

## Enhancing Outcome Measurement Self-Report - Performance - Pain

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Self-report measures the individual's *perception* of how his or her impaired body function or structure is limiting activities and participation. Performance measures provide actual *data* to the healthcare professional about the level of impairment in body structure or functions. Some measures are more suited to self-report or can be performed only via self-report, such as an individual's confidence or satisfaction measures. Other measures are better suited for observing the actual performance.

There are some patients for whom standardized self-reported disability outcome measures are insufficient. The same activity a self-report measure may have different results when compared to actual performance measure. Studies have shown there is only moderate correlation between self-report and performance measures. [1] Some patients under-report or exaggerate self-reported disability outcomes measures.[2-9] There is a modest correlation between pain and physical performance. [10] Physical performance test are not useful indicators of pain. Physical performance tests are useful indicators of disability.

Performance measures are much less frequently used than self-report measures. [11] When time and resources allow a more comprehensive assessment including both self-report and performance measures may be preferred. Although performance measures provide unique and useful information about patient functioning over and above self-report measures it is not entirely clear which of the many possible performances to assess. [11]

Both types of measures are affected differently by physical and psychological factors. Each provides unique and complementary information to the construct of physical function. [12]

The utilization of self-report measures has increased because of Functional Limitation Reporting (G codes) is a Centers for Medicare & Medicaid Services (CMS) reporting regulation for physical therapists, occupational therapists, and speech-language pathologists who provide outpatient therapy services to Medicare beneficiaries. Medicare will not reimburse providers for claims lacking FLR data. There are multiple lists and registries of self-report outcome measures available. Proprietary electronic medical records systems have incorporated standardized self-report measures. The current standard of practice is to default towards self-report measures as opposed to actual performance measures because of time, resources, and cost.

Actual performance based measurements are under-utilized in management of painful musculoskeletal conditions.[13] Most Physical Therapists consider outcome measures important, only half report using outcome measures after the intervention.[14] The majority of outcome measures utilized are self-report, not performance measures. Currently available lists and registries of outcome measures include very few if any actual performance measures for painful musculoskeletal conditions. Ideally a combination of self-report measures and actual performance measures should be utilized.[15-23]

One of the challenges of using performance functional outcome measures it is difficult to calculate a change score comparing intake to discharge. At the time of initial evaluation the patient limitations and impairment it may not be safe or appropriate to utilize a performance based measure; however at time of discharge a more challenging performance measure is appropriate. Another challenge is therapist have difficulty interpreting the results of standardized outcome measures. [24]

There is a need to have a logical progression of performance based outcome measures from simple to complex that can show an ordinal change in actual observed performance.

Clinicians need a system or process to assess and interpret the different clinical outcome measures including self-reported measures, performance measures, and pain measures.[25-28]

There is a need to agree on outcome measurements among clinicians. There is a need for a comprehensive list of musculoskeletal performance measures.

### **References from slides in power point**

Abilities slide #8 <http://catalyst.nejm.org/chronic-pain-care-falls-short/>

*"Look at truth telling as a process instead of an outcome"* [29]

Yellow flags and blue flags [30]

Symptom Magnification Syndrome [31]

Lies in Doctor Patient Relationship [29]

Documenting Self-limiting Behavior [32]

Rapid Grip Exchange self-limiting behavior [33]

Self-limiting behavior trunk accelerations during sit to stand [34]

Sincerity of effort during performance testing [29, 35]

Recalibration of pain visual analog scale by Steve Allison

<https://www.linkedin.com/pulse/how-do-you-know-injured-worker-exaggerated-pain-fce-steve>

Lumbar performance measures [10, 36-42]

Lower extremity performance measures [43-47]

Knee performance measures [48, 49]

Foot and Ankle performance measures [46, 50, 51]s

Cervical performance measures [52-54]

Shoulder performance measures [41, 52, 54]

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Elbow performance measure [55]

Performance measures through continuum of care [28, 56]

Adding pain measure to performance measure [25-27, 49]

Slide 92 Cognitive Behavior Therapy O'Sullivan, Dankaerts (57)

### **Interpretation/Assessment: Self-Report Measures; Actual Performance Measures; Pain During Performance Measures**

<b>Proportionate Credible</b>	<b>Not Proportionate Not Credible</b>	<b>Not Proportionate Uncertain Credibility</b>
Self-perceived disability is <b>High</b> (significant disability) <b>Low</b> actual performance <b>High</b> level pain irritability during performance measurement <b>Dysfunctional &amp; Painful</b>	Self-perceived disability is <b>High</b> (significant disability) <b>High</b> actual performance <b>High</b> level pain irritability during performance measurement <b>Functional &amp; Painful</b>	Self-perceived disability is <b>Low</b> (not disabled) <b>Low</b> actual performance <b>High</b> level pain irritability during performance measurement <b>Dysfunctional &amp; Painful</b>
Is functional performance test to difficult try easier test? Check secondary exam correct movement see if it decreases pain.	Is self-report measure to difficult? Is performance test to easy? Check if medical condition is contributing to pain.	Is self-report measure to easy? Is performance test to difficult?
Modalities, manual therapy	Check Fear Avoidance Score, & if fear avoidance score is high modalities manual therapy, exercise not indicated. Cognitive Behavioral Therapy, use progression of physical activity/exercise to desensitize patient to fear of activity/exercise. Use "Motivational Interviewing" to negotiate with patient Develop or refer to chronic pain management team	Design performance test to provide evidence of self- limiting behavior or lack of sincerity (5 position grip strength, sit to stand test requesting max effort)  Modality, manual therapy, carefully change movement patterns evaluate results  Check emotional state denial versus magnification.  Check data base on drug seeking behavior

	<p>Check data base on drug seeking behavior Referral for full Functional Capacity Evaluation</p> <p>Is Physical Therapy indicated? Confront patient, contact lawyer case manager settle case</p>	
<p>Self-perceived disability is <b>Low</b> (not disabled) <b>High</b> actual performance <b>Low</b> level pain irritability during performance measure <b>Functional &amp; NOT Painful</b></p> <p>Is performance test to easy?</p> <p>Encourage general exercise, good to go</p>	<p>Self-perceived disability is <b>Low</b> (not disabled) <b>High</b> actual performance <b>High</b> level pain irritability during performance measurement <b>Functional &amp; painful</b></p> <p>Is self-report measure to easy? Is performance test to easy?</p> <p>Modalities manual therapy, exercise not indicated, check if medical condition is contributing to pain</p> <p>Referral to chronic pain management team Check data base on drug seeking behavior</p>	<p>Self-perceived disability is <b>Low</b> (not disabled) <b>Low</b> actual physical performance <b>Low</b> level of pain irritability during performance measurement <b>Dysfunctional &amp; NOT painful</b></p> <p>Is self-report measure to easy? Is performance test to difficult?</p> <p>Change movement patterns, corrective exercises</p>
<p>Self-perceived disability is <b>High</b> (significant disability) <b>High</b> actual physical performance <b>Low</b> level of pain irritability during performance measurement <b>Functional &amp; NOT Painful</b></p> <p>Credible but stoic need to address safety</p>	<p>Self-perceived disability is <b>High</b> (significant disability) <b>Low</b> actual physical performance <b>Low</b> level of pain irritability during performance measurement <b>Dysfunctional &amp; NOT Painful</b></p> <p>Is self-report measure to difficult? Is performance test to difficult? Check Fear Avoidance Score</p> <p>Use Corrective exercise</p>	

## References:

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1. Mizner RL, Petterson SC, Clements KE, Zeni JA, Jr., Irrgang JJ, Snyder-Mackler L. Measuring functional improvement after total knee arthroplasty requires both performance-based and patient-report assessments: a longitudinal analysis of outcomes. *The Journal of arthroplasty*. 2011;26(5):728-37. doi: 10.1016/j.arth.2010.06.004. PubMed PMID: 20851566; PubMed Central PMCID: PMC3008304.
  2. Daltroy LH, Phillips CB, Eaton HM, Larson MG, Partridge AJ, Logigian M, et al. Objectively measuring physical ability in elderly persons: the Physical Capacity Evaluation. *Am J Public Health*. 1995;85(4):558-60. PubMed PMID: 7702123; PubMed Central PMCID: PMC3008304.
  3. Alviar MJ, Olver J, Brand C, Hale T, Khan F. Do patient-reported outcome measures used in assessing outcomes in rehabilitation after hip and knee arthroplasty capture issues relevant to patients? Results of a systematic review and ICF linking process. *J Rehabil Med*. 2011;43(5):374-81. doi: 10.2340/16501977-0801. PubMed PMID: 21448553.
  4. Bean JF, Olveczky DD, Kiely DK, LaRose SI, Jette AM. Performance-based versus patient-reported physical function: what are the underlying predictors? *Phys Ther*. 2011;91(12):1804-11. doi: 10.2522/ptj.20100417. PubMed PMID: 22003163; PubMed Central PMCID: PMC3229045.
  5. Feuering R, Vered E, Kushnir T, Jette AM, Melzer I. Differences between self-reported and observed physical functioning in independent older adults. *Disabil Rehabil*. 2014;36(17):1395-401. doi: 10.3109/09638288.2013.828786. PubMed PMID: 24001263.
  6. Kuijter PP, Gouttebauge V, Brouwer S, Reneman MF, Frings-Dresen MH. Are performance-based measures predictive of work participation in patients with musculoskeletal disorders? A systematic review. *Int Arch Occup Environ Health*. 2012;85(2):109-23. doi: 10.1007/s00420-011-0659-y. PubMed PMID: 21660469; PubMed Central PMCID: PMC3229045.
  7. Silva AG, Queiros A, Sa-Couto P, Rocha NP. Self-Reported Disability: Association With Lower Extremity Performance and Other Determinants in Older Adults Attending Primary Care. *Phys Ther*. 2015;95(12):1628-37. doi: 10.2522/ptj.20140323. PubMed PMID: 26023215.
  8. Stratford PW, Kennedy D, Pagura SM, Gollish JD. The relationship between self-report and performance-related measures: questioning the content validity of timed tests. *Arthritis Rheum*. 2003;49(4):535-40. doi: 10.1002/art.11196. PubMed PMID: 12910560.
  9. Stratford PW, Kennedy DM. Performance measures were necessary to obtain a complete picture of osteoarthritic patients. *J Clin Epidemiol*. 2006;59(2):160-7. doi: 10.1016/j.jclinepi.2005.07.012. PubMed PMID: 16426951.
  10. Simmonds MJ, Olson SL, Jones S, Hussein T, Lee CE, Novy D, et al. Psychometric characteristics and clinical usefulness of physical performance tests in patients with low back pain. *Spine (Phila Pa 1976)*. 1998;23(22):2412-21. PubMed PMID: 9836355.
  11. Guildford BJ, Jacobs CM, Daly-Eichenhardt A, Scott W, McCracken LM. Assessing physical functioning on pain management programmes: the unique contribution of directly assessed physical performance measures and their relationship to self-reports. *Br J Pain*. 2017;11(1):46-57. doi: 10.1177/2049463716680559. PubMed PMID: 28386404; PubMed Central PMCID: PMC5370627.
  12. Pfingsten M, Lueder S, Luedtke K, Petzke F, Hildebrandt J. Significance of physical performance tests for patients with low back pain. *Pain Med*. 2014;15(7):1211-21. doi: 10.1111/pme.12482. PubMed PMID: 24931593.
  13. Jette DU, Halbert J, Iverson C, Miceli E, Shah P. Use of standardized outcome measures in physical therapist practice: perceptions and applications. *Phys Ther*. 2009;89(2):125-35. doi: 10.2522/ptj.20080234. PubMed PMID: 19074618.

14. Kall I, Larsson ME, Bernhardsson S. Use of outcome measures improved after a tailored implementation in primary care physiotherapy: a prospective, controlled study. *J Eval Clin Pract.* 2016;22(5):668-76. doi: 10.1111/jep.12513. PubMed PMID: 26853076.
15. Michener LA. Patient- and clinician-rated outcome measures for clinical decision making in rehabilitation. *J Sport Rehabil.* 2011;20(1):37-45. PubMed PMID: 21411821.
16. Bolink SA, Grimm B, Heyligers IC. Patient-reported outcome measures versus inertial performance-based outcome measures: A prospective study in patients undergoing primary total knee arthroplasty. *The Knee.* 2015;22(6):618-23. doi: 10.1016/j.knee.2015.04.002. PubMed PMID: 26032657.
17. Daltroy LH, Larson MG, Eaton HM, Phillips CB, Liang MH. Discrepancies between self-reported and observed physical function in the elderly: the influence of response shift and other factors. *Soc Sci Med.* 1999;48(11):1549-61. PubMed PMID: 10400256.
18. Dayton MR, Judd DL, Hogan CA, Stevens-Lapsley JE. Performance-Based Versus Self-Reported Outcomes Using the Hip Disability and Osteoarthritis Outcome Score After Total Hip Arthroplasty. *Am J Phys Med Rehabil.* 2016;95(2):132-8. doi: 10.1097/PHM.0000000000000357. PubMed PMID: 26259051; PubMed Central PMCID: PMC4772958.
19. Gandhi R, Tsvetkov D, Davey JR, Syed KA, Mahomed NN. Relationship between self-reported and performance-based tests in a hip and knee joint replacement population. *Clin Rheumatol.* 2009;28(3):253-7. doi: 10.1007/s10067-008-1021-y. PubMed PMID: 18853222.
20. Graff C, Hohmann E, Bryant AL, Tetsworth K. Subjective and objective outcome measures after total knee replacement: is there a correlation? *ANZ J Surg.* 2016. doi: 10.1111/ans.13708. PubMed PMID: 27561210.
21. Lane NE, Hochberg MC, Nevitt MC, Simon LS, Nelson AE, Doherty M, et al. OARSI Clinical Trials Recommendations: Design and conduct of clinical trials for hip osteoarthritis. *Osteoarthritis and cartilage / OARS, Osteoarthritis Research Society.* 2015;23(5):761-71. doi: 10.1016/j.joca.2015.03.006. PubMed PMID: 25952347.
22. Larmer PJ, McNair PJ, Smythe L, Williams M. Ankle sprains: patient perceptions of function and performance of physical tasks. A mixed methods approach. *Disabil Rehabil.* 2011;33(23-24):2299-304. doi: 10.3109/09638288.2011.568668. PubMed PMID: 21470050.
23. Wittink H, Rogers W, Sukiennik A, Carr DB. Physical functioning: self-report and performance measures are related but distinct. *Spine (Phila Pa 1976).* 2003;28(20):2407-13. doi: 10.1097/01.BRS.0000085304.01483.17. PubMed PMID: 14560092.
24. Swinkels RA, van Peppen RP, Wittink H, Custers JW, Beurskens AJ. Current use and barriers and facilitators for implementation of standardised measures in physical therapy in the Netherlands. *BMC musculoskeletal disorders.* 2011;12:106. doi: 10.1186/1471-2474-12-106. PubMed PMID: 21600045; PubMed Central PMCID: PMC3126762.
25. Wideman TH, Edwards RR, Finan PH, Haythornthwaite JA, Smith MT. Comparing the Predictive Value of Task Performance and Task-Specific Sensitivity During Physical Function Testing Among People With Knee Osteoarthritis. *The Journal of orthopaedic and sports physical therapy.* 2016;46(5):346-56. doi: 10.2519/jospt.2016.6311. PubMed PMID: 26999411.
26. Barakatt ET, Romano PS, Riddle DL, Beckett LA. The Reliability of Maitland's Irritability Judgments in Patients with Low Back Pain. *J Man Manip Ther.* 2009;17(3):135-40. doi: 10.1179/jmt.2009.17.3.135. PubMed PMID: 20046619; PubMed Central PMCID: PMC2762835.
27. Barakatt ET, Romano PS, Riddle DL, Beckett LA, Kravitz R. An Exploration of Maitland's Concept of Pain Irritability in Patients with Low Back Pain. *J Man Manip Ther.* 2009;17(4):196-205. doi: 10.1179/106698109791352175. PubMed PMID: 20140150; PubMed Central PMCID: PMC2813500.
28. Reiman MP, Manske RC. The assessment of function: How is it measured? A clinical perspective. *J Man Manip Ther.* 2011;19(2):91-9. doi: 10.1179/106698111X12973307659546. PubMed PMID: 22547919; PubMed Central PMCID: PMC3172944.



29. Palmieri JJ, Stern TA. Lies in the doctor-patient relationship. *Prim Care Companion J Clin Psychiatry*. 2009;11(4):163-8. doi: 10.4088/PCC.09r00780. PubMed PMID: 19750068; PubMed Central PMCID: PMC2736034.
30. Nicholas MK, Linton SJ, Watson PJ, Main CJ, Decade of the Flags" Working G. Early identification and management of psychological risk factors ("yellow flags") in patients with low back pain: a reappraisal. *Phys Ther*. 2011;91(5):737-53. doi: 10.2522/ptj.20100224. PubMed PMID: 21451099.
31. Matheson L. Symptom Magnification Syndrome Structured Interview: Rationale and procedure. *J Occup Rehabil*. 1991;1(1):43-56. doi: 10.1007/BF01073279. PubMed PMID: 24242325.
32. Trippolini MA, Dijkstra PU, Jansen B, Oesch P, Geertzen JH, Reneman MF. Reliability of clinician rated physical effort determination during functional capacity evaluation in patients with chronic musculoskeletal pain. *J Occup Rehabil*. 2014;24(2):361-9. doi: 10.1007/s10926-013-9470-9. PubMed PMID: 23975060; PubMed Central PMCID: PMC4000417.
33. Westbrook AP, Tredgett MW, Davis TR, Oni JA. The rapid exchange grip strength test and the detection of submaximal grip effort. *J Hand Surg Am*. 2002;27(2):329-33. PubMed PMID: 11901394.
34. Ferguson SA, Marras WS, Gupta P. Longitudinal quantitative measures of the natural course of low back pain recovery. *Spine (Phila Pa 1976)*. 2000;25(15):1950-6. PubMed PMID: 10908939.
35. Reneman MF, Gross DP. Should FCE be used to identify validity of effort? *Work*. 2011;38(2):193-5; author reply 7-9. doi: 10.3233/WOR-2011-1121. PubMed PMID: 21297289.
36. Strand LI, Moe-Nilssen R, Ljunggren AE. Back Performance Scale for the assessment of mobility-related activities in people with back pain. *Phys Ther*. 2002;82(12):1213-23. PubMed PMID: 12444880.
37. Demoulin C, Vanderthommen M, Duysens C, Crielaard JM. Spinal muscle evaluation using the Sorensen test: a critical appraisal of the literature. *Joint Bone Spine*. 2006;73(1):43-50. doi: 10.1016/j.jbspin.2004.08.002. PubMed PMID: 16461206.
38. Mayer TG, Barnes D, Kishino ND, Nichols G, Gatchel RJ, Mayer H, et al. Progressive isoinertial lifting evaluation. I. A standardized protocol and normative database. *Spine (Phila Pa 1976)*. 1988;13(9):993-7. PubMed PMID: 3206306.
39. Mayer TG, Barnes D, Nichols G, Kishino ND, Coval K, Piel B, et al. Progressive isoinertial lifting evaluation. II. A comparison with isokinetic lifting in a disabled chronic low-back pain industrial population. *Spine (Phila Pa 1976)*. 1988;13(9):998-1002. PubMed PMID: 2974633.
40. Ganesh GS, Chhabra D, Mrityunjay K. Efficacy of the star excursion balance test in detecting reach deficits in subjects with chronic low back pain. *Physiother Res Int*. 2015;20(1):9-15. doi: 10.1002/pri.1589. PubMed PMID: 24619777.
41. Cook G. *Movement Functional Movement Systems: Screening - Assessment - Corrective Strategies*: On Target Publications; 2010.
42. Goshtigian GR, Swanson BT. Using the Selective Functional Movement Assessment and Regional Interdependence Theory to Guide Treatment of an Athlete with Back Pain: A Case Report. *Int J Sports Phys Ther*. 2016;11(4):575-95. PubMed PMID: 27525182; PubMed Central PMCID: PMC4970848.
43. Bell DR, Guskiewicz KM, Clark MA, Padua DA. Systematic review of the balance error scoring system. *Sports Health*. 2011;3(3):287-95. doi: 10.1177/1941738111403122. PubMed PMID: 23016020; PubMed Central PMCID: PMC3445164.
44. Wolf SL, Catlin PA, Gage K, Gurucharri K, Robertson R, Stephen K. Establishing the reliability and validity of measurements of walking time using the Emory Functional Ambulation Profile. *Phys Ther*. 1999;79(12):1122-33. PubMed PMID: 10630281.
45. Ko V, Naylor JM, Harris IA, Crosbie J, Yeo AE. The six-minute walk test is an excellent predictor of functional ambulation after total knee arthroplasty. *BMC musculoskeletal disorders*. 2013;14:145. doi: 10.1186/1471-2474-14-145. PubMed PMID: 23617377; PubMed Central PMCID: PMC3644243.

46. Saban B, Masharawi Y. Three single leg standing tests for clinical assessment of chronic plantar heel pain syndrome: static stance, half-squat and heel rise. *Physiotherapy*. 2016. doi: 10.1016/j.physio.2016.06.003. PubMed PMID: 27908459.
47. Blennerhassett JM, Jayalath VM. The Four Square Step Test is a feasible and valid clinical test of dynamic standing balance for use in ambulant people poststroke. *Archives of physical medicine and rehabilitation*. 2008;89(11):2156-61. doi: 10.1016/j.apmr.2008.05.012. PubMed PMID: 18996245.
48. Lewis CL, Foch E, Luko MM, Loverro KL, Khuu A. Differences in Lower Extremity and Trunk Kinematics between Single Leg Squat and Step Down Tasks. *PLoS One*. 2015;10(5):e0126258. doi: 10.1371/journal.pone.0126258. PubMed PMID: 25955321; PubMed Central PMCID: PMC4425598.
49. Klokke L, Christensen R, Waehrens EE, Bandak E, Bartholdy C, Bliddal H, et al. Dynamic weight-bearing assessment of pain in knee osteoarthritis: construct validity, responsiveness, and interpretability in a research setting. *Health Qual Life Outcomes*. 2016;14:91. doi: 10.1186/s12955-016-0495-6. PubMed PMID: 27306539; PubMed Central PMCID: PMC4910227.
50. Buchanan AS, Docherty CL, Schrader J. Functional performance testing in participants with functional ankle instability and in a healthy control group. *J Athl Train*. 2008;43(4):342-6. doi: 10.4085/1062-6050-43.4.342. PubMed PMID: 18668180; PubMed Central PMCID: PMC474827.
51. Jack EA. Naviculo-cuneiform fusion in the treatment of flat foot. *J Bone Joint Surg Br*. 1953;35-B(1):75-82. PubMed PMID: 13034876.
52. Vincent JL, MacDermid JC, Michlovitz SL, Rafuse R, Wells-Rowell C, Wong O, et al. The push-off test: development of a simple, reliable test of upper extremity weight-bearing capability. *J Hand Ther*. 2014;27(3):185-90; quiz 91. doi: 10.1016/j.jht.2014.03.002. PubMed PMID: 24794466.
53. Tucci HT, Martins J, Sposito Gde C, Camarini PM, de Oliveira AS. Closed Kinetic Chain Upper Extremity Stability test (CKCUES test): a reliability study in persons with and without shoulder impingement syndrome. *BMC musculoskeletal disorders*. 2014;15:1. doi: 10.1186/1471-2474-15-1. PubMed PMID: 24387196; PubMed Central PMCID: PMC4389053.
54. Kumta P, MacDermid JC, Mehta SP, Stratford PW. The FIT-HaNSA demonstrates reliability and convergent validity of functional performance in patients with shoulder disorders. *The Journal of orthopaedic and sports physical therapy*. 2012;42(5):455-64. doi: 10.2519/jospt.2012.3796. PubMed PMID: 22281818.
55. Lim EC. Pain free grip strength test. *J Physiother*. 2013;59(1):59. doi: 10.1016/S1836-9553(13)70152-8. PubMed PMID: 23419921.
56. Reiman MP, Manske RC. The assessment of function. Part II: clinical perspective of a javelin thrower with low back and groin pain. *J Man Manip Ther*. 2012;20(2):83-9. doi: 10.1179/2042618611Y.0000000018. PubMed PMID: 23633887; PubMed Central PMCID: PMC3360488.
57. O'Sullivan K, Dankaerts W, O'Sullivan L, O'Sullivan PB. Cognitive Functional Therapy for Disabling Nonspecific Chronic Low Back Pain: Multiple Case-Cohort Study. *Phys Ther*. 2015;95(11):1478-88. doi: 10.2522/ptj.20140406. PubMed PMID: 25929536.