

**BIOGRAPHICAL SKETCH**

Provide the following information for the Senior/key personnel and other significant contributors.  
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Daniel D. Matlock, MD, MPH

eRA COMMONS USER NAME (credential, e.g., agency login): MATLOCK.D

POSITION TITLE: Associate Professor of Medicine

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	Completion Date MM/YYYY	FIELD OF STUDY
Colorado School of Mines, Golden, CO	B.S.	07/1999	Chemical Engineering
University of Colorado, Aurora, CO	M.D.	05/2003	Medicine
University of Colorado		06/2006	Internal Medicine
University of Colorado		06/2007	Geriatrics
University of Colorado	MPH	06/2009	NRSA T32 Fellowship

**A. Personal Statement.**

My research is aimed at fundamentally changing and improving how patients make decisions around invasive interventions. I am currently funded under an NIH R01 and three current or previous PCORI grants studying the effectiveness, implementation, and dissemination of decision aids for implantable cardioverter–defibrillators (ICD) and Left Ventricular Assist Devices (LVAD). I am a member of the Colorado Cardiovascular Outcomes Research Group, one of the top outcomes research groups in the country. I have participated in the American College of Cardiology’s shared decision-making task force and I participated in the writing group for an American Heart Association statement entitled “Shared Decision Making in Heart Failure.” I also participated on the International Patient Decision Aid Standards (IPDAS) update writing committee for the chapter on “establishing the effectiveness.” I am currently the lead implementation scientist for the Denver VA medical Center’s Geriatric Research Education and Clinical Center. I have done extensive work on ICD decision making including qualitative and survey work with both patients and clinicians, epidemiological work on ICD practice variations, development of an ICD decision quality measure, and development of 4 ICD decision aids and 2 LVAD decision aids ([www.patientdecisionaid.org](http://www.patientdecisionaid.org)). I have successfully led two multi-site randomized trials of a decision aids and participated as the site-investigator for two National Heart, Lung, and Blood Institute funded RO1s exploring various aspects of decision making among patients with advanced heart failure. I currently direct the Colorado Program in Patient Centered Decisions at the Adult and Child Consortium for Outcomes Research and Delivery Science where we take a broad view of shared decision-making acknowledging that decisions are hard and influenced by many factors beyond cognitive information. We have a strong user-centered design focus to the development of our decision aids for enhanced implementation.

As a geriatrician who has been working with older populations related to implantable defibrillators for years, I believe I’m in an ideal position to assist Dr. Kramer with this project. I have established working relationships with the Division of Cardiology and the section of electrophysiology and experience recruiting and retaining these populations for research. Also, as a geriatrician, I can work with Dr. Kramer to contribute this perspective scientifically as the work and project progresses.

**B. Positions and Honors**

**Positions and Employment**

2007 – 2009: Instructor, Division of General Internal Medicine, Dept. of Medicine, U of Colorado

2007 – 2009: Medical Director – The Denver Hospice  
2009 – 2015 Assistant Professor, Division of General Internal Medicine, Dept. of Medicine, U of Colorado (secondary appointment – Division of Geriatrics)  
2009 – Affiliate Investigator – Kaiser Institute for Health Research  
2015 – Associate Professor, Division of Geriatrics, Dept. of Medicine, U of Colorado  
2015 – Co-Director, Shared Decision Making Core, Adult and Child Consortium for Health Outcomes Research and Delivery Science (ACCORDS)  
2015 – Dir of Implementation Science, VA Geriatric Research Education and Clinical Center

### **Other Experiences and Memberships**

2016- Associate Editor, Circulation: Cardiovascular Quality and Outcomes  
2006 - 2014 Member, Society of General Internal Medicine  
2007- Member, American Geriatrics Society  
2010- Member, Society for Medical Decision Making  
2013- Associate Editor, Journal of Palliative Medicine  
2013- Associate Editor, Medical Decision Making  
2011- Member, the International Patient Decision Aid Standards update committee  
2007- Member, The Colorado Cardiovascular Outcomes Research Consortium

### **Honors**

2003 Honor Council Award – University of Colorado  
2003 Hippocrates Award – University of Colorado  
2003 Adler Scholarship – for service and leadership, University of Colorado  
2007 Jahnigen Scholarship - University of Colorado  
2007 Alpha Omega Alpha – University of Colorado  
2008 George Bennett Fellowship – Foundation for Informed Medical Decision Making  
2009 Hartford Geriatrics Health Outcomes Research Scholar  
2011 Paul B. Beeson, K23 Career Development Award  
2012 Mountain West SGIM Clinician Investigator of the year  
2013 University of Colorado, Department of Medicine Early Career Scholar  
2015 Colorado ACP Young Physician of the Year

## **C. Contribution to Science**

1. *Decision Making for Implantable Cardioverter-Defibrillators (ICD): The major focus of my early research career has been in exploring and documenting the patient's and clinician's perspectives related to the decision to receive an ICD for primary prevention. While ICDs confer an important reduction in the risk of death, they come with a host of harms. Also, for some older adults, sudden cardiac death is not the worst path of decline. We have documented a well-meaning clinician perspective to prolong life which can lead to a benevolent/paternalistic approach to decision making. Consequently, patients are poorly informed and their perspectives are not being explored. Considering these two perspectives, we have developed decision aids designed to support patients in their decision but also to support clinicians in their discussions. ([www.patientdecisionaid.org](http://www.patientdecisionaid.org)). Through this work, we have pushed the science of shared decision making to explore trade-offs around modes of death and to begin to acknowledge many of the emotional aspects of this decision making. This work has been supported by the NIA (K23) and PCORI. (In addition to relevant publications listed in section A above)*
  - a. **Matlock DD**; Kutner JS; Emsermann C; Al-Khatib S; Sanders GD; Rumsfeld JS; Dickinson LM; Masoudi FA. Regional Variations in Physicians' Attitudes and Recommendations Surrounding Implantable Cardioverter-Defibrillators. J Card Fail 2011 17(4):318-24. PMID: 21440870
  - b. El-Jawahri A, Paasche-Orlow MK, **Matlock DD**, Stevenson LW, Lewis EF, Stewart G, Semigran M, Chang Y, Parks K, Walker-Corkery ES, Temel JS, Bohossian H, Ooi H, Mann E, Volandes AE. Randomized, Controlled Trial of an Advance Care Planning Video Decision Support Tool for Patients with Advanced Heart Failure. Circulation. 2016 Jul 5;134(1):52-60. PMID: 27358437

- c. **Matlock DD**; Peterson PN; Wang Y; Curtis JP; Reynolds MR; Varosy P; Masoudi FA. Variation in Use of Dual Chamber Implantable Cardioverter-Defibrillators: Results from the NCDR. Archives of Internal Medicine 2012;172(8):634-41. PMID: 22529229
  - d. Lewis KB, Stacey D, **Matlock DD**. Making Decisions about Implantable Cardioverter-Defibrillators from Implantation to End-of-Life: An Integrative Review of Patients' Perspectives. The Patient. 2014;7(3):243-60. PMID: 24668214
2. Decision Making for Left Ventricular Assist Devices (LVAD) and Advanced heart failure: Building on our work in ICDs, I teamed up with an excellent group of investigators on the University of Colorado heart failure service and we have explored a host of important research projects related to patient, caregiver, and clinician decision making for LVADs. (In addition to relevant publications listed in section A above). We have demonstrated that current patient directed materials developed by industry are inaccurate, incomplete, and biased. We have also shown that for both patients and caregivers, this decision is uniquely emotional. We have developed a decision aid that we are currently studying in a broad implementation project funded by PCORI.
- a. McIlvennan CK, Jones J, Allen LA, Swetz KM, Nowels C, **Matlock DD**. Bereaved caregiver perspectives on the end-of-life experience with a left ventricular assist device. JAMA Intern Med. 2016. Apr 1;176(4):534-9. PMID: 26998594
  - b. Allen LA, McIlvennan CK, Thompson JS, Dunlay SM, LaRue SJ, Lewis JS, Patel CB, Blue L, Fairclough DL, Leister EC, Glasgow RE, Cleveland JC, Phillips C, Baldrige V, Walsh MN, **Matlock DD**. Effectiveness of an intervention supporting shared decision making for destination therapy left ventricular assist device: the DECIDE-LVAD randomized stepped-wedge trial. JAMA Intern Med. 2018 Apr 1;178(4):520-529. PMID: 29482225
  - c. Peterson PN; Shetterly SM; Clarke CL; Bekelman DB; Chan PS; Allen LA; **Matlock DD**; Magid DJ; Masoudi FA. Health Literacy and Outcomes among Patients with Heart Failure. JAMA. 2011;305(16):1695-170. PMID: 21654033
  - d. Allen LA, Stevenson LW, Grady KL, Goldstein NE, **Matlock DD**, Arnold RM, Cook NR, Felker GM, Francis GS, Hauptman PJ, Havranek EP, Krumholz HM, Mancini D, Riegel B, Spertus JA. Decision Making in Advanced Heart Failure: A Scientific Statement from the American Heart Association. Circulation. 2012;125(15):1928-1952. PMID: 228393703
3. Qualitative and mixed methods research: I have significant experience in mixed methods and qualitative research in multiple settings. I completed over 14 qualitative studies over the past 11 years.
- a. **Matlock DD**, Nowels CT, Masoudi FA, Sauer WH, Bekelman DB, Main DS, et al. Patient and cardiologist perceptions on decision making for implantable cardioverter-defibrillators: a qualitative study. Pacing Clin Electrophysiol. 2011 Dec;34(12):1634-44. PMID: 21972983
  - b. McIlvennan CK, Jones J, Allen LA, Swetz KM, Nowels C, **Matlock DD**. Bereaved caregiver perspectives on the end-of-life experience with a left ventricular assist device. JAMA Intern Med. 2016 Apr;176(4):534-9. PMID: 26998594
  - c. **Matlock DD**, Jones J, Nowels CT, Jenkins A, Allen LA, Kutner JS. Evidence of Cognitive Bias in Decision Making Around Implantable-Cardioverter Defibrillators: A Qualitative Framework Analysis. J Card Fail. 2017 [Epub ahead of print] PMID: 28363805
  - d. **Matlock DD**, McGuire WC, Magid M, Allen LA. "Decision Making in Advanced Heart Failure: Bench, Bedside, Practice, and Policy" Heart Fail Rev. Heart Fail Rev. 2017 Sep;22(5):559-56. PMID: 28670652
4. Decision Making in Palliative care: Grounded firmly in the soil of patient autonomy, it is a natural marriage between the fields of decision science and palliative care. We have explored the feasibility of using a decision aid on an inpatient palliative care service. We have learned that tools and decisions in this setting are highly contextual and shared decision making needs to be malleable.
- a. Bakitas MA; Kryworuchko J; **Matlock DD**; Volandes AE. Palliative Medicine and Decision Science: The critical need for a shared agenda to foster informed patient choice in serious illness. J Palliat Med. 2011 Oct;14(10):1109-16. PMID: 22366099

- b. **Matlock DD**, Keech TA, McKenzie MB, Bronsert MR, Nowels CT, Kutner JS. Feasibility and acceptability of a decision aid designed for people facing advanced or terminal illness: a randomized trial. *Health Expectations* 2014 Feb;17(1):49-59. PMID: 22032553
  - c. Jones J; Nowels C; Kutner JS; **Matlock DD**. Shared Decision Making and the Use of a Patient Decision Aid in Advanced Serious Illness: Provider and Patient Perspectives. *Health Expect* 2015 Dec;18(6):3236-47. PMID: 25439268
  - d. **Matlock DD**, Yamashita TE, Min SJ, Smith AK, Kelley AS, Fischer S. How U.S. Doctors Die: A Cohort Study of Health Care Utilization at End of Life. *Journal of the American Geriatrics Society*. 2016 May;64(5):1061-7. PMID: 27195936
5. *The science of shared decision making: Finally, in addition to the above work on decision making related to specific decisions and situations, I have also worked on the science of decision making in general including the development and measurement of outcomes instruments and clinician numeracy.*
- a. Sepucha KR, Borkhoff CM, Lally J, Levin CA, **Matlock DD**, Ng CJ, et al. Establishing the effectiveness of patient decision aids: Key constructs and measurement instruments. *BMC Med Inform Decis Mak* 2013;13 Suppl 2:S12. PMID: PMC4044563
  - b. Sepucha K, **Matlock DD**, Wills CE, Ropka M, Joseph-Williams N, Stacey D, Ng CJ, Levin C, Lally J, Borkhoff CM, Thomson R. "It's valid and reliable" is not enough: critical appraisal of reporting of measures in trials evaluating patient decision aids. *Med Decis Making* 2014 Apr 8;34(5):560-566. [Epub ahead of print]. PMID: PMC4190105
  - c. **Matlock DD**, Spatz E. Design and Testing of Tools for Shared Decision Making. *Circulation. Circ Cardiovasc Qual Outcomes* 2014 May;7(3):487-92. PMID: 24714602
  - d. Caverly TJ, Prochazka AV, Combs BP, Lucas BP, Mueller SR, Kutner JS, Binswanger IA, Fagerlin A, **Matlock DD**. Doctors and Numbers: An Assessment of the Critical Risk Interpretation Test. *Med Decis Making* 2015 May;35(4):512-24. PMID: 25378297
6. Implementation Science
- a. Tan ASL, Mazor KM, McDonald D, Lee SJ, McNeal D, **Matlock DD**, Glasgow RE. Designing Shared Decision-Making Interventions for Dissemination and Sustainment: Can Implementation Science Help Translate Shared Decision Making Into Routine Practice? *MDM Policy Pract*. 2018 Dec 7;3(2):2381. PMID: 30560204
  - b. Allen LA, McIlvennan CK, Thompson JS, Dunlay SM, LaRue SJ, Lewis JS, Patel CB, Blue L, Fairclough DL, Leister EC, Glasgow RE, Cleveland JC, Phillips C, Baldrige V, Walsh MN, **Matlock DD**. Effectiveness of an intervention supporting shared decision making for destination therapy left ventricular assist device: the DECIDE-LVAD randomized stepped-wedge trial. *JAMA Intern Med*. 2018 Apr 1;178(4):520-529. PMID: 29482225
  - c. Thompson JS, **Matlock DD**, Morris MA, McIlvennan CK, Allen, LA. Organic Dissemination and Real-World Implementation of Patient Decision Aids for Left Ventricular Assist Device. *MDM Policy & Practice*. 2018;3(1):1-12. PMID: 30288442
  - d. Glasgow RE, Kwan BM, Matlock DD. Realizing the full potential of precision health: The need to include patient-reported health behavior, mental health, social determinants, and patient preferences data. *Journal of Clinical and Translational Science*. *J Clin Transl Sci*. 2018 Jun;2(3):183-185. doi: 10.1017/cts.2018.31. Epub 2018 Sep 13. PMID: 30370072

#### Complete List of Published Work in MyBibliography:

<http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/44181281/?sort=date&direction=descending>

#### D. Additional Information: Research Support and/or Scholastic Performance

##### Ongoing Research Support

SDM-2017C2-8640

Matlock (PI)

10/01/2018 - 09/30/2021

PCORI

\$1,500,000

Title: Tailored Implementation of a Decision Support Strategy for Left Ventricular Assist Devices across All Programs in the United States

The major goal of this project is disseminate the LVAD shared decision making program at all 162 LVAD programs across the United States

R21 AG059114-01) Matlock (PI) 07/01/2018-06/30/2020  
National Institutes on Aging \$450,000

Title: Pilot Evaluation of Hospice Decision Support Tools

The goal of this project is to determine the feasibility and acceptability of a hospice decision aid among a diverse population of older adults at multiple stages of illness (Aim 1) and to determine the preliminary efficacy of the hospice decision aid on decision quality, hospice knowledge, and values-concordance (Aim 2).

1 I01 RX002960-01 Czerniecki (PI) 10/1/2018-9/30/2022  
VA RR&D Merit Award \$1,095,432 (total)

Project Title: Improving Dysvascular Amputee Outcomes by Enhancing Shared Decision Making Through the Development and Implementation of a Patient Decision Aid and a Decision Support Tool

This study will lead to the development of a patient decision aid and a decision support tool that will inform Veterans facing lower extremity amputation due to dysvascular disease and their surgeons about anticipated outcomes and enable them to make an amputation level decision that will allow patients to achieve the functional outcomes that best meet their goals and priorities.

Role: Co-I

I01 HX-002204-01 Kanwal (PI) 09/01/17-08/31/20

Veterans Administration, Health Services Research and Development IIR  
Patient Centered Care for Older Adults with Advanced Liver Disease.

Role: Co-Investigator

R34 MH113539) Betz (PI) 07/01/17-06/30/19

National Institute of Mental Health

Patient Decision Aid to Augment Lethal Means Counseling for Suicidal Patients

The objective of this study is to develop and test a web-based "lethal means decision aid" to inform and empower individuals at risk of suicide to increase home safety by reducing access to firearms.

Role: Co-I

N/A Bennett (PI) 07/01/17-06/30/19

Colorado Dept. of Human Services Brain Injury Network

Decision Making about ICP Monitoring in Children with TBI

The objective of this study is to explore qualitatively and quantitatively, ways to predict use of intracranial pressure monitor in children with traumatic brain injury

Role: Co-I

R01 HL136403 Matlock (PI) 05/15/17-02/28/22

National Heart, Lung, and Blood Institute

A Multicenter Trial of a Shared DECision Support Intervention for Patients offered implantable Cardioverter-Defibrillators: DECIDE - ICD Trial

The overall goal is to assess real-world effectiveness (Aim 1) and implementation (Aim 2) of patient decision aids for high-risk decisions using the implantable cardioverter-defibrillator (ICD) as a model.

Role: PI

### **Completed Research Support**

N/A Matlock/Candrian (PIs) 08/01/16-08/30/18

The Colorado Health Foundation

Development and Evaluation of an Advance Care Planning Certification Program

This award builds on prior CTSA funded community relationship with the Denver Hospice to develop an advance care planning certification program for volunteers.

Role: Co-PI

1310-06998 Allen (PI) 12/01/14-11/30/17

Patient-Centered Outcomes Research Institute (PCORI)

A Multicenter Trial of a Shared Decision Support Intervention for Patients and their Caregivers Offered Destination Therapy for End-Stage Heart Failure

In this project we will implement a decision aid across six sites studying effectiveness and implementation.

Role: Co- I

R01 HL107268

Volandes (PI)

07/15/11 - 06/30/17

National Heart, Lung, and Blood Institute

Using Videos to Facilitate Advance Care Planning for Patients

The goal of this randomized clinical trial is to determine if a decision aid designed for patients with heart failure helps improve patients' knowledge and decision making.

Role: Site-Investigator

K23 AG040696

Matlock (PI)

08/01/11-05/31/17

National Institutes on Aging, Paul B. Beeson K23 Career Development Award

Implanted Defibrillators and Older Adults: A Model of Decisions and Technologies

The goal of this career development award is to foster development around shared decision making for implantable cardioverter-defibrillators and older adults.

Role: Principal Investigator

R01 HL102084

Goldstein (PI)

02/07/11 – 01/31/17

National Heart, Lung, and Blood Institute

An Intervention to Improve ICD Deactivation Conversations

The goal of this randomized clinical trial is to evaluate the effectiveness of an educational intervention to improve cardiologists' discussions with patients regarding implantable defibrillator deactivation.

Role: Site-Investigator