Evolent Clinical Guideline 1504 for Measurable Progressive Improvement

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"Evolent" refers to Evolent Health LLC and Evolent Specialty Services, Inc. 		
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STATEMENT

General Information

It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.

Purpose

This guideline provides minimal clinical thresholds using specific, measurable, and functional treatment goals and/or outcome measures in the determination of improved, lasting, and sustained outcomes. These thresholds will assist in medical necessity reviews of billed clinical services by network practitioners.

All recommendations in this guideline reflect practices that are evidence-based and/or supported by broadly accepted clinical specialty standards.

Special Note

Outcome measures and pre-determined treatment goals (specific, measurable, and functional) must be used with each patient. These measures must be clearly defined in the patient record to ascertain the amount or degree of change over time and the documentation must provide evidence of lasting, sustainable progress with treatment.

MEASURABLE IMPROVEMENT

Defined

Meaningful clinical changes are calculated outcome measures using a standardized assessment tool. Using standardized assessment tools in the management of neuromusculoskeletal disorders follows Physical Medicines professional standards. These include:

- Minimal Clinically Important Change (MCIC)
- Minimal Clinically Important Differences (MCID)
- Minimal Detectable Change (MDC)
- Minimal Important Change (MIC)
- Maximum Therapeutic Benefit (MTB)
- Smallest Detectable Change (SDC)
- Standard Error of Measurement (SEM)
- Small Meaningful Change (SMC)
- Smallest Real Change (SRC)

Scope

In determining meaningful progress toward goals (MCIC and MTB) the record must include documented relevant standardized outcome assessments. The calculated outcome measures can be used to set goals and determine treatment effectiveness. Progress towards goals should be assessed at predetermined time periods and supported by anticipated meaningful clinical change based on the treatment plan goals, e.g.:

- Recovery patterns for neuromusculoskeletal conditions involving the low back, neck, and headache disorders show that > 50% of the overall improvement with care occurs within 4 - 6 weeks
- When patients are categorized via predictive modeling, the percentage of those showing significant improvement within 6 weeks rises considerably [(1)]
- This organization requires all practitioner records must evaluate and document whether treatment is resulting in progressive and sustained improvement, including clear, specific, and measurable improvement in the patient's pain and function.
- Every two weeks or at regular intervals as appropriate for the documented condition
- Measured by one or more of the below methods for each anatomic region (listed below in ‡Measurable Improvement Acceptable Thresholds) [(2)]
- If no functional tool is available for the patient's condition it is expected the practitioner will develop specific, measurable, and functional goals

Acceptable Thresholds

5 Times Sit to Stand Test (5XSTS) [(3)]

- Older Adults: 5 repetitions of this test exceeding the following can be considered to have worse than average performance
  - 11.4 s (60 to 69 years)
  - 12.6 s (70 to 79 years)
  - 14.8 s (80 to 89 years)
- MCID
  - Vestibular Disorders = 2.3 seconds
- MDC
  - Vestibular Disorders = 3.6 to 4.2 seconds

6-Minute Walk Test (6MWT) for Older Adults

- MDC
  - Alzheimer's Disease: 33.5 m (110 feet) [(4)]
  - Hip Osteoarthritis or knee osteoarthritis that later received a total joint replacement: 61.34 m [(5)]
  - Huntington's Disease – chronic progressive [(2)]
    - Premanifest = 39.22 m
    - Manifest = 86.57 m

        - Early-stage = 56.6 m
        - Middle-stage = 126.14 m
        - Late-stage = 70.65 m
    - Multiple Sclerosis – chronic progressive: 88 m [2]
    - Multiple Sclerosis – chronic progressive = 20% [2]
    - Older Adults: 58.21 m [4]
    - Parkinson's Disease: 82 m [2,4]
    - Stroke – chronic: 34 – 37 m or 13% change [4]
    - Stroke – subacute: 61 m
- MIC
    - Multiple Sclerosis – chronic progressive (mild to severe): 21.56 m (patient anchor) [2]
    - Multiple Sclerosis – chronic progressive (mild to severe): 9.06 m (clinician anchor) [2]
    - Multiple Sclerosis – chronic progressive (deterioration): -53.35 m (patient anchor) [2]
    - Multiple Sclerosis – chronic progressive (deterioration): -55.06 m (clinician anchor) [2]
- SEM
    - Multiple Sclerosis – chronic progressive: 32 m [2]
    - Stroke – subacute: 22 m [2]
    - Stroke – chronic: 12 – 18 m [4]
- SMC
    - Older adults with limited mobility: 20 m (66 feet) [4]
    - Older adults with stroke: 22 m (72 feet)
    - Stroke – subacute: 21 m (anchor stairs) [2]
    - Stroke – subacute: 54 m (anchor-walk block) [2]
- $SRC_{individual}$
    - Multiple Sclerosis – chronic progressive (mild to severe): 67.22 m (patient anchor) [2]
    - Multiple Sclerosis – chronic progressive (mild to severe): 68.32 m (clinician anchor) [2]

10 Meter Walk Test (10MWT) [6]

- Normative Values (m/s) - Healthy Adults
    - Men/Women (20s) = 1.358/1.341
    - Men/Women (30s) = 1.433/1.337
    - Men/Women (40s) = 1.434/1.390

- Men/Women (50s) = 1.433/1.313
- Men/Women (60s) = 1.339/1.241
- Men/Women (70s) = 1.262/1.132
- Men/Women (80/90s) = 0.968/0.943

- MDC
  - Huntington's Disease
    - Pre-manifest, comfortable = 0.23 m/s
    - Manifest, comfortable = 0.34 m/s
    - Early-stage, comfortable = 0.20 m/s
    - Middle-stage, comfortable = 0.46 m/s
    - Late-stage, comfortable = 0.29 m/s
  - Multiple Sclerosis = 0.26 m/s
  - Parkinson's Disease (comfortable) = 0.18 m/s
  - Parkinson's Disease (fast) = 0.25 m/s
  - Spinal Cord Injury (incomplete < 12 months) = 0.13 m/s
  - Stroke (acute) = 0.11 m/s
  - Stroke (chronic > 6 months, comfortable) = 0.18 m/s
  - Stroke (chronic > 6 months, fast) = 0.13 m/s
- MCID
  - Stroke (subacute) = 0.16 m/s

Activities of Daily Living Scale of the Knee Outcome Survey

- MCID
  - = 7.1% [7]
- MDC
  - = 2.23 [8]

Activity-Specific Balance Confidence Scale (ABC)

- MCID
  - Vestibular Disorders = 18.1% [9]
- MDC
  - Parkinson's Disease = 11 – 13% [10,11]
  - Parkinson's Disease – chronic progressive = 13 [2]
  - Cerebral Vascular Accident = 14%
- SEM
  - Parkinson's Disease – chronic progressive = 11% [2]

- Parkinson's Disease = 4.01 [10]
- Stroke – acute and chronic = 5.05 – 6.81 [10]
- Older adults = 1.2 [10]

- SMC
  - Older adults = 7 points

Berg Balance Scale (BBS)

- MIC [2]
  - Multiple Sclerosis: deterioration (clinician anchor) = -0.60
  - Multiple Sclerosis: deterioration (patient anchor) = -1.41
- MCID [12]
  - Subacute stroke (assisted walking): 5 points
  - Subacute stroke (unassisted walking): 4 points
- MDC
  - = 6.2 – 6.5 points [13]
  - Alzheimer's Disease and Progressive Dementia = 1.92 [14]
  - Huntington's Disease [2]
    - Chronic progressive premanifest = 1
    - Chronic progressive manifest = 5
    - Chronic progressive early-stage = 4
    - Chronic progressive middle-stage = 5
    - Chronic progressive late-stage = 5
  - Older adults = 8 – 10.5 points [14,15]
  - Parkinson's Disease = 5 points [2]
  - Stroke (acute) = 6 (90%) [2]
  - Stroke (acute) = 7 (95%) [2]
  - Stroke (chronic) = 2.7 points [14]
  - Stroke (chronic/stable) = 4.66 – 6.7 [2]
- SEM
  - Alzheimer's Disease and Progressive Dementia = 0.97 [14]
  - Stroke (acute) = 2.49 [2]
  - Stroke (chronic/stable) = 1.49 – 2.4 [2]
  - Traumatic Brain Injury = 1.65 [16]

Bournemouth – Back Questionnaire [17]

- Acute: change of 26 points

- Chronic: change of 18 points

NOTE: It is recommended that the Bournemouth be used at baseline and for every 2 - 4 weeks or 6 - 12 visits thereafter within the treatment program to measure progress

Bournemouth – Neck Questionnaire [18]

- A change of 13 points or 36% is considered clinically significant improvement

NOTE: It is recommended that the Bournemouth be used at baseline and for every 2 - 4 weeks or 6 - 12 visits thereafter within the treatment program to measure progress

Bruininks-Oseretsky Test of Motor Proficiency, 2nd Edition (BOT™-2) [19]

- MCID
  - Children aged 3-6 years with intellectual disability
    - = 6.5 (BOT™-2-SF Standard Scores)
  - Children aged 4-21 years with intellectual disability
    - = 6.5 (aged 4-12 years) (BOT™-2-SF standard scores)
    - = 7.4 (aged 13-21 years) (BOT™-2-SF standard scores)
    - Balance subtest: children with Cerebral Palsy = 2.54 [20]
- MDC
  - Children aged 3-6 years with intellectual disability
    - = 7.4 (BOT™-2-SF Standard Scores)
  - Children aged 4-21 years with intellectual disability
    - = 4.2 (aged 4-12 years) (standard scores)
    - = 7.4 (aged 13-21 years) (standard scores)
  - Children aged 7-10 with fetal alcohol syndrome
    - = 6.1 (BOT™-2-SF Raw scores)
    - Balance subtest: children with Cerebral Palsy = 9.61
- SEM
  - Children aged 3-6 years with intellectual disability
    - = 1.6 (BOT™-2-SF standard scores)
  - Children aged 7 – 9 years with fetal alcohol disorders= 2.2 (BOT™-2-SF raw score) / 2.1 (BOT™-2-SF standard score)
  - Balance subtest in children with Cerebral Palsy = 0.70

Disability of Arm, Shoulder, and Hand (DASH)

- MCID [21]
  - Elbow Arthroplasty (much worse or much better) = 19 points
  - Elbow Arthroplasty (somewhat better or somewhat worse) = 10 points

- Elbow Arthroplasty (no change) = -3 points
- Musculoskeletal Upper Extremity (Adults) = 10.2

- MDC
  - Humeral Joint Pain and Fractures = 16.1 (DASH) [21]
  - Musculoskeletal Upper Extremity (Adults) = 10.7 – 12.2 (90% CI) [21]
  - Musculoskeletal Upper Extremity (Adults) = 12.75 (95%CI) [21]
  - Shoulder = 10.7% (90%CI) [22]
  - Shoulder = 12.75% (95%CI) [22]
- SEM
  - Humeral Joint Pain and Fractures = 5.82 (DASH) [21]
  - Musculoskeletal Upper Extremity (Adults)= 4.6 – 5.22 [21]
  - Osteoarthritis = 2.27 (DASH 0-3*****) [21,23]
  - Osteoarthritis = 3.26 (DASH 0-6*****) [21,23]
  - Osteoarthritis = 4.49 (DASH 0-12***** Osteoarthritis) [21,23]

**NOTE: ***Paired differences of the DASH score; DASH 0 is mean score preoperative, DASH 3 is mean score at 3 months, DASH 6 is mean score at 6 months, and DASH 12 is mean score at 12 months.

Disability of Arm, Shoulder, and Hand (QuickDASH) [24]

- MCID
  - Upper Extremity (whole) = 8 points
- MDC
  - = 11 – 17.2 points (90%CI)
  - = 20.4 points (95%CI)
- SEM
  - = 6.43 (very much improved)
  - = 3.26 (much improved)
  - = 3.37 (minimally improved)
  - = 10.22 (no change)

Dizziness Handicap Inventory (DHI)

- MCID
  - Benign Paroxysmal Positional Vertigo = decrease from 18.05 at the first day to 9.54 at 30 days [25]
  - Vestibular Disorders = change of 18 points (95% CI, pretreatment and posttreatment scores difference) [25,26]
- MDC

- Multiple Sclerosis = 22.50 [25]
- Vestibular Disorders = 17.18 points [26]

- SEM
  - Vestibular Disorders = 6.2 [25,26]

Dynamic Gait Index (DGI)

- MDC
  - Multiple Sclerosis = 4.19 – 5.54 [27]
  - Stroke = 4 points [27]
  - Stroke (change) = 16.6% [27]
  - Stroke (chronic) = 2.6 points [27]
  - Parkinson's Disease = 13.3% [27,28]
  - Parkinson's Disease and Older Adults = 2.9 points [27,28]
  - Vestibular Disorders = 3.2 points [27,29]
- SEM
  - Older Adults = 1.04 points [27]
  - Multiple Sclerosis (inter-rater reliability) = 1.51 points [27]
  - Multiple Sclerosis (intra-rater reliability) = 2.00 points [27]
  - Stroke (chronic) = 0.71 [27]
  - Stroke (inter-rater reliability) = 0.94 [30]
  - Stroke (test-retest condition) = 0.97 [30]
  - Vestibular Disorders = 2.8 points [27,29]

Falls Self Efficacy Scale/Falls Efficacy Scale-International (FES-I) [31]

- MDC
  - Multiple Sclerosis = 0.52 points
  - Older Adult (Hip fracture) = 17.7 points [32]
  - Vestibular Disorders = 8.2 points
- SEM
  - Multiple Sclerosis = 0.19 points
  - Oder Adult (Hip Fracture) = 6.4 points [32]
  - Vestibular Disorders = 3.0 points

Foot and Ankle Ability Measures (FAAM) [33,34]

- MCID
  - Activities of Daily Living (subscale) = 8% points
  - Sport (subscale) = 9% points

- MDC
  - Activities of Daily Living (subscale 95% CI) = 5.7
  - Sports (subscale 95% CI) = 12.3
- SEM
  - Activities of Daily Living (subscale) = 2.1
  - Sports (subscale) = 4.5

Fear Avoidance Belief Questionnaire (FABQ)

- MCIC
  - Arthroscopic subacromial decompression (following) = -5.0 [35]
- MCID [36]
  - Lower Back Pain = 13 points
  - Physical Activity (Pelvic Girdle Pain) = 25%
- MDC
  - Low back pain = -5.4
  - Physical Activity (Pelvic Girdle Pain) = 6.1 [36]
  - Physical Activity (Subscale) = 12 points [37]
  - Physical Activity (Worker UE injury) = 8 points (change scores equivalent to 30-33% of scale) [36]
  - Work (Subscale) = 9 points [37]
- SEM
  - Physical Activity (Pelvic Girdle Pain) = 2.20 [36]

Functional Gait Assessment (FGA) [38]

- MCID
  - Older Adults = 4 points (from interim to end of care) [39]
  - Vestibular Disorders = 4 points [9]
  - Vestibular Disorders = 18.1%
- MDC
  - Parkinson's Disease = 4 points [39]
  - Stroke (acute and chronic) = 4.2 [39]
  - Stroke (acute and chronic) = 14.1% [39]
  - Vestibular Disorders (acute) = 6 points (95% CI) [2]
- SEM
  - Stroke = 1.52 [39]

Functional Rating Index (FRI) [40]

- MCIC
  - Spinal musculoskeletal system = 10% absolute change
- MCID
  - Spinal musculoskeletal system = 8.4%
- MDC
  - Spinal musculoskeletal system = 15%

NOTES:

- Acute and subacute conditions: recommended the FRI be used at baseline and every 1 week or 3 visits thereafter
- Chronic conditions: recommended the FRI be used at baseline and every 2 weeks or 6 visits thereafter
- If the score does not improve by at least 10% (absolute change) in any two successive two-week periods, you should pursue a change in management

Functional Status (FS) Measure or FOTO [41,42]

- The MCII (Minimally Clinically Important Improvement) and MDC are stated on the assessment report
  - For significant, minimal improvement, the patient status should increase by the MDC value

NOTE: FOTO summary report is available upon request

Gait Speed for Adults [43–45]

- MCID
  - Joint pain and fractures = 0.1 m/s
  - Older Adults = 0.05 – 0.12 m/s
  - Older Adults with Heart Failure = 0.05 – 0.12 m/s
  - Chronic Obstructive Pulmonary Disease = 0.11 m/s (anchored against ISW)
  - Chronic Obstructive Pulmonary Disease = 0.08 m/s (anchored against self-reported improvement)
  - Stroke = 0.1 m/s
  - Vestibular Disorders = 0.09 m/s [9]
- MDC
  - Heart Failure = 0.05 m/s
  - Joint pain and fractures = 0.08 m/s
  - Older Adults = 0.05 m/s
  - Pulmonary Diseases (Chronic Obstructive Pulmonary Disease) = 0.11 m/s (95% CI)

- Meaningful change for those with stroke undergoing rehab = 0.175 m/s
- SEM
  - Pulmonary Diseases (Chronic Obstructive Pulmonary Disease) = 1.14% (Interobserver)
  - Pulmonary Diseases (Chronic Obstructive Pulmonary Disease) = 1.5% (Test-retest reliability)
- SMC = 0.5 m/s
- Substantial meaningful change = 0.10 m/s

Global Rating of Change (GRoC)

(‡See Note below)

- MCIC
  - 2 points on 11-point scale
- MDC
  - 0.45 points on 11-point scale
- MIC
  - Low Back Pain = 2.5 points on 11-point scale [46]

‡NOTE: Questionable Outcome tool: <u>Global Rating of Change (GRoC)</u>

Further work is needed to determine the true value of the GRoC as an outcome measure and in turn as an anchor measure. Several key points have been identified [47]:

- There is fluctuant temporal stability of the GRoC from week to week
- There is poor correlation between the GRoC and functional measures
- The GRoC is only correlated to functional measures up to 3 weeks

Goal Attainment Scale (GAS) [48]

- MDC
  - Cerebral Palsy (Pediatric) = 2.040 (Low Response Group)
  - Cerebral Palsy (Pediatric) = 1.275 (High Response Group)
- SEM
  - Cerebral Palsy (Pediatric) = 0.736 (Low Response Group)
  - Cerebral Palsy (Pediatric) = 0.460 (High Response Group)

Gross Motor Function Measure-66 (GMFM-66) [49]

- Clinically meaningful improvement [50]
  - = 1.58
- MCID
  - Cerebral Palsy [51]

- Gross Motor Function Classification System Level I: 1.7 -2.7
- Gross Motor Function Classification System Level II: 1.0-1.5
- Gross Motor Function Classification System Level III: 0.7 – 1.2
- Gross Motor Function Classification System Level Overall: 0.8 – 1.3

Headache Disability Inventory (HDI) [52]

- Decrease of 29 points (95% CI) or more is considered clinically significant

Keele STarT Back Screening Tool [53,54]

- High-risk categories: > 4 (psychosocial subscale scores)
- Medium-risk categories: > 3 (overall tool score) and < 4 (psychosocial subscale scores)
- Low-risk categories: < 3 (overall tool score)

NOTE: No MDC or MCID established

Knee Injury and Osteoarthritis Outcome Score (KOOS)

- MDC
  - Athletes [55]
    - Pain = 6.1
    - Symptoms = 8.5
    - Activities of Daily Living = 8.0
    - Sports/Rec = 5.8
    - Quality of Life = 7.2
  - Joint Pain and Fractures = 8 – 10-point change may represent minimal perceptible clinical improvement [55]
  - Knee Ligament Injury
    - Anterior Cruciate Ligament Reconstruction in Athletic Populations (KOOS subscales) [56]
      - Symptoms = 8.5
      - Pain = 6.1
      - Activities of Daily Living = 8.0
      - Sports/recreation = 5.8
      - Quality of Life = 7.2
    - Articular Cartilage Lesion (KOOS subscales) [56]
      - Symptoms = 11.8
      - Pain = 11.2
      - Activities of Daily Living = 11.1
      - Sports/recreation = 12.1

        - Quality of Life = 8.7
    - Focal Cartilage Repair (KOOS subscales) [56]
        - Symptoms = 5
        - Pain = 6
        - Activities of Daily Living = 7
        - Sports/recreation = 12
        - Quality of Life = 7
    - Osteoarthritis and No Indication for Joint Replacement (KOOS subscales) [56]
        - Symptoms = 15.5
        - Pain = 13.4
        - Activities of Daily Living = 15.4
        - Sports/recreation = 19.6
        - Quality of Life = 21.1
    - Meniscal Injury (with and without surgery) (KOOS subscales) [56]
        - Symptoms = 19.4
        - Pain = 25.7
        - Activities of Daily Living = 20.2
        - Sports/recreation = 35.0
        - Quality of Life = 26.2
  - Osteoarthritis and Joint Replacement = 8 – 10-point change may represent minimal perceptible clinical improvement [55]
  - Younger individuals (KOOS subscales) = 14.3 – 19.6 points [57]
  - Older individuals (KOOS subscales) = ≥ 20 points [57]
- MCID
  - Knee
    - Arthroplasty (total knee, post)
        - Function = 15.
        - Pain = 13.5 2
        - Quality of Life = 8.0
    - Autologous Chondrocyte Implantation (KOOS subscale) [56]
        - Symptoms = could not be calculated
        - Pain = 11 – 18.8
        - Activities of Daily Living = 2 – 17.3
        - Sports/recreation = 5 – 18.6
        - Quality of Life = 8 – 19.6
    - Meniscal repair (Post arthroscopic) [58]

        - Symptoms = 12.3
        - Pain = 11.8
        - Activities of Daily Living = 11.4
        - Sports/recreation = 16.7
        - Quality of Life = 16.9
    - Osteochondral Allograft Transplantation (KOOS subscales) [56]
        - Symptoms = could not be calculated
        - Pain = 7
        - Activities of Daily Living = could not be calculated
        - Sports/recreation = 25
        - Quality of Life = could not be calculated
    - Platelet-rich plasma Injection Treatment [59]
        - 6 months after (KOOS subscales)
            - Symptoms = 8.4
            - Pain = 9.3
            - Activities of Daily Living = 9
            - Sports/recreation = 12.5
            - Quality of Life = 10.3
        - 12 months after (KOOS subscales)
            - Symptoms = 8.2
            - Pain = 9.1
            - Activities of Daily Living = 9.2
            - Sports/recreation = 11.6
            - Quality of Life = 10.3
- SEM [56]
    - Athletes (mean age 25.6 ± 3.4 years)
        - Pain = 2.2
        - Symptoms = 3.1
        - Activities of Daily Living = 2.9
        - Sports/Rec = 2.1
        - Quality of Life = 2.6
    - Knee Ligament Injury
        - Anterior Cruciate Ligament Reconstruction in Athlete (KOOS subscales)
            - Symptoms = 3.1
            - Pain = 2.2
            - Activities of Daily Living = 2.9

        - Sports/recreation = 2.1
        - Quality of Life = 2.6
    - Anterior Cruciate Ligament Tear Within 1 Year or Anterior Cruciate Ligament Repair Within 1 Year (KOOS subscales)
        - Symptoms = 9.1
        - Pain = 6.6
        - Activities of Daily Living = 7.8
        - Sports/recreation = 12.7
        - Quality of Life = 7.6
    - Articular Cartilage Lesion: Autograft Implantation System (KOOS subscales)
        - Symptoms = 11.1
        - Pain = 9.50
        - Activities of Daily Living = 10.7
        - Sports/recreation = 10.8
        - Quality of Life = 7.4
    - Meniscal Injury (with/without Meniscal Surgery) (KOOS subscales)
        - Symptoms = 7.0
        - Pain = 9.3
        - Activities of Daily Living = 7.3
        - Sports/recreation = 12.6
        - Quality of Life = 9.5
- Knee Osteoarthritis (KOOS subscales)
    - Mild Osteoarthritis with Anterior Cruciate Ligament Reconstruction
        - Symptoms = 9.0
        - Pain = 7.2
        - Activities of Daily Living = 5.2
        - Sports/recreation = 9.0
        - Quality of Life = 7.4
    - Moderate Osteoarthritis with High Tibial Osteotomy and Valgus Correction (KOOS subscales)
        - Symptoms = 8.0
        - Pain = 9.0
        - Activities of Daily Living = 5.8
        - Sports/recreation = 11.6
        - Quality of Life = 7.4
    - Osteoarthritis with TKA Revision (KOOS subscales)

- Symptoms = 7.2
- Pain = 10.1
- Activities of Daily Living = 11.7
- Sports/recreation = 24.6
- Quality of Life = 10.8

Knee Injury and Osteoarthritis Outcome Score for Children (KOOS-Child)

- SEM
  - Children with Knee Disorders [60]
    - Pain = 5.69
    - Symptoms = 8.14
    - Activities of Daily Living = 5.28
    - Sports/play = 8.02
    - Quality of Life = 7.59
  - Children with Stable Knee Conditions [61]
    - Pain = 9.9
    - Symptoms = 10.2
    - Activities of Daily Living = 8.9
    - Sports/play = 16.9
    - Quality of Life = 10.5
- MDC
  - Children with Knee Disorders [60]
    - Pain = 15.78
    - Symptoms = 22.56
    - Activities of Daily Living = 14.64
    - Sports/play = 22.22
    - Quality of Life = 21.03
  - Children with Stable Knee Conditions [61]
    - Pain = 27.3
    - Symptoms = 28.4
    - Activities of Daily Living = 24.7
    - Sports/play = 46.9
    - Quality of Life subscale = 29.2

Knee Outcome Survey (KOS)

- MCID [7]

- Activities of Daily Living = 7.1 percentage points change
- MDC [62]
  - = 11.4

Lower Extremity Functional Scale (LEFS)

- MCID
  - Ankle Sprains = 4 points [63]
  - Joint Pain and Fractures [64]
    - Anterior Cruciate Ligament reconstruction = 9 points
    - Arthroplasty
      - Total knee = 9 points
      - Total hip = 9 points
    - Hip Impairment = 6 points or 11.3%
    - Lower Extremity Injury = 9 points
  - Knee [65]
    - Osteoarthritis = 6.3 points (0-2 months)
    - Osteoarthritis = 7.5 points (0-6 months)
    - Osteoarthritis = 12.5 points (0-12 months)
  - Lower extremity musculoskeletal dysfunction = 9 points [65]
- MDC
  - Ankle Sprains = 4 points [63]
  - Joint Pain and Fractures [64]
    - Anterior Cruciate Ligament reconstruction = 8.7 points
    - Arthroplasty
      - Total knee = 9 points
      - Total hip = 9 points
    - Hip Impairment = 7 points or 11.3%
    - Lower Extremity Injury = 9 points
  - Knee [65]
    - Anterior knee pain = 8 points
    - Osteoarthritis = 19.2 points (at 2 months)
    - Osteoarthritis = 17.6 points (at 6 months)
    - Osteoarthritis = 22.6 points (at 12 months)
    - Total knee arthroplasty = 9 points
  - Lower extremity musculoskeletal dysfunction = 9 points [65]
  - Osteoarthritis

        - Hip = 9.9 – 10 points [65,66]
        - Lower extremity = 9 points
- SEM
    - Ankle Sprains = 4 points [63]
    - Chronic Pain (Orthopaedic Rehab) = 4 points
    - Joint Pain and Fractures [64]
        - Anterior Cruciate Ligament reconstruction = 3.7 points
        - Arthroplasty
            - Total knee = 3.7 points
            - Total hip = 3.7 points
        - Lower Extremity Injury = 3.9 points
        - Orthopaedic Rehab = 4 points
    - Knee [65]
        - Anterior knee pain = 0.10 points
        - Osteoarthritis = 3.4 points
        - Osteoarthritis = 6.9 points (at 2 months)
        - Osteoarthritis = 6.4 points (at 6 months)
        - Osteoarthritis = 8.2 points (at 12 months)
        - Total knee arthroplasty = 3.7 points
    - Osteoarthritis
        - Hip = 3.6 – 5.3 points [66]
        - Orthopaedic Rehab = 4 points
- **NOTE**: It is recommended that the LEFS be used at baseline and for every 2 - 4 weeks or 6 - 12 visits thereafter within the treatment program to measure progress

Lysholm Knee Rating System [62]

- MDC
    - Knee Injuries (Anterior Cruciate Ligament, meniscal, chondral, patellar dislocation) = 8.9 – 10.1
- SEM
    - Knee Injuries (Anterior Cruciate Ligament, meniscal, chondral, patellar dislocation) = 3.2 – 3.6

Neck Disability Index (NDI)

- MCID
    - Cervical radiculopathy = 7.0 – 8.5 points [67,68]
    - Cervical spine fusion = 7.5 points [67]

- Mechanical neck disorders = 5 – 7.5 points [67]
- Mechanical neck disorders = 19% [67]
- Mechanical neck pain = 7.5 points [68]
- Neck Pain (non-specific) = 3.5 points [67]

- MDC
  - = 10 – 20%
  - Cervical radiculopathy = 10.2 – 13.4 points [67]
  - Mechanical neck disorders = 10.2 points [67]
  - Mechanical neck disorders = 19.6% [67]
  - Mechanical pain = 10.2 points [68]
  - Neck pain = 5 points (90% CI) [69]
  - Neck Pain (non-specific) = 8.4 – 10.5 [67]
- SEM
  - Cervical Radiculopathy = 4.4 – 5.7 [67]
  - Mechanical Neck Disorder = 4.3 – 8.4 [67]
  - Neck Pain (non-specific) = 3.0 [67]

NOTE: It is recommended that the Neck Disability Index be used at baseline and for every 2 weeks thereafter within the treatment program to measure progress.

NOTE: A score of 0% - 20% represents a minimal disability; usually, no treatment is indicated except for advice on posture, physical fitness, and diet. Patients often do not score the Neck Disability items as zero, once they are in treatment. The practitioner should consider the patient's prior level of function when goal writing (e.g., the patient's prior level of function would place them in the minimal disability category, their goal should not be to obtain a zero score).

Numeric Pain Rating Scale (NPRS) [70,71]

- MCID [70]
  - Emergency Room (acute pain) = 1.3 points [70]
  - Low Back Pain (1 week of physical therapy) = 1.5 points
  - Low Back Pain (4 weeks of physical therapy) = 2.2 points
  - Musculoskeletal Pain (Chronic) = 1 point or 15% change
  - Chronic Pain (other; low back pain, OE, diabetic neuropathy, post-herpetic neuralgia, fibromyalgia) = 1.7 points or reduction of 27.9%
  - Post-operative
    - Abdominal surgery = 56%
    - Orthopedic surgery = 28.6%
    - Other types of surgery = 15.4%
  - Shoulder Pain = 2.17 points (surgical and nonsurgical subjects after 3-4 week of

rehabilitation)
    - Spinal cord injuries (Chronic) = 1.6 – 1.80 points or 36% [70,71]
- MDC [70]
    - Low Back Pain = 2 points (95% CI)
- SEM [70]
    - Low Back Pain = 1.02

Oswestry Disability Index (ODI) [72]

- MCIC
    - Lower back = 10 points or a 20% improvement
- MCID [73]
    - Low back pain (anchor based, ROC) = 7.5% - 16.7%
    - Lumbar Spine Surgery (anchor based (HTI)) = 9.5 – 15.4 points
    - Lumbar Spine Surgery (anchor based (ROC)) = 11.8 – 17.9 points
    - SI Joint Fusion Surgery (anchor based (HTI)) = 19.5% average change
    - SI Joint Fusion Surgery (ROC) = 12.2% - 15.0%
    - Spinal Deformity Surgery = 15.0%
- MDC
    - Back pain = 5.9 – 6.4 points (90% CI) [73]
    - Low back pain (subacute and chronic) = 11.1 – 15.35 (95% CI) [74]
    - Lumbar fusion = 11.7% - 15.5 % (90-95% CI) [73]
- SEM [73]
    - Back pain (mean duration 6 years) = 4.2 – 4.6 points
    - Low/upper back pain (< 1 year) = 2.6% - 2.8%
    - Spinal stenosis = 6.1%

NOTE: It is recommended that the Oswestry Disability Index be used at baseline and for every 2 weeks thereafter within the treatment program to measure progress.

NOTE: A score of 0% -20% represents a minimal disability; usually no treatment is indicated apart from advice on lifting, sitting posture, physical fitness, and diet. Patients often do not score the Oswestry items as zero once they are in treatment. The practitioner should consider the patient's prior level of function when goal writing (e.g., if the patient's prior level of function would place them in the minimal disability category, their goal should not be to obtain a zero score).

Pain Disability Index [75]

- MCIC
    - Low Back Pain (chronic) = decrease of 8.5 - 9.5 points

Patient Specific Functional Scale (PSFS) [76–78]

- MCID [77]
  - Humeral fracture (proximal) = 2 or more points
  - Knee arthroplasty (total) = 3.83 – 5.13
  - Osteoarthritis (hand) = 2.2-point change
  - Spinal Stenosis = 1.34 points
  - Upper Extremity Musculoskeletal = 1.2 points
- MDC
  - Chronic pain = 2 points [77]
  - Knee dysfunction = 1.5 [77]
  - Low Back pain = 1.4 points [77]
  - Lower Limb Amputees = 11.2 (90% CI) [77]
  - Neck Dysfunction and Whiplash = 2 points [77]
  - Older adults = 2.8 [77]
  - Osteoarthritis (hand) = 1.30 (90% CI) 1.56 (95% CI) [77]
  - Single activity score = 3 points (90% CI)
  - Spinal Stenosis = 2.4 points [77]
- SEM
  - Chronic pain = 0.41 [77]
  - Knee dysfunction = 0.62 – 1.0 [77]
  - Knee arthroplasty (total, 3 months post-surgery) = 1.38 – 1.85 [77]
  - Lower Limp Amputees = 4.8 [77]
  - Neck dysfunction or pain = 0.43 [76,77]
  - Older Adults = 1.0 [77]
  - Osteoarthritis (hand) = 0.56 [77]
  - Spinal Stenosis = 1.03 [77]

NOTE: It is recommended that the PSFS be used at baseline and for every 2-4 weeks or 6-12 visits thereafter within the treatment program to measure progress

Peabody Developmental Motor Scales-2nd Edition (PDMS-2) [79]

- MCID [80,81]
  - Intellectual disabilities (includes preschoolers) = 8.39
- MDC [80,81]
  - Intellectual disabilities (includes preschoolers) = 7.76
- SEM
  - Cerebral Palsy [80,81]

        - Fine Motor Quotient = 2.5
        - Gross Motor Quotient = 1.1
        - Total Motor Quotient = 1.6
    - Intellectual Disability = 1.80 [80]

Pediatric Balance Scale [82]

- MDC:
    - Cerebral Palsy
        - Dynamic = 0.96 points
        - Static = 0.79 points
        - Total = 1.59 points
- MDIC
    - Cerebral Palsy
        - Dynamic 2.92
        - Static 2.92
        - Total 5.83

Pediatric Evaluation of Disability Inventory (PEDI) [83]

- MCID
    - Caregiver Assistance
        - = 11.6 (Lickert Scale with range 8.7-14.9)
    - Functional Skills
        - = 10.9 (Lickert Scale with range 8.7-14.9)
    - Visual Analog Scale (VAS)
        - = 11.5 (mean)
        - = 11.2 (Caregiver Assistance with range 6.0-15.6)
        - = 11.6 (Functional Skills with range 6.0-15.6)
    - Traumatic Brain Injury, Spinal Cord Injury, Lower Extremity Trauma, Non-traumatic Brain Injury, Developmental Disorders
        - = 11 points (mean; all 6 scales)
        - = 11.3 (mean; for Likert Scale categories)

Roland-Morris Disability Questionnaire (RMDQ) [84,85]

- MCID [84]
    - Low Back Pain
        - Acute, subacute, or chronic = 3.5 points
        - Detect change = 3 points or 30% of baseline score

        - Score > 7 then = 3 points
        - Score < 7 then = 30% change in score
        - Treatment of 3-6 weeks = 5-point change
- MDC [85]
    - = 7.6 points or a 30% improvement from baseline
- SEM [84]
    - Low Back Pain = 1.79
    - Lumbar Disc Surgery (post) = 2.0 scale points (95% CI)

NOTE: It is recommended that the RMDQ be used at baseline and for every 2-4 weeks or 6-12 visits thereafter within the treatment program to measure progress.

Roll Evaluation of Activities of Life (REAL) [86]

- MDC
    - Children without Disabilities (Ages 2-18)
        - ADL = 15.91
        - IADL = 11.08
- SEM
    - Children without Disabilities (Ages 2-18)
        - Activities of Daily Living
            - Average = 5.74
            - Preschool = 1.41
            - Elementary = 3.00
            - Preadolescent = 2.45
            - Teenage = 4.00
        - Independence with Activities of Daily Living
            - Average = 4.00
            - Preschool = 1.73
            - Elementary = 2.00
            - Preadolescent = 1.41
            - Teenage = 2.65
- Mean Standard Scores
    - Children with Disabilities
        - Attention Deficit Disorders: 85.08
        - Autism Spectrum Disorder: 54.53
        - Cerebral Palsy: -6.17
        - Children with Disabilities: 67.14

- Developmental Delay: 60.34
- Down Syndrome: 55.17
- Learning Disabled: 76.32
- Sensory Integration Disorders: 88.86
- Speech Delay: 99.53

Shoulder Pain and Disability Index (SPADI)

- MCID
  - Musculoskeletal Upper Extremity Problems = 13.2 [87]
  - Pain Upper Extremity = 8 – 10 points [87,88]
  - Rotator Cuff Disease = 15.4 [87]
- MDC [87]
  - Adhesive Capsulitis = 17
  - Arthroplasty (shoulder) = 18
  - Musculoskeletal Upper Extremity Problems = 18.1
  - Shoulder Disorders = 21.5
- MIC
  - Shoulder pain = 20 points (43% of baseline) [89]
- SEM
  - Arthroplasty (shoulder) = 2 [88]
  - Non-specific population = 4.75 – 11.65 [87]
- SDC
  - Shoulder pain = 19.7 points [89]

NOTE: It is recommended that the SPADI be used at baseline and for every 2 - 4 weeks or 6 - 12 visits thereafter within the treatment program to measure progress

Simple Shoulder Test (SST)

- MCID
  - Arthroplasty (anatomic total shoulder) (aTSA) = 1.6 [90]
  - Arthroplasty (Ream-and-run) (R&R) = 2.6 [90]
  - Arthroplasty (Reverse total shoulder) (rTSA) = 3.7 [90]
  - Arthroplasty (shoulder) = 2.4 – 3.0 [91]
  - Rotator cuff disease = 8.5 – 9.7 [91]
- MDC [91]
  - Musculoskeletal (shoulder) = 32.3 (95% CI)
- SEM [91]

- Musculoskeletal (shoulder) = 4.75 -11.65

Timed Up and Go (TUG)

- Cut-off score indicating risk of falls [92]
  - Adults = > 13.5 s
  - Lower extremity amputees = > 19 s
  - Older adults (fall clinic) = > 15 s
  - Older adults (frail) = > 32.6 s
  - Osteoarthritis (hip) = > 10 s
  - Parkinson's Disease = > 7.95 – 11.5 s
  - Stroke (older adults) = > 14 s
  - Vestibular disorders = > 11.1 s
- MCID
  - Lumbar degenerative disc disease (post-surgery) = 2.1 s (or TUG z score change of 1.5) [93]
- MDC
  - Alzheimer's disease = 4.09 s [92]
  - Arthroplasty (Total hip) = 1.62 s (95% CI) [94]
  - Parkinson's Disease = 3.5 – 11 s [92,95]
  - Spinal cord injury = 10.8 s (30% difference) [92,96]
  - Stroke (chronic) = 2.9 s [92]
- SEM
  - Arthroplasty (Total hip) = 0.59 s [94]
  - Alzheimer's disease [92]
    - All = 2.48 s
    - Mild to Moderate = 1.52 s
    - Moderately severe to Severe = 3.03 s
  - Cerebral Palsy [97]
    - Evening trial = 0.4 s
    - Morning trial = 0.6 s
    - Spastic diplegia mean TUG score = 10.1 s
    - Spastic hemiplegia mean TUG score = 8.4 s
    - Spastic quadriplegia mean TUG score = 28 s
    - Trials administered 5 minutes apart = 0.19 s
    - Trials administered 1 week apart = 0.32 s
  - Parkinson's Disease = 1.75 s [92,95]

- Spinal cord injury = 3.9 s [92,96]
- Stroke (chronic) = 1.14 s [92]

NOTE: The Timed Up and Go test has limited ability to predict falls in community dwelling elderly and should not be used in isolation to identify individuals at high risk of falls in this setting

Tinetti Performance Oriented Mobility Assessment (POMA) [98]

- Cut-Off Scores
  - Older adults = 19
  - Older adults (frail) = 11
  - Parkinson's Disease = < 20
  - Stroke (chronic) = < 20
- MDC
  - Older adults
    - Individual assessment = 4.0 – 4.2 points
    - Group assessment = 0.7 – 0.8 points
  - Stroke = 6 points

Upper Extremity Functional Index/Scale (UEFI/UEFS) [99]

- MCID
  - UEFI-20 = 8 (95% CI)
  - UEFI-15 = 6.7 (95% CI)
- MDC_{90}
  - UEFI-20 = 9.4 (95% CI)
  - UEFI-15 = 8.8 (95% CI)
  - UEFS = 9.8 (95% CI)

NOTE: UEFI-20 is a 20-item Upper Extremity Functional Index (0-80, higher scores indicate better function). UEFI-15 is a 15-item Upper Extremity Functional Index (0-100, higher scores indicate better function). UEFS is an Upper Extremity Functional Scale (8-80, lower scores indicate better function.

Visual Analog Scale (VAS) Scores

- MCID
  - Hand surgery (post-operative) = 1.6 – 1.9 [100]
- MDC
  - Vestibular Disorders (Head Movement) = 4.57 [101]
- Minimum of a 2-point change on a 0-10 pain scale
- SEM

- Vestibular Disorders (Head Movement) = 1.65 [101]

Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)

- MCID
  - Arthroplasty (total knee, post) [102]
    - Function = 9
    - Pain = 11
    - Stiffness = 8
    - Total score = 10
  - Osteoarthritis
    - Hip or knee = 12% change from baseline
    - Hip (total replacement) [103]
      - Pain = 29.26
      - Stiffness = 25.91
    - Knee [103]
      - 2 months = 4 – 8.8
      - 6 months = 6.6 – 6.8
      - 12 months = 1.6 – 12.0
    - Knee (total replacement) [103]
      - 6 months = 11.5
      - 12 months = 11.5
    - Lower extremity = 17 - 22% change from baseline
- MDC [103]
  - Knee (total replacement)
    - 6 months = 10.9 (95% CI)
    - 12 months = 15.3 (95% CI)
  - Hip (total replacement)
    - Function = 11.93
    - Pain = 21.38
    - Stiffness = 27.98
  - Osteoarthritis
    - Hip = 9.1 points (95% CI)
    - Hip and Knee pain = 3.94 (90% CI)
    - Knee
      - 2 months = 14.1 (95% CI)

        - 6 months = 15.0 (95% CI)
        - 12 months = 18.5 (95% CI)
- MIC
    - Arthroplasty (total knee, post) [102]
        - Function = 16
        - Pain = 21
        - Stiffness = 13
        - Total score = 17
- SEM
    - Hip (total replacement) [103]
        - Pain subscale (6 months post) = 7.71
        - Physical function (6 months post) = 4.30
        - Stiffness subscale (6 months post) = 10.10
    - Knee (total replacement) [103]
        - 6 months = 3.9
        - 12 months = 5.5
        - Pain subscale (6 months post) = 8.08
        - Physical function (6 months post) = 4.73
        - Stiffness subscale (6 months post) = 10.50
    - Osteoarthritis [103]
        - Hip = 3.3
        - Knee
            - 2 months = 5.1
            - 6 months = 5.4
            - 12 months = 6.7
    - Osteoarthritis (Older individuals with hip or knee)
        - Pain = 0.58
        - Physical function = 1.65
        - Stiffness = 0.62

CODING AND STANDARDS

Applicable Lines of Business

☒	CHIP (Children's Health Insurance Program)
☒	Commercial
☒	Exchange/Marketplace
☒	Medicaid
☒	Medicare Advantage

BACKGROUND

The records must compare baseline measures to updated measures and document progress toward measurable goals as defined in Clinical Guideline and Plan of Care.

It is the responsibility of the treating practitioner to maintain a patient record that includes periodic measures of treatment response by employing valid, reliable, and relevant outcome assessment tools and include sufficient clinical documentation, so that a peer reviewer can render a reasonable determination on baseline functional status and/or treatment response.

Most individuals can expect to notice measurable improvement in pain and/or disability within 2 to 6 weeks after beginning treatment. If improvement has not occurred with 6 weeks of treatment, it is highly unlikely that continuing treatment will be helpful. When initial improvement did occur, studies showed no additional lasting improvement beyond 6 to 12 weeks of treatment. Most flare-ups resolve quickly, within a few days to 3 weeks.

When progress towards goals is such that outcome measures approximate normative data for asymptomatic populations or are indicative of mild deficits, which can typically be managed through home exercise or other self-care, then a determination of maximum therapeutic benefit (MTB) is appropriate.

Definitions

Episode of Care

Consultation or treatment preceded and followed by at least 3 months without treatment for the same complaint.

Lasting, Sustainable Progress

Progress made by the patient has been maintained at a reasonable level over a reasonable period of time.

Maximum Therapeutic Benefit (MTB)

MTB is determined following a sufficient course of care where demonstrable improvement would be expected in a patient's health status and one or more of the following are present:

- The patient has returned to pre-clinical/pre-onset health status

- Meaningful improvement has occurred; however, there is no basis for further meaningful improvement
- Meaningful improvement has occurred and there is no basis for further in-office treatment
- The patient no longer demonstrates meaningful clinical improvement, as measured by standardized outcome assessment tools
- Meaningful improvement, as measured by standardized outcome assessment tools, has not been achieved
- There is insufficient information documented in the submitted patient record to reliably validate the response to treatment

Minimally Clinically Important Change (MCIC)

The smallest change in the outcome assessment score that the patient perceives as beneficial, i.e., clinically meaningful improvement.

Minimal Clinically Important Difference (MCID)

MCID is the smallest change in an outcome that a patient would identify as important.

Minimal Detectable Change (MDC)

The minimal detectable change is the smallest change in score than can be detected beyond random error and is dependent upon sample distribution.

Minimal Important Change (MIC)

A threshold for a minimal within-person change over time, above which patients perceive themselves as importantly changed

Outcome Measures

- Objective, measurable assessments by the clinician to determine patient progress with treatment
- Standardized tests and measures at the onset of care establishes the baseline status of the patient, providing a means to quantify change in the patient's functioning
- Used with other standardized tests and measures throughout the episode of care as part of periodic reexamination to provide information about whether predicted outcomes are being realized
- Refers to the systematic collection (data gathered at multiple time points using same methods) and analysis of information that is used to evaluate the efficacy of an intervention

Patient Acceptable Symptom State (PASS)

PASS is defined as the point at which the patient considers themselves well, recovered, and satisfied with treatment.

Smallest Detectable Change (SDC)

A value for the minimum change that needs to be observed to know that the observed change is real and not potentially a product of measurement error.

Smallest Real Change (SRC)

Meaningful improvement can occur only when there is a potential for MCIC. The timelines for improvement may not be applicable to some types of post-surgical care.

Specific, Measurable, and Functional Goals

Clearly defined goals of treatment that allow measurement of the amount and/or degree of meaningful change over time. These goals are often determined by the use of functional outcome assessment tools, as defined in Clinical Guideline, Record Keeping and Documentation Standards.

Standard Error of Measurement (SEM)

Estimates the standard error in a set of repeated scores.

Treatment Goals

Determined at the initial encounter for each episode of care between the patient and clinician. Unique for each patient's clinical presentation based on the evaluation/examination findings, outcome assessment tool results, and personal preferences.

POLICY HISTORY

Date	Summary
November 2024	• This guideline replaces Evolent_CG_605 for Measurable Progressive Improvement • Removed the CPT Codes section from Coding • Updated numerical indications based upon clinical literature, where appropriate • Added Knee Injury and Osteoarthritis Outcome Score for Children (KOOS-Child) as a new section in the Indications • Editorial changes to match the formatting and layout of the Evolent template • Removed duplicate/unnecessary references for concision
December 2023	• Measurable improvement thresholds added • Editorial changes • References updated

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Clinical Guideline Review Committee

Disclaimer

Evolent Clinical Guidelines do not constitute medical advice. Treating health care professionals are solely responsible for diagnosis, treatment, and medical advice. Evolent

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