Additional File 5 – Core components of the MoCs

MoC	Study	Referral	Assessment	Health Interventions	Follow-up	Discharge
START BACK	(1,2) STarT Back	GP, practice nurse or the local Physiotherapy Direct Access service (Physio Direct) referral to PT	PT assessment and risk stratification (SBST)	PTs deliver risk-matched group care: - All risk groups: Education + booklet The Back Book + video "Get Back Active"; - Low risk: Single session (30 minutes) of minimal intervention (education + advice + reassurance); - Medium risk: 30-minute session of education + standardized PT (exercise + manual therapy); - High risk: Education + PIPT (CBT with traditional PT)	- Patients are advised to access their GP for ongoing care in the usual way or if their condition worsens.	- Low risk: after the initial education session; - Medium risk: after a maximum of 6 sessions; - High risk: after a maximum of 12 sessions.
	(3,4) IMPaCT Back	GPs referral to PT	GP risk stratification (SBST) + PT assessment of medium and high-risk patients	GPs deliver care to: - Low risk: Single session of minimal intervention (education + reassurance + information on self-management). Pain medication if appropriate; PTs deliver risk-matched group care: - Medium risk: education + standardized PT (exercise + manual therapy); - High risk: education + PIPT (CBT with traditional PT)	- If needed, medium and high-risk patients referred for further investigations or secondary care.	- Low risk: after the initial education session; - Medium risk: after a maximum of 6 sessions; - High risk: after a maximum of 12 sessions.
	(5) Ireland	GP or PT team refer to the Back Pain Clinic	PT assessment and risk stratification (SBST)	PTs deliver risk-matched group care: - Low risk: 1.5-hour small group session of education + exercise to promote active self-management; - Medium risk: Four 90-minute group sessions (8-10 patients) of education + generic exercise over 4 weeks; - High risk: Four 120-minute group sessions (4-6 patients) of exercise (as medium risk group) + problem solving approach + CBT to promote self-management	Not reported	- Low risk: after the initial education session; - Medium risk: after 12 weeks; - High risk: after 12 weeks.
	(6) Denmark	GPs referral to PT	GPs assessment + PT assessment and risk stratification (SBST)	PTs deliver risk-matched group care: - All risk groups: Education (education + advice + reassurance + booklet similar to *The Back Book*) - Low-risk: minimal intervention (education + advice + reassurance) - Medium risk: individualized PT treatment + intervention focusing prevention of new LBP episodes - High risk: individualized PIPT (CBT and/or behavioural techniques with traditional PT)	Not reported	Not reported
SCOPiC	(7–9)	GP or other HCP refer to the SCOPiC sciatica clinic	PT assessment and risk stratification (SBST)	PTs deliver risk-matched group care: - Subgroup 1 (low risk): 30-minute sessions (advice + education + self-management support + sciatica booklet) - Subgroup 2 (medium risk with score ≤3 or high risk with score ≤2): one 45-minute session + 30-minute sessions of individualised treatment (advice + reassurance + education + exercise + manual therapy + acupuncture + sciatica booklet) - Subgroup 3 (medium risk with score =4 or high risk with score ≥3): Referral to a fast-track care pathway at the primary/secondary care interface services.	- Subgroups 1 and 2: Patients are able to access other care via their GP. - Subgroup 3: specialist spinal PT assessment + referral to imaging (MRI or alternative) + referral to specialist clinics services (orthopaedics, neurosurgery or pain clinic).	- Subgroup 1: after up to 2 sessions within 4 weeks; - Medium risk: after up to 6 sessions within 6 to 12 weeks; - High risk: not reported

MATCH	(10,11)	PCPs referral: - Medium risk patients to PT or CAM - High-risk patients to psychologist and PT	PCP assessment and risk stratification (SBST)	PCPs deliver care to: - Low risk: Reassurance + self-management recommendations + online DVDs PTs or CAM professionals deliver care to: - Moderate risk: Self-management recommendations + PT-led exercise and yoga. For patients not interested these treatments, refer to passive options (acupuncture, chiropractic or massage) PTs and psychologists: - High risk: PIPT and CBT (access to CBT is very limited)	Low and medium risk patients: Not reported High-risk patients: Proactive follow-up within 2 weeks by PCPs	Not reported
TARGET	(12–14)	PCPs referral to PIPT	PCP assessment and risk stratification (2-item Chronic Low Back Pain Questionnaire + SBST for patients in acute stage)	- PCPs deliver education and pain medication to high-risk patients - PTs deliver PIPT (cognitive behavioural training, motivational interviewing, pain-coping skills and activity-based treatments that include graded activity and graded exposure)	Not reported.	Not reported. There are no limits placed on the duration of any therapies or treatments.
BETTERBACK©	(15–18)	- Self-referral to the PHC PT rehabilitation clinics - Referral from the PHC general practices	PT assessment and risk stratification (SBST)	PTs deliver treatment matched to functional impairments based on SBST results (BetterBack part 1): - Individualised information + neuromusculoskeletal mobilisation techniques if indicated + exercise + patient education (brochure): - Low-risk: 1-3 sessions - Medium-risk: ≥4 sessions - High-risk: ≥4 sessions with additional training + education with a behavioural approach.	PT assessment and evaluation of treatment outcomes – if needed PT group based-care (BetterBack part 2): - Group-based education: One 90-minute session (2-10 patients) - Group training (6 weeks, 2x/week): graded training of posture, motor control and, if needed, range of movement exercises	Not reported
Low Back and Radicular Pain Pathway	(19,20) National	GP, self-referral to a chiropractor, osteopath or PT and 111 telephone service	GP, chiropractor, osteopath or PT assessment and risk stratification (SBST)	GP, chiropractor, osteopath or PT initial management: - Advice + information + pain medication + PT core therapies (education + manual therapy + exercise) with a 2-week review. - If no improvement, referral to TTP assessment + referral to imaging (if indicated) within 6 weeks.	- If imaging concordant with structural cause of sciatica, referral to epidural injection or surgery (after 8-12 weeks) - If non-concordant structural cause, referral to CPPP (12-18 weeks) - If no improvement, referral to Specialist Pain Management Services (18 weeks) - Pain management programmes (physical, psychological and behavioural interventions)	Patients can be discharged at any point along the pathway upon improvement of the LBP.
	(21) North	GP referral or other first contact professional	GP or other first contact professional assessment and risk stratification (SBST)	GP or other first contact professional initial management: - Advice on self-management or referral to secondary care or referral to TTP - If referral to TTP: assessment + referral to a combination of core therapies (education + manual therapy + exercise) or intensive CPPP (residential programme of intensive exercise + education + support with long-term self-management)	- If not improved, referral for Pain Management Services and specialist spinal surgical options	- After initial management - After treatments: not reported

	(22,23) North East	GP referral	GP risk stratification (SBST) + referral to TTP	GP deliver care to low-risk patients: - Low risk: advice + education TTP assessment and delivery of risk-matched group care: - Referral to further investigations if necessary; - Moderate to high risk: Core therapies (PT incorporating exercise, manual therapy or acupuncture) or CPPP (100-hour residential, combined physical and psychological therapies program for a small number of patients)	Not reported	- Low-risk patients: after initial consultation
Beating Back Pain Service	(24)	GP, PT or osteopath referral to BBPS	No assessment before group session	GP and occupational therapist deliver care to all patients - 2h group session of education on pain and self-management + BBPS pack (booklet + CD with information and mobility and strength exercises) + SBST assessment + referral to combination of care according to patient preference (individualized combination of acupuncture, self-management groups and/or BBPS packs): - Acupuncture: Up to 6 weekly sessions (30 minutes) of individualized TCM acupuncture treatment; - Self-management groups: group sessions of education on self-management + goal setting + mindfulness + CBT. - BBPS pack	Not reported	Not reported
North East Essex PCT service	(25)	GP referral to the manual therapy service	GP assessment	- GP deliver usual care (advice + reassurance + analgesia) to all patients for 4-6 weeks + referral to chiropractor/osteopath/PT according to patient preference. - Chiropractor/Osteopath/PT care: Up to 6 sessions of manual therapy or additional treatments with GP approval	If no improvements, referral to psychotherapy/CBT or referral to secondary care via GP recommendation (surgical/ radiological/ pain consultant)	- Discharge and referral back to GP after chiropractor/ Osteopath/PT care with a report of recommendations for further management
ISAEC	(26)	PCP referral to ISAEC (could order MRI)	APC evaluation and stratification by pattern diagnosis	APC deliver care according to clinical presentation patterns: - Back dominant pattern (surgery unlikely): APC education and management (Physiatry/pain clinic, counselling, rheumatology, self-management, allied health management) - Leg dominant (surgery likely): referral to spine surgeon (imaging, blocks, surgery, nonoperative)	- Back dominant pattern (surgery unlikely): recommendations communicated to referring PCP. - Leg dominant (surgery likely): APC education and management (Physiatry/pain clinic, counselling, rheumatology, self-management, alliead health management) + recommendations communicated to referring PCP.	Not reported
Saskatchewan Spine Pathway	(27)	Physician referral to SSP clinic	Patients triage into Group A (non-surgical management) or Group B (spine surgeon assessment)	- Group A: education including self-care instruction, medication advice and/or mechanical therapies - Group B – surgical consultation (imaging and surgery)	- Group A: follow-up by the SSP clinic when required	- Group A: Discharge after care delivery - Group B: Not reported
	(28)	- Group A: Referred by neurosurgeons at the SSP clinic	Physicians (at PHC) or specialized PTs (at SSP clinics) assessment	- Group A (SSP clinic): assessment (directly) or reassessment (from PHC referral) of pattern diagnosis + treatment according to SSP classification (pattern diagnosis). If patient improves, continue treatment in PHC.	Group A: If no improvement: - Pattern 1 e 2 – Refer back to PHC with recommendations for additional mechanical treatment and referral to	Not reported

		- Group B: Referred by physicians at primary care	If red flags present, referral for emergency (imaging + surgery consultation)	- Group B (PHC referral): treatment according to SSP classification in PHC. Treatment according to SSP classification: - Pattern 1, 2 and 4: Reassurance + Advice and Information + Treatment schedule (position, movement, pharmacology and adjunct therapies) - Pattern 3: Similar, but exclude exercise.	surgery if symptoms persist after 6 months; - Pattern 3 – Urgent referral for imaging + surgery consultation if pain persist after 6 weeks; - Pattern 4 – Non-urgent referral for imaging + surgery consultation. Group B (PHC referral): If no improvement, referral to SSP clinic.	
Back pain Assessment Clinic	(29)	GP referral to Royal Melbourne Hospital + Surgeon's referral to BAC	Rheumatologist, neurosurgeon, orthopaedic spinal surgeon or APP (PTs) assessment	If BAC consultation: - Referral to community treatment services (12-week community-based spinal rehabilitation programme seen within 2–4 weeks) - Referral to rheumatology, orthopaedics, neurosurgery or pain services	- Outpatient specialist clinics consultations (Rheumatology, Orthopaedics, Neurosurgery, Pain services)	- To initial referrer after BAC assessment; - After orthopaedics or neurosurgery consultations - After community treatment services: Not reported

Abbreviatures:
APC - Advanced Practice Clinician; APP - Advanced Practice Physiotherapist; BAC – Back pain Assessment Clinic; BBPS – Beating Back Pain Service; CAM - Complementary and Alternative Medicine; CBT – Cognitive Behavioural Techniques; CCCP - Combined Physical and Psychological Therapies program; EBP – Evidence-Based Practice; GPs – General Practitioner; HCP – Health Care Provider; ISAEC – Inter-professional Spine Assessment and Education Clinics; LBP – Low Back Pain; MoC – Model of Care; NERBPP – North East Low Back and Radicular Pain Pathway; PCP – Primary Care Provider; PHC – Primary Healthcare; PIPT - Psychologically Informed Physical Therapy; PT – Physiotherapy; PTs – Physiotherapists; SBST – Start Back Screening Tool; SSP – Saskatchewan Spine Pathway; TCM – Traditional Chinese Medicine; TTPs - Triage and Treat practitioners;