

Supplementary Table 1. Candidate instruments for the PsA core instrument set.

2016 PsA Core Outcome Set	Candidate outcome measurement instruments
MSK disease activity: presence of disease (signs and) symptoms, includes peripheral joints, enthesitis, dactylitis, and the spine	
MSK disease activity/Arthritis	<p><u>Physician assessed with patient input (tenderness)</u> SJC/TJC (76/78) – includes feet SJC/TJC (66/68) – includes feet SJC/TJC (44/46) – includes feet</p> <p><u>The patient completes a questionnaire. Patient reported (PROMs)</u> PASE questionnaire RADAI Self-Report Joint Count PEST questionnaire Stockerau Activity Score for Psoriatic Arthritis (SASPA)- German version only</p> <p><u>Arthritis-synovitis assessed using ultrasound</u> Ultrasound Synovitis (Y/N) – Tools are in development Contrast-Enhanced Ultrasound (CEUS) – Tools are in development Ultrasound joints (synovitis, erosion, joint space narrowing, power doppler) – Tools are in development</p> <p><u>Arthritis-synovitis assessed using MRI: the patient undergoes an MRI of both hands and feet. A trained musculoskeletal radiologist performs the score by looking at the MRI images</u> OMERACT PsA Magnetic Resonance Imaging Scoring (PsAMRIS): assesses hands and feet joints synovitis, bone marrow edema, and bone erosion + tenosynovitis, periarticular inflammation, and bone proliferation</p>
MSK disease activity/Dactylitis	<p><u>Physician assessed with patient input (tenderness)</u> Dactylitis count x tenderness grading 0-3 (a la Ritchie, range 0-60) Dactylitis count (0-20) Leeds Dactylitis Index (LDI) - Leeds dactylometer, circumference ratio of fingers LDI basic - Leeds dactylometer</p> <p><u>Dactylitis assessment using ultrasound</u></p>

	<p>Ultrasound dactylitis (contiguous inflammation, power doppler) – Tools are in development</p>
<p>MSK disease activity/Enthesitis</p>	<p><u>Physician assessed with patient input (tenderness)</u> Leeds Enthesitis Index (LEI) – tenderness at 6 sites (score 0-6, Lateral epicondyles, Medial femoral condyles, Achilles tendons) Spondyloarthritis Research Consortium of Canada Index (SPARCC) – tenderness at 18 sites (score 0-16, tbc) Maastricht Ankylosing Spondylitis Enthesis Score (MASES) – tenderness at 13 sites (score 0-13, tbc) Modified MASES – tenderness at 15 sites (score 0-15, tbc) Impact Index – tenderness at 4 sites (score 0-4, Achilles tendons, Plantar Fascias)</p> <p><u>Enthesitis assessment using ultrasound</u> MAdrid Sonographic Enthesitis Index (MASEI) Glasgow Ultrasound Enthesitis Scoring System (GUESS) Ultrasound entheses (thickening, calcification, fluid, erosion, PD)- Tools are in development</p>
<p>MSK disease activity/Spine</p>	<p><u>PROMs</u> Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) Bath Ankylosing Spondylitis Patient Global Score (BAS-G)</p> <p><u>Physician performed using a measuring tape (anthropometric measurements)</u> Spinal mobility cervical: cervical rotation Spinal mobility cervical: occiput to wall Spinal mobility cervical: tragus to wall Spinal mobility thoracic: chest expansion Spinal mobility lumbar: modified Schober Spinal mobility lumbar: right and left lateral lumbar flexion Hip joint range of motion: intermalleolar distance BASMI index (multiple measurements, gives a final score)</p> <p><u>The patient undergoes an MRI of the pelvis. A trained musculoskeletal radiologist performs the score by looking at the MRI images</u> ASAS/OMERACT MRI definition for sacroiliitis (MRI pelvis, SI joints)</p>

Skin disease activity: presence of disease (signs and) symptoms skin and nails	
Skin disease activity/Skin	<p><u>Physician performed by inspection of (looking at) the patient's skin</u></p> <p>Psoriasis Area and Severity Index (PASI) Psoriasis Body Surface Area (BSA) Target psoriatic skin lesion score (0-12, 12 worst) Physician global assesment of psoriasis (0 clear to 5 severe) (PSGA/PGA) Mean Body Surface Area</p> <p><u>PROMs</u></p> <p>Psoriasis Symptom Inventory (PSI) Psoriasis Symptom Diary (PSD) Worst Itch VAS Itch Severity Index (no to worst possible itch) VAS Patient Assessment Skin Status (Likert) PsAID NRS 3 Skin problems (1 week recall) PASI (SAPASI)</p>
Skin disease activity/Nail	<p><u>Physician performed by inspection of (looking at) the patient's nails</u></p> <p>Nail Psoriasis Severity Index (NAPSI) (0-80 finger nails only; or 0-160 finger and toe nails) Modified Nail Psoriasis Severity Index (mNAPSI) (0-130) Target NAPSI score (0-13) Physician global assesment of nail disease (VAS Nail Psoriasis) Psoriasis Nail Severity Score (PNSS, range 0-80) Bath Nail Score (0-40, scores finger nails for pitting, onycholysis, hyperkeratoss, dystrophy)</p>
Pain: experiencing an unpleasant physical sensation that aches, hurts in one or more joints, or the spine	
	<p><u>PROMs</u></p> <p>VAS Pain (now) VAS Pain (1 week recall) VAS Pain (recall not specified) NRS Pain (now) NRS Pain (1 week recall) PsAID NRS #1 Pain (1 week recall) Arthritis Impact Measurement Scales (AIMS1) Pain</p>

	Arthritis Impact Measurement Scales (AIMS2) Pain SF-36 Bodily Pain PROMIS Pain Intensity short form (SF) PROMIS Pain Interference SF
Patient Global: patient-reported disease-related health status	
	<u>PROMs:</u> <u>Patient global due to PsA (PsA Psoriasis and Arthritis/MSK global)</u> VAS (today) NRS (today) NRS (1 week recall) VAS (1 week recall) VAS (recall not specified) <u>Patient global due to psoriasis (PsA Psoriasis global)</u> VAS (today) NRS (today) NRS (1 week recall) VAS (1 week recall) <u>Patient global due to arthritis (PsA Arthritis global)</u> VAS (today) NRS (today) NRS (1 week recall) NRS (1 day recall) VAS (1 week recall)
Physical Function: being able to perform physical activities (includes upper/lower extremity functioning, balance)	
	<u>PROMs assessing activities</u> Health Assessment Questionnaire Disability Index (HAQ-DI) Modified Health Assessment Questionnaire (mHAQ) SF-36 Physical Function SF-36 Physical Component Score SF-12 Physical Health Component Score PROMIS Physical Function SF AIMS2 Mobility AIMS2 Physical AIMS2 Dexterity AIMS2 Arm Function PsAID NRS #5 Functional capacity (1 week recall)

	<p><u>PROMs assessing spine function</u> Bath Ankylosing Spondylitis Functional Index</p> <p><u>Physician's impression of the patient's functional level as it related to ADLs/IADLs</u> ACR functional class (4 categories from fully functional to fully dependent)</p>
HRQoL/Life Impact: aspects of physical, emotional, and social life are included in HRQoL	
HRQoL	<p><u>PROMs</u> SF-36 MCS SF-36 PCS Psoriatic Arthritis Quality of Life (PsAQoL) PsAID9 PSAID12 VITACORA19-Spanish only Dermatology Life Quality Index (DLQI) Ankylosing spondylitis quality of life (ASQoL) Euro-Quality of Life (Euro-QoL, multiple: 5D, 3L, 5L) Psoriasis index of quality of Life (PSORIQoL)</p>
Fatigue: experiencing fatigue, tiredness, lack of energy, feeling worn out, or exhausted	
	<p><u>PROMs</u> Functional Assessment of Chronic Illness Therapy (FACIT)-Fatigue SF-36 Vitality PROMIS Fatigue SF VAS Fatigue NRS Fatigue PsAID NRS #2 Fatigue (1 week recall) Fatigue Severity Score (FSS) Fatigue Assessment Scale (FAS) Bristol RA Fatigue (BRAf) (3 NRS scales) Multidimensional Assessment of Fatigue (MAF)</p>
Systemic inflammation: blood tests such as the acute phase reactants ESR and/or CRP	
	<p><u>Laboratory assays from a patient's blood/serum</u> C-Reactive Protein (CRP) Erythrocyte Sedimentation Rate (ESR)</p>
MIDDLE CIRCLE	

Structural damage: joint deformity, damage, instability to one or more joints or the spine	
Structural damage/Peripheral joints	<u>Physician assessed</u> Damaged/Deformed Joint Count
Radiographic Damage/ Peripheral joints	<u>The patient undergoes an XRay of the hands and feet. A trained musculoskeletal radiologist or rheumatologist performs the score by looking at the XRay images.</u> Reductive X-ray Score for Psoriatic Arthritis (ReXSPA) PsA Modified van der Heijde-Sharp (vdH-S) Score Modified Steinbrocker Scoring Method PsA Ratingen Score (PARS) Radiographic Erosion or Osteolysis (Y/N) Radiographic score that includes juxtaarticular new bone formation
Radiographic Damage/ Spine	<u>The patient undergoes an XRay of the spine. A trained musculoskeletal radiologist or rheumatologist performs the score by looking at the XRay images</u> Psoriatic Arthritis Spondylitis Radiology Index (PASRI) Bath Ankylosing Spondylitis Radiology Index (BASRI) -Spine Bath Ankylosing Spondylitis Radiology Index (BASRI) -Hip Bath Ankylosing Spondylitis Radiology Index (BASRI) -Total Modified Stoke Ankylosing Spondylitis Spine Score (mSASSS) Radiographic Ankylosing Spondylitis Spinal Score (RASSS)
MRI damage/Peripheral joints (also assesses activity, see MSK disease activity/Arthritis)	<u>The patient undergoes an MRI of the hands and feet. A trained musculoskeletal radiologist performs the score by looking at the MRI images.</u> OMERACT PsA Magnetic Resonance Imaging Scoring (PsAMRIS): assesses hands and feet joints synovitis, bone marrow edema, and bone erosion + tenosynovitis, periarticular inflammation, and bone proliferation
Participation: includes family roles, social activities, leisure activities, and employment	
	<u>PROMs</u> Social Role Participation Questionnaire (SRPQ) SF-36 Role-Emotional SF-36 Role-Physical PROMIS Ability to Participate Social SF Work Productivity Survey (WPS) Impact of PsA on Work Productivity (VAS)

	Work Limitations Questionnaire (WLQ) Work Productivity and Activity Impairment (WPAI -SHP) PsAID NRS #4 Work and/or leisure activities (1 week recall) PsAID NRS #11 Social Participation (1 week recall)
Emotional well-being: captures depressive mood, anxiety, embarrassment, self-worth, frustration, and stress	
Emotional well-being/Mental health	<u>PROMs</u> SF-36 Emotional well-being SF-36 Mental Health Component SF-12 Mental Health Component PsAID NRS #9 Anxiety, fear, uncertainty (1 week recall) PsAID NRS #10 Embarrassment and/or shame (1 week recall) PsAID NRS #12 Depression (1 week recall)
Anxiety	<u>PROMs</u> Hospital Anxiety and Depression Scale (HADS) Anxiety PROMIS Emotional Distress – Anxiety SF
Depression	<u>PROMs</u> HADS Depression PHQ9 PROMIS Emotional Distress - Depression SF
Economic cost: reflects resource use/economic impact of disease	
	EQ-5D (3 level and 5 level) SF-6D Willingness to pay questionnaire (WTP)
RESEARCH AGENDA	
Stiffness: experiencing resistance or rigidity in one or more joints, tendons, or the spine that prevents smooth and full range of motion	
	<u>PROMs</u> NRS Stiffness VAS Stiffness
Sleep (quality): being able to have a restful sleep	
	VAS Sleep PsAID NRS #7 Sleep (1 week recall) PROMIS Sleep Disturbance SF
Independence: being able to maintain one's independence, not being dependent on others for help	

Treatment burden: impact of treatment and monitoring of disease or treatment (for example financial or time commitment)	

Grey type designates instruments that cannot be used in their current form because they are either in development, do not have a corresponding English version, or are incompletely described in the publication. PsA: psoriatic arthritis; MSK: musculoskeletal; SJC/TJC: swollen/tender joint count; PROMIS: Patient Reported Outcomes Measurement Information System; BASMI: Bath Ankylosing Spondylitis Metrology Index; ASAS: Assessment of SpondyloArthritis international Society; SI: sacroiliac; PGA: Patient Global Assessment; VAS: Visual Analogue Scale; PsAID: Psoriatic Arthritis Impact of Disease; NRS: numeric rating scale; PROMIS: Patient Reported Outcomes Measurement Information System; ADL: Activities of Daily Living; IADL: Instrumental Activities of Daily Living; ACR: American College of Rheumatology; HRQoL: health-related quality of life; RA: Rheumatoid Arthritis; PHQ: Patient Health Questionnaire.

Sources:

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