

# Deborah A. Marshall

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**Professor, Department of Community Health Sciences  
Arthur J.E. Child Chair Rheumatology Outcomes Research  
Canada Research Chair Health Services and Systems Research (2008-2018)**

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Deborah A Marshall is the Arthur J.E. Child Chair of Rheumatology Outcomes Research and former Canada Research Chair, Health Services and Systems Research (2008-2018). In addition, she is a member of the O'Brien Institute of Public Health and the McCaig Institute of Bone and Joint Health and a Senior Scientist at Arthritis Research Canada..

Dr. Marshall has experience in technology assessment agencies, academia and pharmaceutical and diagnostics industry research settings in Canada, the United States, and Europe. Dr Marshall focuses her research program on methods to improve the effectiveness and efficiency of health care services in the context of precision medicine and patient-centeredness. Her research assesses the value of health care interventions through measurement of patient preferences, cost-effectiveness analysis, and simulation modeling of health care.

She was the Project Lead for a US National Institutes of Health Program Grant on Translational and Policy Research in Personalized Medicine, which develops evidence to assess how precision medicine can improve health outcomes. She is a founding co-investigator of the innovative Patient and Community Engagement Research (PaCER) Program at the University of Calgary which trains patients to design and conduct health research, using specific adapted methods of qualitative inquiry. Dr. Marshall is the co-lead of the Economics platform for UCAN CANDU – Canada-Netherlands Personalized Medicine Network in Childhood Arthritis and Rheumatic Disease funded by the CIHR Personalized Medicine in Inflammation Network. Dr. Marshall is also the co-lead of the Patient Engagement theme for IMAGINE (Inflammation, Microbiome, and Alimentation: Gastro-Intestinal and Neuropsychiatric Effects) – a CIHR Strategy for Patient Oriented Research (SPOR) Chronic Disease Network.

Dr. Marshall is an active member of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) as the Past President of the Board of Directors, the Chair of the Dynamic Simulation Modeling Applications in Health Care Delivery Research Task Force and as a member of the Patient Preferences Special Interest Group, the Optimization Methods Task Force and co-author of related ISPOR Task Force Reports. She has also served as a member of the Board of Directors for Health Technology Assessment International (HTAi). She is currently the co-chair of the Scientific Research Committee and Board of Directors of the Arthritis Alliance of Canada (AAC), and a member of the Scientific Advisory Committee of the Alberta PROMs & EQ-5D Research & Support Unit (APERSU).

### Selected Publications

43. [Barber CE](#), Sandhu N, Rankin J, MacMullan P, **Marshall DA**, Barnabe C, [Hazlewood G](#), Emrick A, Stevenson M, Then K, Benseler S, Twilt M, Mosher D. Rheum4U: Development and testing of a web-based tool for improving the quality of care for patients with rheumatoid arthritis. *Clinical and Experimental Rheumatology*, 2018. In Press
42. [Lopatina E](#), Miller J, Teare S, Marlett N, Patel J, [Barber CE](#), Mosher D, Wasylak T, Woodhouse L, **Marshall DA**. The voice of patients in system redesign: A case study of redesigning a centralized system for intake of referrals from primary care to rheumatologists for patients with suspected rheumatoid arthritis. *Health Expectations*, December 2018. In Press <https://doi.org/10.1111/hex.12855>

42. **Marshall DA**, Benchimol EI, MacKenzie A, Rodriguez Duque D, MacDonald KV, Hartley T, Howley T, Hamilton A, Gillespie M, Malam F, Boycott KM. Direct healthcare costs for children diagnosed with genetic diseases are significantly higher than for children with other chronic diseases. *Genetics in Medicine* 2019;21(5):1049-1057.
41. Barber T, Sharif B, Teare S, Miller J, Shewchuk B, Green L, Marlett N, Cibere J, Mrklas K, Wasylak T, Li L, Campbell-Scherer D, **Marshall DA**. Qualitative Study to elicit patients' and primary care physicians' perspectives on the use of a self-management mobile health application for knee osteoarthritis. *BMJ Open*, 2019; 9:1-16.
40. **Marshall DA**, Liu X, Shahid R, Bertazzon S, Seidel J, Patel AB, Masr M, Barber CEH, McDonald T, Sharma R, Briggs T, Faris P, Waters N. Geographic variation in osteoarthritis prevalence in Alberta: a spatial analysis approach. *Applied Geography*; 103(2019):112-121.
39. Barber CE, Nasr M, Barnabe C, Badley E, Lacaille D, Pope J, Cividino A, Yacyshyn E, Baillier C, Mosher D, Thomson J, Charnock C, Throne JC, Zimmer M, Brophy J, Ruban T, Ahulwalia V, McDougall R, **Marshall DA**. Planning for the rheumatologist workforce: Factors associated with work hours and volumes. *Journal of Clinical Rheumatology* 2019;25(3):142-146
38. Greenwood-Lee J, Jewett L, Woodhouse L, **Marshall DA**. A categorisation of problems and solutions to improve patient referrals from primary to specialty care. *BMC Health Services Research*. 2018; 18(1):986.
37. Collins K, Sharif B, Sanmartin C, Herzog W, Chin R, **Marshall DA**. Association of metabolic markers with self-reported osteoarthritis among middle-aged BMI-defined non-obese individuals: a cross-sectional study. *BMC Obesity* 2018;5(23).
36. Crown W, Buyukkaramikli N, Sir M, Thokala P, Morton A, **Marshall DA**, Tosh J, Ijzerman M, Padula W, Pasupathy K. Application of Constrained Optimization Methods in Health Services Research: Report 2 of the ISPOR Optimization Methods Good Practices Task Force. *Value in Health*, September 2018; 21(9):1019-1028
35. Regier DA, Weymann D, Buchanan J, **Marshall DA**, Wordsworth S. Valuation of health and non-health benefits from next generation sequencing: approaches, challenges, and solutions. *Value in Health*, September 2018; 21(9):1043-1047.
34. Wordsworth S, Doble B, Payne K, Buchanan J, **Marshall DA**, McCabe C, Regier DA. Using 'big' data in the cost-effectiveness analysis of genomic-based diagnostic tests: challenges and potential solutions. *Value in Health*, September 2018; 21(9):1048-1053
33. Phillips KA, Deverka PA, **Marshall DA**, Wordsworth S, Regier DA, Christensen KD, Buchanan J. Methodological issues in assessing the economic value of next-generation sequencing tests: many challenges and not enough solutions. *Value in Health*, September 2018; 21(9): 1033-1042
31. Conner-Spady B, **Marshall DA**, Bohm E, Dunbar MJ, Noseworthy TW. Comparing the validity and responsiveness of the EQ-5D-5L to the Oxford hip and knee scores and SF-12 in osteoarthritis patients 1 year following total joint replacement. *Quality of Life Research*, May 2018; 27(5):1311-1322
30. **Marshall DA**, Deal K, Conner-Spady B, Bohm E, Hawker G, Loucks L, MacDonald KV, Noseworthy T. How do patients trade-off surgeon choice and waiting times for total joint replacement: A discrete choice experiment. *Osteoarthritis and Cartilage*, 2018; 26:522-530
29. Westby MD, **Marshall DA**, Jones A. Development of quality indicators for hip and knee arthroplasty rehabilitation. *Osteoarthritis and Cartilage*. 2018; 26(1):370-382
28. Damani Z, MacKean G, Bohm E, Noseworthy T, Wang J, DeMone B, Wright B, **Marshall DA**. Insights from the design and implementation of a single-entry model of referral for total joint replacement surgery: Critical success factors and unanticipated consequences. *Health Policy*, 2018; 122(1):165-174
27. Barber CE, Schieir O, Lacaille D, **Marshall DA**, Barnabe C, Hazlewood G, Nadeau L, Thorne JC, Ahluwalia V, Bartlett SJ, Boire G, Haraoui B, Hitchon C, Keystone E, Tin D, Pope JE, Denning L, Bykerk VP, and Canadian Early Arthritis Cohort (CATCH) Investigators. High adherence observed to system-level performance measures for rheumatoid arthritis in a national early arthritis cohort over eight years. *Arthritis Care & Research*, 2018; 70(6):842-850.

26. Barber CEH, Mosher DP, Ahluwalia V, Zummer M, **Marshall DA**, Choquette D, Lacaille D, Bombardier C, Lyddiatt A, Chandran V, Khodyakov D, Dao E, Barnabe C (for the RACCD Workshop Group). Development of a Canadian core clinical dataset to support high-quality care for Canadian patients with rheumatoid arthritis. *Journal of Rheumatology*, 2017; 44:1813-1822.
25. Hazlewood G, **Marshall DA**, Tomlinson G, Bombardier C. A Bayesian model that jointly considers comparative effectiveness research and patients' preferences may help inform GRADE recommendations: An application to rheumatoid arthritis treatment recommendations. *J Clin Epidemiology* Jan 2018;93(1):56-65
24. Lacny S, Wilson T, Clement F, Roberts D, Faris P, Ghali W, **Marshall DA**. Kaplan-Meier survival analysis overestimates cumulative incidence of health-related events in competing risk settings: A meta-analysis. *J Clin Epi* 2018, 93(1):23-35
23. Shklarov S, **Marshall DA**, Wasylak T, Marlett NJ. "Part of the Team": Mapping the outcomes of training patients for new roles in health research and planning. *Health Expectations*, 2017;20:1428-1436
22. Jansen E, **Marshall DA**, Hauber BA, Bridges JFP. Improving the quality of discrete-choice experiments in health: How can we assess validity and reliability? *Expert Review of Pharmacoeconomics & Outcomes Research*, Oct 2017; 17(6):531-542.
21. Lopatina E, Damani Z, Bohm E, Noseworthy T, Conner-Spady B, MacKean G, Simpson C, **Marshall DA**. Single-Entry Models (SEMs) for Scheduled Services: Towards a Roadmap for the Implementation of Recommended Practices. *Health Policy*, Sept 2017;121(9):963-970.
20. Whitty JA, Fraenkel L, Saigal CS, Groothuis-Oudshoorn CGM, Regier DA, **Marshall DA**. Assessment of individual patient preferences to inform clinical practice. *The Patient*, Aug 2017;10(4):519-521.
19. Carr E, Babione J, **Marshall DA**. Translating research into practice through user-centered design: An application for osteoarthritis healthcare planning. *Int J Medical Informatics*, August 2017;104(1):31-37.
18. Garner S, Lopatina E, Rankin JA, **Marshall DA**. Nurse-led care for patients with rheumatoid arthritis: A systematic review of the effect on quality of care. *Journal of Rheumatology* June 2017;44(6):757-765.
17. **Marshall DA**, MacDonald KV, Robinson JO, Barcellos LF, Gianfrancesco M, Helm M, McGuire A, Green RC, Douglas MP, Goldman MA, Phillips KA. The price of whole genome sequencing may be decreasing, but who will be sequenced? *Personalized Medicine* May 2017;14(3):203-121.
16. Phillips K, Douglas MP, Trosman JR, **Marshall DA**. What goes around comes around: Lessons from economics evaluations of personalized medicine applied to digital medicine. *Value in Health* 2017;20(1):47-53.
15. **Marshall DA**, Gonzalez JM, MacDonald KV, Johnson FR. Estimating preferences for complex health technologies: Lessons learned and implications for personalized medicine. *Value in Health* Jan 2017;20(1):32-39.
14. Crown W, Buyukkaramikli N, Thokala P, Morton A, Sir MY, **Marshall DA**, Tosh J, Padula MV, IJzerman MJ, Wong PK, Pasupathy KS. Constrained optimization methods in health services research – An introduction: Report 1 of the ISPOR Optimization Methods Emerging Good Practices Task Force. *Value in Health* 2017;20(3):310-19.
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11. Miller JL, Teare SR, Marlett N, Shklarov S, **Marshall DA**. Support for living a meaningful life with osteoarthritis: A patient-to-patient research study. *The Patient* Oct 2016;9(5):457-64
10. Greenwood-Lee J, Hawe P, Nettel-Aguirre A, Shiell A, **Marshall DA**. Complex intervention modelling should capture the dynamics of adaption. *BMC Med Res Methodol*, May 2016;16:51.

9. Hazlewood GS, Bombardier C, Tomlinson G, Thorne C, Bykerk VP, Thompson A, Tin D, **Marshall DA**. Treatment preferences of patients with early rheumatoid arthritis: A discrete-choice experiment. *Rheumatology (Oxford)*. Nov 2016;55(11):1959-1968.
8. **Marshall DA**, Burgos-Liz L, IJzerman MJ, Osgood ND, Padula WV, Higashi MK, Wong PK, Pasupathy K, Crown W. Applying Dynamic Simulation Modeling Methods in Health Care Delivery Research—The SIMULATE Checklist: An ISPOR Emerging Good Practices Task Force Report. *Value in Health* 2015; 12(1):13-22.
7. Marlett N, Shklarov S, **Marshall DA**, Santana MJ, Wasylak T. Building New Relationships in Research: A Model of Patient Engagement Research. *Qual Life Res* 2015 May;24(5):1057-67.
6. Vanderby SA, Carter MW, Noseworthy T, **Marshall DA**. Modeling the complete continuum of care using system dynamics: the case of osteoarthritis in Alberta. *Journal of Simulation* 2015; 9(2):156-169.
5. **Marshall DA**, Christiansen T, Smith C, Squire-Howden J, Werle J, Faris P, Frank C. Continuous quality improvement program for hip and knee replacement surgical care. *American Journal of Medical Quality*. 2015; 30(5):425-31.
4. Husereau D, **Marshall DA**, Levy AR, Peacock S, Hoch JS. Health Technology Assessment and Personalized Medicine: Are Economic Evaluation Guidelines Sufficient to Support Decision Making? *International Journal of Health Technology Assessment*. 2014 Apr;30(2):179-87.
3. Johnson FR, Lancsar E, **Marshall DA**, Kilambi V, Mühlbacher A, Regier D, Bresnahan B, Kanninen B, Bridges J. Constructing experimental designs for discrete-choice experiments: Report of the ISPOR conjoint analysis experimental design good research practices task force. *Value in Health* 2013;16:3-13.
2. Frank C, **Marshall DA**, Faris P, Smith C. Essay\ for the CIHR/CMAJ award: Improving access to hip and knee replacement and its quality by adopting a new model of care in Alberta. *CMAJ*, 2011;183(6):E347-50.
1. Bridges JFP, Hauber B, **Marshall DA**, Lloyd A, Prosser LA, Regier DA, Johnson FR, Mauskopf J. Conjoint analysis applications in health – a checklist: A report of the ISPOR good research practices for Conjoint Analysis Task Force. *Value in Health*, 2011; 14(4):403-13.

## Research Funding

Towards a patient-centered system: Integrating preferences of patients with osteoarthritis into evaluation of health services interventions to improve patient outcomes and health system efficiency, CIHR 2019 – 2022, \$370,000

Establishing the validity of quality of life measures in young children with juvenile idiopathic arthritis, Arthritis Society 2019 – 2021, \$324,039

CARE4RARE Canada: Harnessing multi-omics to deliver innovative diagnostic care for rare genetic diseases in Canada (C4R-SOLVE), Ontario Genomics/Genome Canada, LSARP Genomics & Precision Health Grant, 2018 to 2022, \$662,728

UCAN CURE Precision Decisions for Childhood Arthritis, Ontario Genomics/Genome Canada, LSARP Genomics & Precision Health Grant 2018 – 2022, \$1,700,000

Eliciting patient preferences for prioritization of healthcare processes in the management of inflammatory bowel disease, Crohn's Colitis Canada 2017 to 2020, \$183,115

The Alberta precision health initiative for arthritis and complex immune disease, Alberta Innovates/ Genome Alberta Alberta Precision Health Initiative (APHI) Development Grant, 2017 to 2013, \$319,600

UCAN CAN-DU: Canada-Netherlands personalized medicine network in childhood arthritis and rheumatic disease, CIHR 2017 to 2022, \$5,130,000

Measuring geographic variation in access to care for rheumatology patients and related outcomes: A patient-centered approach, CIORA, 2016 to 2018, \$117,846

A PROMs based patient decision aid for patients considering total knee arthroplasty: Development and a pilot randomized controlled trial, EuroQol, 2015 to 2019, \$319,263

Inflammation, Microbiome, and Alimentation: Gastro-Intestinal and Neuropsychiatric Effects: the IMAGINE-SPOR chronic disease work, CIHR SPOR Network Grant, 2016 to 2021, \$12.5M

Building partnerships to improve care of early knee osteoarthritis patients: Co-developing a risk management tool, CIHR Knowledge to Action Grant, 2016 to 2018, \$200,000

Optimizing centralized intake to improve arthritis care in Albertans, Alberta Innovates Health Solutions, PRIHS Grant 2014 to 2017, \$744,806

Towards better surgical outcomes through improved decision making about appropriateness for total knee arthroplasty in patients with knee osteoarthritis, CIHR, 2014 to 2019, \$1,044,241

Enhanced CARE for RARE genetic diseases in Canada, Ontario Genomics Institute, 2013 to 2017, \$11,853,890