care plan: At Week 52 Assessment or discharge, Completed 80% = Yes

Appendix 1: Translations available for OACCP tools

Language	HOOS	KOOS	DASS-21	EQ-5D-5L	Oxford
English	Y	Y	Y	Y	Y
Arabic	N	Y	Y	Y	Y
Chinese	N	Y	Y	Y	Y
Czech	N	Y	N	Y	N
Dutch	Y	Y	Y	Y	*
Filipino/Tagalog	N	N	Y	Y	N
French	Y	Y	Y	Y	*
German	Y	Y	Y	Y	*
Greek	N	Y	Y	Y	N
Hebrew	N	N	Y	Y	N
Hungarian	N	N	Y	Y	N
Italian	Y	Y	Y	Y	*
Japanese	Y	Y	Y	Y	*
Korean	Y	Y	Y	Y	*
Malaysian	N	N	Y	Y	N
Norwegian	Y	Y	Y	Y	N
Persian/Farsi	N	Y	Y	N	*
Polish	Y	Y	Y	Y	*
Portuguese	Y	Y	Y	Y	*
Russian	N	Y	Y	Y	*
Spanish	N	Y	Y	Y	Y
Tamil	N	Y	N	Y	N
Thai	N	Y	Y	Y	N
Turkish	N	Y	Y	Y	*
Urdu	N	Y	Y	Y	*
Vietnamese	Y	Y	Y	N	N

Additional language versions available:

DASS-21 only: Bangla, Icelandic, Indonesian, Romanian, Serbian, Sinhala, Taiwanese

EQ-5D-5L only: Afrikaans, Armenian, Basque, Bengali, Bulgarian, Catalan, Cebuano, Croatian, Danish, Estonian, Finnish, Georgian, Gujarati, Hindi, Kannada, Kazakh, Latvian, Lithuanian, Malayalam, Marathi, Punjabi, Romanian, Serbian, Slovak, Slovenian, Swedish, Telugu, Ukrainian, Xhosa

KOOS only: Bengali, Croatian, Danish (also HOOS), Estonian, Hindi, Icelandic, Kannada, Latvian, Lithuanian (also HOOS), Malayam, Marathi, Slovakian, Slovenian, Swedish (also HOOS), Telugu, Ukrainian

* Oxford Score translations are available in these languages at 250 GBP per instrument (Hip or Knee), plus Bengali, Danish, Finnish, Gujarati, Punjabi and Swedish

Appendix 2: Assessment and ongoing monitoring of people with chronic conditions

Prerequisites for all participants prior to undertaking exercise/exercise testing:

- At least 2 hours after last meal eaten
- Has taken usual medications today
- Suitable footwear, and discussion on foot inspection, especially for people with DM who have high risk of peripheral neuropathies
- Consideration of safety for people with impairments e.g. poor sight, and incorporate usual mobility aids where necessary

Measure	Safe parameters	Signs and symptoms	Actions	Information
Systolic BP	< 180 mmHg		Medical review if above and actions taken to manage	
Diastolic BP	< 110 mmHg		Medical review if above and actions taken to manage	
Resting HR	< 100 bpm and regular (unless known benign VEBs or managed appropriately for AF)		If not sure, request GP or other medical assessment which will include an ECG at the minimum if new irregularity	AF should be controlled to less than 100 bpm. Most other tachycardias will have an origin that needs to be investigated and treated. Even a viral or bacterial infection can cause tachycardia and contraindicates exercise while present.
Oxygen saturation	Resting ≥ 88% on room air or prescribed supplemental O_2		Medical review	These are the parameters for those with diagnosed COPD. If oxygen saturations are < 95% despite deep coughing (to remove plug of mucous for example) then a medical review should be sought.
Shortness of breath	None at rest or, in the case of COPD, the person reports normality for them		Unexplained – stop exercise and check for causes: infection, COPD, cardiac – and action as required	
Blood glucose level (BGL)	If person has DM: • BGL between 6 and 15 mmol/L • must have eaten today • carrying own glucose replacement	Symptoms of hypoglycaemia may include: • shakiness • tingling lips • hunger • weakness • palpitations	Ask all participants with DM to bring their own BGL measuring equipment and do all testing on themselves, including pre- and post-exercise for first 2 weeks of OACCP. If symptoms of hypoglycaemia occur, stop exercise and measure BGL.	This promotes self-management and provides an opportunity to check their technique and habits re BGL testing, and increase participants' understanding of variability of BGL. Important that the person knows that not eating prior to exercise is unsafe management of DM.
Infection	No flu/cold or other systemic active infection		No exercise until symptoms have abated for several days	

Measure	Safe parameters	Signs and symptoms	Actions	Information
Feeling unwell		Dizziness, light headedness, feeling faint, nausea, uncharacteristic excessive sweating, confusion, ataxia, pallor, central cyanosis, cold clammy skin, severe fatigue, leg ache that curtails function, abnormal gait, e.g. leg cramps, staggering	Check for: • Low BGL in DM • Disturbed sleep • Dieting and not eating sufficiently • Constipation • Urinary symptoms • Taken routine medications • If no to the above, seek medical review	
Peripheral vascular disease		Generally will have burning pain in legs after about 10 minutes of exercise or if activity is increasing in intensity	Aim to not stop activity if at all possible	Exercise is the best treatment, with interval training the best to gain improved functional ability and manage pain. Use a slow and long warm up with an equally long and slow cool down. Then aim for intervals of 2, 3 or 5 minutes of 'therapeutic' exercise with a 2-3 minute very slow interval between bursts of exercise.
Cardiac failure	Known and appropriately managed so their heart failure is stabilised	• Unexplained shortness of breath • Palpitations • Peripheral oedema • Changed sleep patterns • Weight increases on consecutive days	Initially, assess the person for ongoing management – self-management skills plus regular medical review. If the person lacks self-management skills they need a cardiac rehabilitation referral and probably OACCP in conjunction with the CR team, e.g. OACCP health education components and exercise program in cardiac rehabilitation setting. If they have these skills and are stable, exercise can proceed but observe and check S&S each time they come in. Requires just a few questions as they arrive and is easy to pick up if the person is unwell or may be retaining fluid.	All persons with heart failure should have skills in: • Daily weigh and a plan for management of weight increases on consecutive days • Salt reduction eating habits • Determining need for fluid restriction • Reviewing peripheral oedema • Reviewing sleeping habits and dyspnoea that may be a sign of fluid retention in the pulmonary vasculature • Taking medications at the best times to facilitate stability, e.g. ACEI and BB spread out with ACEI taken at night, so lowest BP occurs while sleeping

Measure	Safe parameters	Signs and symptoms	Actions	Information
Acute coronary syndrome or cardiac surgery	None recent		• Must exercise in cardiac rehabilitation sessions if had ACS or cardiac surgery in past 8 weeks • After 8 weeks and is stable, can exercise in OACCP even if hasn't attended CR	In any case, if no CR it is best to facilitate a referral if the person agrees. A joint OACCP/CR would be ideal.
Chest discomfort	None at rest and during normal activities of daily living	Can be pain or discomfort. Level of intensity is not the important factor: if the person can feel it, then action is required. • Unexplained shortness of breath • Pain or discomfort is not localised, cannot point to the exact spot • Cannot be relieved with positioning, loosening of clothing • Heaviness • Tightness • Stabbing pain • Burning • In central, left or right chest • Left or right shoulder or arm • Central back • Radiating to jaw and ears – often described as 'toothache'	• Unstable angina = that which occurs at rest or at low activity – no exercise and needs medical review • Avoid angina through appropriate warm up and cool down – aim to make sure the vasculature (including collaterals) is well dilated before exercise and allow for slow normalisation post exercise • If occurs during exercise, slow the activity down for a few minutes (cool down is especially important to a peripherally vasodilated person who has heart disease). After few minutes of slow activity, sit the person down and if they self-manage their angina, let them proceed. In any case, if discomfort or pain increases or is still reported 10 minutes after commencing treatment, follow local MET policy. If in a community setting, call for ambulance.	Suspect all participants have heart disease unless otherwise discounted through maximal stress testing or other cardiological testing.
Recent embolism, thrombophlebitis	None present		Medical review	

Measure	Safe parameters	Signs and symptoms	Actions	Information
Aortic stenosis /incompetence	Minimal		Needs cardiology review before any exercise! Cannot exercise with 'severe' incompetence and only in CR with 'moderate' incompetence.	AS is a bit tricky as many older people will have 'severe' AS and not be operated on. Be guided by cardiology assessment – GP is not sufficient unless they can provide cardiology documentation that **light** intensity exercise can proceed.
Dissecting aneurysm	None present		No exercise	
Aortic aneurysm	None present		Medical review	Guidelines say an aneurysm <6 mm does not require surgery. Exercise at low intensity if medical approval provided. Generally will require tight management of blood pressure.

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Appendix 3: Medications by category

Medication category	Generic names	Trade names	Comments
Analgesics			
Simple analgesics	codeine (< 15 mg)	Codalgin, Codapane, Febridol Plus, Mersyndol, Panadeine, Panamax Co	All products also contain paracetamol
	paracetamol	Codalgin, Codapane, Duatrol, Dymadon, Febridol, Febridol Plus, Mersyndol, Panadeine, Panadol, Panadol Osteo, Panamax, Panamax Co, Paralgin	
	pregabalin	Lyrica	Also anti-epileptic
	aspirin	*Aspalgin, Aspro, Codis, Disprin, Disprin Forte*	**Contraindicated for pain relief: review required**
Non-steroidal anti-inflammatories	celecoxib	Celebrex	
	diclofenac	Arthrotec (+ misoprostal), Clonac, Dinac, Fenac, Imflac, Viclofen, Voltaren	
	etoricoxib	Arcoxia	
	ibuprofen	Advil, Brufen, Bugesic, Nurofen, Nurofen Plus (+ codeine), Panafen, Panafen Plus (+ codeine), ProVen, ProVen Plus(+ codeine), Rafen, Rafen Plus (+ codeine), Tri-Profen	All “Plus” products in this category contain 12.8 mg codeine
	indomethacin	Arthrexin, Indocid	
	ketoprofen	Orudis, Oruvail	
	meloxicam	Meloxibell, Mobic, Movalis, Moxicam	
	naproxen	Anaprox, Crysanal, Naprosyn, Nurolasts	
	piroxicam	Feldene, Mobilis	
	sulindac	Aclin	
	tiaprofenic acid	Surgam	
Opioid analgesics	buprenorphine	Norspan Patch	
	codeine (≥ 15 mg)	Codalgin Forte, Codapane Forte, Comfarol Forte, Dolaforte, Mersyndol Forte (+ paracetamol + doxylamine), Panadeine Extra, Panadeine Forte, Prodeine 15, Prodeine Forte	All products also contain paracetamol
	dextropropoxyphene	Di-Gesic, Doloxene	
	fentanyl	Actiq Lozenge, Denpax Patches, Durogesic Patches, Fenpatch Patches	
	hydromorphone	Dilaudid, Jurnista	
	methadone	Biodone Forte, Physeptone	
	morphine	Anamorph, Kapanol, Momex,MS Contin, MS Mono, Ordine, Sevredol	
	oxycodone	Endone, OxyContin, OxyNorm, Proladone, Targin (+ naloxone)	
	tramadol	Durotram, Lodam, Tramal, Tramedo, Zydol	
Steroid / cortisone	betamethasone	Celestone Chronodose	
	dexamethasone	Dexmethsone	

injections	hydrocortisone	Solu-Cortef	
	methylprednisolone	Depo-Medrol, Depo-Nisolone, Methylpred, Solu-Medrol	
	triamcinolone	Kenacort-A	
Hyaluronic acid	hylan	Synvisc	
	sodium hyaluronate	Fermathron	
Natural remedies	chondroitin + glucosamine	ArthroGuard, Cosamin, Joint Ease, OsteoEze	Many others in all categories
	glucosamine	Arthro-Aid, Replenex	Many other ingredients
	fish oil	Artho-Total (+ glucosamine, many other ingredients)	Many other product names
Neurological			
Antiepileptics	acetazolamide	Diamox	
	carbamazepine	Tegretol, Teril	
	clonazepam	Paxam, Rivotril	
	ethosuximide	Zarontin	
	gabapentin	Gabaran, Gabatine, Gantin, Neurontin, Nupentin, Pendine	
	lacosamide	Vimpat	
	lamotrigine	Lamictal, Lamidus, Lamogine, Lamotrust, Seaze, Torlemo	
	levetiracetam	Kepcet, Keppra, Kerron, Kevtam, Levecetam, Levitaccord, Levitam	
	oxcarbazepine	Trileptal	
	phenobarbitone		Also a strong sedative
	phenytoin	Dilantin	
	pregabalin	Lyrica	Also used as an analgesic
	primidone	Mysoline	
	sodium valproate	Epilim, Valprease, Valpro	
	sulthiame	Ospolot	
	tiagabine	Gabitril	
	topiramate	Epiramax, Tamate, Topamax	
	vigabatrin	Sabril	
	zonisamide	Zonegran	
Anti-Parkinsonian	amantadine	Symmetrel	
	apomorphine	Apomine	
	benserazide	Madopar (+ levodopa)	
	benzhexol	Artane	
	benztropine	Benztrop, Cogentin	
	biperiden	Akineton	
	bromocriptine	Kripton	
	cabergoline	Bergoline, Cabaser, Cobasol	
	carbidopa + levodopa	Duodopa, Kinson, Sinemet, Stalevo (+entacapone)	
	entacapone	Comtan, Stalevo (+ levodopa + carbidopa)	

	levodopa	Madopar (+ benserazide)	
	pergolide	Permax	
	pramipexole	Sifrol	
	rasagiline	Azilect	
	rotigotine	Neupro Patch	
	selegiline	Eldepryl, Selgene	
Multiple Sclerosis drugs	cladribine	Movectro	
	fampridine	Fampyra	
	fingolimod	Gilenya	
	glatiramer acetate	Copaxone	
	interferon	Avonex, Betaferon, Rebif	
Psychotropics	agomelatine	Valdoxan	Anti-depressant
	amisulpride	Amipride, Solian, Sulprix	Neuroleptic
	amitryptiline	Endep	Anti-depressant
	aripiprazole	Abilify	Antipsychotic
	asenapine	Saphris	Antipsychotic
	buspirone	Buspar	Anti-anxiety
	chlorpromazine	Largactil	Antipsychotic
	citalopram	Celapram, Celica, Ciazil, Cipramil, Talam	Anti-depressant
	clomipramine	Anafranil, Placil	Anti-depressant
	clozapine	Clopine, CloSyn, Clozaril	Antipsychotic
	desvenlafaxine	Pristiq	Anti-depressant
	dothiepin	Dothep, Prothiaden	Anti-depressant (anti-anxiety)
	doxepin	Deptran, Sinequan	Anti-depressant
	droperidol	Droleptan	Neuroleptic
	duloxetine	Cymbalta	Anti-depressant
	escitalopram	Escicor, Esipram, Esitalo, Lexam, Lexapro, Loxalate	Anti-depressant
	fluoxetine	Auscap, Fluohexal, Lovan, Prozac, Zactin	Anti-depressant
	flupenthixol	Fluanxol	Neuroleptic
	fluphenazine	Modecate	Antipsychotic
	fluvoxamine	Faverin, Luvox, Movox, Voxam	Anti-depressant
	haloperidol	Haldol, Serenace	Antipsychotic
	imipramine	Tofranil, Tolerade	Anti-depressant
	lithium	Lithicarb, Quilonum	Antipsychotic
	mianserin	Lumin, Tolvon	Anti-depressant
	mirtazapine	Aurozapine, Avanza, Axit, Milivin, Mirtazon	Anti-depressant
	moclobemide	Amira, Aurorix, Clobemix	Anti-depressant
	nortriptyline	Allegron	Anti-depressant

	olanzapine	Lanzek, Ozin, Zylap, Zypine, Zyprexa	Antipsychotic
	oxazepam	Alepam, Murelax, Serepax	Anti-anxiety; also sedative
	paliperidone	Invega	Antipsychotic
	paroxetine	Aropax, Extine, Paxtine, Roxet	Anti-depressant
	pericyazine	Neulactil	Antipsychotic
	phenelzine	Nardil	Anti-depressant
	quetiapine	Delucon, Quetiaccord, Quipine, Sequase, Seronia, Seroquel, Syquet	Antipsychotic
	reboxetine	Edronax	Anti-depressant
	risperidone	Ozidal, Resdone, Rispa, Risperdal, Rixadone	Antipsychotic
	sertindole	Serdolect	Antipsychotic
	sertraline	Eleva, Sertra, Sertracor, Xydep, Zoloft	Anti-depressant
	tranylcypromine	Parnate	Anti-depressant
	trifluoperazine	Stelazine	Antipsychotic
	trimipramine	Surmontil	Anti-depressant
	venlafaxine	Altven, Efexor, Elaxine, Enlafax, Venla, Venlexor	Anti-depressant
	ziprasidone	Zeldox	Neuroleptic
	zuclopenthixol	Clopixol	Antipsychotic
Sedatives (and hypnotics)	alprazolam	Alprax, Kalma, Ralozam, Xanax	Anti-anxiety
	bromazepam	Lexotan	Anti-anxiety
	chloral hydrate		Sedative (insomnia)
	clobazam	Frisium	Anti-anxiety
	diazepam	Antenex, Ranzepam, Valium, Valpam	Anti-anxiety
	diphenhydramine	Snuzaid, Unisom	Anti-histamine
	doxylamine succinate	Dozile, Restavit	Anti-histamine
	flunitrazepam	Hypnodorm	Benzodiazepene (insomnia)
	lorazepam	Ativan	Anti-anxiety
	nitrazepam	Alodorm, Mogadon	Benzodiazepene (insomnia)
	oxazepam	Alepam, Murelax, Serepax	Anti-anxiety
	phenobarbitone		Also anti-epileptic
	temazepam	Normison, Temaze	Benzodiazepene (insomnia)
	triazolam	Halcion	Benzodiazepene (insomnia)
	zolpidem	Dormizol, Somidem, Steldem, Stilnox, Zolpibell, Zolpidem	Hypnotic (insomnia)
	zopiclone	Imovane, Imrest	Hypnotic (insomnia)
Other neurological	aprepitant	Emend	Anti-nausea
	atomoxetine	Strattera	Sympathomimetic: ADHD
	dexamphetamine		Narcolepsy
	dolasetron	Anzemet	Anti-nausea
	domperidone	Motilium	Anti-nausea

	donepezil	Aricept	Alzheimer's
	galantamine	Galantyl, Reminyl	Alzheimer's
	granisetron	Kytril	Anti-nausea
	hyoscine	Buscopan, Donnatab, Setacol, Stomex	Muscle / GI spasm
	melatonin	Circadin	Insomnia
	memantine	Ebixa, Memanxa	Alzheimer's
	methylphenidate	Concerta, Ritalin	Stimulant: ADHD
	metoclopramide	Anagraine (+ paracetamol), Maxolon, Metomax (+ paracetamol), Pramin	Anti-nausea; migraine
	modafinil	Modavigil	Narcolepsy
	ondansetron	Ondaz, Onsetron, Zilfojim, Zofran, Zondan	Anti-nausea
	prochlorperazine	Nausetil, ProCalm, Stemetil, Stemzine	Anti-nausea, Meniere's
	promethazine	Allersoothe, Avomine, Phenergan	Antihistamine, anti-nausea
	riluzole	Rilutek	Amyotrophic lateral sclerosis
	rivastigmine	Exelon	Alzheimer's
	tetrabenazine		Dyskinesia, dystonia
	tropisetron	Navoban	Anti-nausea
Cardiovascular			
Anticoagulants	apixaban	Eliquis	
	dabigatran	Pradaxa	
	dalteparin	Fragmin	
	danaparoid	Orgaran	
	fondaparinux	Arixtra	
	heparin		
	enoxaparin	Clexane	
	phenindione	Dindevan	
	rivaroxaban	Xarelto	
	warfarin	Coumadin, Marevan	
Antiplatelets	aspirin	Asasantin (+ dipyridamole), Aspro, CoPlavix (+ clopidogrel), Disprin, DuoCover (+ clopidogrel)	
	cilostazol	Pletal	
	clopidogrel	Clovix, CoPlavix (+ aspirin), DuoCover (+ aspirin), Iscover, Piax, Plavix	
	dipyridamole	Asasantin (+ aspirin), Persantin	
	prasugrel	Effient	
	ticagrelor	Brilinta	
	ticlopidine	Tilodene	
Anti-arrhythmics	amiodarone	Aratac, Cardinorm, Cordarone, Rithmik	
	disopyramide	Rythmodan	
	flecainide	Flecatab, Tambocor	

	sotalol	Cardol, Solavert, Sotacor	Beta blocker
	verapamil	Anpec, Cordilox, Isoptin, Veracaps	Ca channel blocker
Angiotensin converting enzyme inhibitors (ACEI)	captopril	Acenorm, Capoten, Zedace	
	enalapril	Acetec, Alphapril, Amprace, Auspril, Renitec, Renitec Plus (also diuretic), Zan-Extra (also CCB)	
	fosinopril	Fosetic (also diuretic), Fosipril, Hyforil (also diuretic), Monace, Monoplus (also diuretic), Monopril	
	lisinopril	Fibsol, Liprace, Lisodur, Prinivil, Zestril	
	perindopril	Coveram (also CCB), Coversyl, Coversyl Plus (also diuretic), Idaprex, Idaprex Combi (also diuretic), Indopril, Indopril Combi (also diuretic), Oxapace, Perindo, Perindo Combi (also diuretic), Reaptan (also CCB)	
	quinapril	Accupril, Accuretic (also diuretic), Acquin, Aquinafil, Filpril, Qpril,	
	ramipril	Prilace, Ramace, Triasyn (also CCB), Tritace, Tryzan, Vascalace	
	trandolapril	Dolapril, Gopten, Tarka (also CCB),Tranalpha	
Beta blockers	atenolol	Anselol, Noten, Tenormin, Tensig	
	bisoprolol	Beprol, Bicard, Bicor, Biso, Bispro	
	carvedilol	Dicarz, Diasig, Dilatrend, Kredex, Vedilol, Volirop	Also alpha blocker
	labetalol	Presolol, Trandate	Also alpha blocker
	metoprolol	Betaloc, Lopresor, Metohexal, Metrol, Minax, Toprol	
	nebivolol	Nebilet	
	oxprenolol	Corbeton	
	pindolol	Barbloc, Visken	
	propranolol	Deralin, Inderal	
Calcium channel blockers (CCB)	amlodipine	Amlo, Cadatin (also LLA), Caduet (also LLA), Coras, Coveram (also ACEI), Exforge (also ARB), Exforge HCT (also ARB, diuretic), Nordip, Norvapine, Norvasc, Ozlodip, Perivasc, Reaptan (also ACEI), Sevikar (also ARB), Twynsta (also ARB)	
	diltiazem	Cardizem, Diltahexal, Dilzem, Vasocardol	
	felodipine	Felodil, Felodur, Plendil, Triasyn (also ACEI)	
	lercanidipine	Lercadip, Lercan, Zan-Extra (also ACEI), Zanidip, Zircol	
	nifedipine	Adalat, Addos, Adefin, Nifehexal, Nyefax	
	nimodipine	Nimotop	
	verapimil	Anpec, Cordilox, Isoptin, Tarka (also ACEI), Veracaps	
Diuretics	acetazolamide	Diamox, Glaumox	Also used in glaucoma
	amiloride	Amizide (+ HCT), Kaluril, Moduretic (+ HCT)	
	bumetanide	Burinex	
	chlorthalidone	Hygroton	
	eplerenone	Inspra	
	ethacrynic acid	Edecrin	

	frusemide	Frusax, Frusid, Lasix, Uremide, Urex	
	Hydrochlorothiazide (HCT)	Accuretic (also ACEI), Amizide (+ amiloride), Atacand Plus (also ACEI), Avapro HCT (also ARB), Co-Diovan (also ARB), Dithiazide, Exforge HCT (also ARB, CCB), Fosetic (also ACEI), Hydrene (+ triamterene), Hyforil (also ACEI), Karvezide (also ARB), Micardis Plus (also ARB), Moduretic (+ amiloride), Monoplus (also ACEI), Olmetec Plus (also ARB), Renitec Plus (also ACEI), Teveten Plus (also ARB),	
	indapamide	Coversyl Plus (also ACEI), Dapa-Tabs, Idaprex Combi (also ACEI), Indopril Combi (also ACEI), Insig, Natrilix, Perindo Combi (also ACEI)	
	spironolactone	Aldactone, Spiractin	
	triamterene	Hydrene (+ HCT)	
Lipid lowering agents (LLA)	atorvastatin	Atorvachol, Cadatin (also CCB), Caduet (also CCB), Lipitor, Lorstat, Torvastat, Trovas	
	cholestyramine	Questran	
	ezetimibe	Ezetrol, Vytorin (+ simvastatin)	
	fenofibrate	Lipidil	
	fluvastatin	Lescol, Vastin	
	gemfibrozil	Ausgem, Jezil, Lipazil, Lipigem, Lopid	
	nicotinic acid		Combined with other substances in many supplements and tonics
	pravastatin	Cholstat, Cholvastin, Lipostat, Pravachol	
	rosuvastatin	Crestor	
	simvastatin	Lipex, Ransim, Simvacor, Simvar, Simvasyn, Vytorin (+ ezetimibe), Zimstat, Zocor	
Angiotensin receptor blockers (ARB)	candesartan	Atacand, Atacand Plus (also diuretic)	
	eprosartan	Teveten, Teveten Plus (also diuretic)	
	irbesartan	Avapro, Avapro HCT (also diuretic), Karvea, Karvezide (also diuretic)	
	losartan	Cozaar, Cozavan	
	olmesartan	Olmetec, Olmetec Plus (also diuretic), Sevikar (also CCB)	
	telmisartan	Micardis, Micardis Plus (also diuretic), Twynsta (also CCB)	
	valsartan	Co-Diovan (also diuretic), Diovan, Exforge (also CCB), Exforge HCT (also CCB, diuretic)	
Other cardiovascular	ambrisentan	Volibris	Pulmonary arterial HTN
	betahistine	Seniere, Serc	Histamine analogue
	bosentan	Tracleer	Pulmonary arterial HTN
	clonidine	Catapres	Antihypertensive
	digoxin	Lanoxin, Sigmaxin	Cardiac glycoside
	glyceryl trinitrate	Anginine, Lycinate, Minitran, Nitro-Dur, Nitrolingual, Nitrostat, Transiderm-Nitro	Vasodilator
	hydralazine	Alphapress	Vasodilator

	hydroxyethylrutosides	Paroven	Chronic venous insufficiency
	iloprost trometamol	Ventavis	Primary vasodilator
	isosorbide	Duride, Imdur, Imtrate, Isomonit, Isordil, Monodur, Sorbidin	Vasodilator
	ivabradine	Coralan	Pacemaker current inhibitor
	methyldopa	Aldomet, Hydopa	Antiadrenergic
	minoxidil	Loniten	Peripheral vasodilator
	moxonidine	Physiotens	Antihypertensive
	nicorandil	Ikorel	K channel opener
	oxpentifylline	Trental	Xanthine
	phenoxybenzamine	Dibenyline, Dibenzyline	Peripheral vasodilator
	phentolamine	Regitine	Alpha blocker
	prazosin	Minipress, Pressin	Alpha blocker
	sildenafil	Revatio	Pulmonary arterial HTN
	tadalafil	Adcirca	Pulmonary arterial HTN
	terazosin	Hytrin	Alpha blocker
Diabetes			
Insulin	insulin: aspart, detemir, glargine, glulisine, isophane, lispro, neutral	Actrapid, Apidra, Humalog, Humulin, Hypurin, Lantus, Levemir, Mixtard, NovoMix, NovoRapid, Protophane	Each product contains various types and combinations of insulin
Oral hypoglycaemics	acarbose	Glucobay	
	exenatide	Byetta	
	glibenclamide	Daonil, Glimel, Glucovance (+ metformin)	
	gliclazide	Diamicron, Glyade, Nidem, Oziclide	
	glimepiride	Amaryl, Aylide, Diapride, Dimirel	
	glipizide	Melizide, Minidiab	
	linagliptin	Trajenta	
	metformin	Avandamet (+ rosiglitazone), Diabex, Diaformin, Formet, Galvumet (+ vildagliptin), Glucobete, Glucomet, Glucophage, Glucovance (+ glibenclamide), Janumet (+ sitagliptin), Metex	
	pioglitazone	Acpio, Actos, Pizaccord, Vexazone	
	rosiglitazone	Avandamet (+ metformin), Avandia	
	saxagliptin	Onglyza	
	sitagliptin	Janumet (+ metformin), Januvia	
	vildagliptin	Galvumet (+ metformin), Galvus	
Respiratory			
Broncho-dilators	eformoterol	Foradile, Oxis, Symbicort (also corticosteroid)	
	indacaterol	Onbrez	
	ipratropium	Aeron, Apoven, Atrovent, Ipratrin, Ipravent	

	nedocromil	Tilade	Preventive; not corticosteroid
	salbutamol	Airomir, Asmol, Butamol, Epaq, Ventolin	
	salmeterol	Seretide (also corticosteroid), Serevent	
	terbutaline	Bricanyl	
	tiotropium	Spiriva	
Corticosteroids	beclomethasone	Qvar	
	budesonide	Pulmicort, Symbicort (also bronchodilator)	
	ciclesonide	Alvesco	
	fluticasone	Flixotide, Seretide (also bronchodilator)	
Antibiotics	amoxycillin	Alphamox, Amoxil, Bgramin, Cilamox, Maxamox, Ranmoxy	Penicillin
	amoxycillin + clavulanic acid	Augmentin, Clamoxyl, Clavulin, Curam, GA-Amclav, Moxiclav	Penicillin + beta-lactamase inhibitor
	azithromycin	Azith, Zedd, Zithromax, Zitrocin	Macrolide
	cefaclor	Aclor, Ceclor, Karlor, Keflor, Ozcef	Cephalosporin
	cefuroxime	Zinnat	Cephalosporin
	ciprofloxacin	C-Flox, Cifran, Ciprol, Ciproxin, Loxip, Proquin	Fluoroquinolone
	clarithromycin	Clarac, Clarihexal, Clarithro, Kalixocin, Klacid	Macrolide
	clindamycin	Cleocin, Dalacin C	Lincomycin derivative
	doxycycline	Doryx, Doxsig, Doxy-50/100, Doxyhexal, Doxylin, Frakas, Vibramycin	Tetracycline
	erythromycin	E-Mycin, EES, Eryc,	Macrolide
	flucloxacillin	Flopen, Flucil, Staphylex	Penicillin
	moxifloxacin	Avelox	Fluoroquinolone
	roxithromycin	Biaxsig, Roxar, Rulide	Macrolide
	sulfamethoxazole-trimethoprim	Bactrim, Restrim, Septrim	Sulfonamide + antifolate
	tobramycin	Tobi	Aminoglycoside
Xanthines	theophylline	Nuelin	