

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: Charlton, Mary Elizabeth

eRA COMMONS USER NAME (credential, e.g., agency login): CHARLTON.MARY

POSITION TITLE: Associate Professor

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 |
|---|----------------------------------|----------------------------|--|
| University of Iowa, College of Nursing, Iowa City, IA | BS | 1998 | Nursing |
| University of Iowa College of Public Health, Iowa City, IA | MS | 2002 | Epidemiology |
| Harvard School of Public Health, Boston, MA | | 2005 | Summer Session – HSR |
| University of Iowa College of Public Health, Iowa City, IA | PhD | 2008 | Epidemiology |
| Northwestern University, Feinberg School of Medicine, Chicago, IL | | 2016 | Advanced Qualitative Methods |
| University of Michigan, Ann Arbor, MI | | 2017 | Summer Institute in Survey Research Techniques |

A. Personal Statement

As an epidemiologist and health services researcher at the University of Iowa College of Public Health and the Director of the Iowa Cancer Registry, I have conducted numerous studies of risk factors, screening behaviors, quality of care measures, practice pattern variation and outcomes related to cancer, with an emphasis on rural populations. My recently completed National Cancer Institute (NCI)-funded K07 award has focused on developing qualitative and survey methodology expertise to determine how rural patients with rectal cancer make decisions about where to receive care, and how physicians make decisions about where to recommend treatment for patients diagnosed with rectal cancer. I directed an NCI-funded supplement to the P30 Holden Comprehensive Cancer Center Support Grant in which we developed approaches to engage rural critical access hospitals in cancer prevention and control initiatives. I have recently been awarded an NCI-funded R01 'Effectiveness and implementation of a health system intervention to improve quality of cancer care for rural, underserved patients. I serve as the Chair of the Rural Cancer Supplement Steering Committee to facilitate collaboration among the NCI-designated cancer centers participating in the supplement and am on the Board of Directors of the Iowa Cancer Consortium and the Iowa Rural Health Association. I also serve on the leadership teams for the UI Holden Comprehensive Cancer Center Cancer Epidemiology and Population Science Program and for Community Outreach and Engagement. As PI of the Iowa Cancer Registry, I led the development of the Cancer in Iowa report which featured racial/ethnic disparities in cancer this year, and our findings highlighted the urgent need to address the significantly poorer cancer outcomes among Iowa's Black population.

B. Positions, Scientific Appointments, and Honors

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|--------------|---|
| 2020-Present | Director, Iowa Cancer Registry |
| 2019-Present | Associate Professor, Department of Epidemiology, University of Iowa College of Public Health, Iowa City, IA |
| 2018-2020 | Associate Director, Iowa Cancer Registry |
| 2013-2019 | Assistant Professor, Department of Epidemiology, University of Iowa College of Public Health, Iowa City, IA |
| 2012–2015 | Core Investigator, VA Center for Comprehensive Access & Delivery Research and Evaluation (CADRE), Iowa City VA Health Care System, Iowa City, IA |
| 2010-2013 | Clinical Assistant Professor, Department of Epidemiology (primary) and Department of Health Management and Policy (secondary), University of Iowa College of Public Health, Iowa City, IA |
| 2009–2010 | Adjunct Professor, Department of Epidemiology, University of Iowa College of Public Health, Iowa City, IA |
| 2009–2012 | Deputy Director, Veterans Midwest Rural Health Resource Center, Iowa City VA Health Care System, Iowa City, IA |
| 2008–2009 | Assistant Professor, University of Nebraska Medical Center, Department of Health Services Research and Administration, College of Public Health, Omaha, NE |
| 2003–2008 | Group Leader, Analytics and Consulting, Business Intelligence and Reporting, Wellmark Blue Cross Blue Shield, Des Moines, IA |

C. Contributions to Science

1. RURAL DISPARITIES IN CANCER CONTROL

One of my primary research areas is focused on rural-urban differences in screening, treatment and quality of cancer care. I was invited by *Oncology* to develop a review paper on the challenges of rural cancer care.

1. Weeks K, Lynch CF, West M, McDonald M, Carnahan R, Stewart S, **Charlton ME**. Impact of Rurality on Stage IV Ovarian Cancer at Diagnosis: A Midwest Cancer Registry Cohort Study. *Journal of Rural Health*. February 2020; 36(4):468-475.
2. Mobley EM, **Charlton ME**, Ward MM, Lynch CF. Nonmetropolitan residence and other factors affecting clinical trial enrollment for adolescents and young adults with cancer in a U.S. population-based study. *Cancer*. July 2019;125(13):2283-2290. PMID: 30901085 PMCID: ONC6755069
3. Pagedar NA, Kahl AR, Tasche KK, Christensen AJ, Howren MB, **Charlton ME**. Incidence trends for upper aerodigestive tract cancers in rural United States Counties. *Head & Neck*. Aug 2019;41(8):2619-2624. PMID: 30843640.
4. **Charlton ME**, Chioreso C, Schlichting JA, Vikas P. Challenges of rural cancer care in the United States. *Oncology*. 2015; 29(9):633-640.

2. IMPACT OF RURALITY ON QUALITY OF CARE AND DECISION-MAKING AMONG PATIENTS WITH RECTAL CANCER

My K07 award has focused on how rural vs. urban patients with rectal cancer decide where to seek treatment. In preparation to administer a survey to Iowa patients with rectal cancer, I conducted a qualitative study to gain context around their decision-making process because there were no published studies in the literature to draw from. Our study demonstrated the heavy reliance of rural cancer patients on physician recommendations and familiarity with local providers and hospitals. Our analyses of SEER-Medicare and SEER Patterns of Care data demonstrated that the colonoscopies that identified the rectal cancer among rural patients were performed by general surgeons who tended to keep the patient for surgery, whereas urban patients had their rectal cancer

diagnosed by gastroenterologists who tended to refer them to high-volume colorectal surgeons, and that high-volume centers provided more guideline recommended care.

1. Matthews KA, Kahl AR, Gaglioti AH, **Charlton ME**. Differences in travel time to cancer surgery for colon versus rectal cancer in a rural state: A new method for analyzing time-to-place data using survival analysis. *Journal of Rural Health*. 2020 36(4):506-516.
2. **Charlton ME**, Shahnazi AF, Gribovskaja-Rupp I, Lin C, Hunter L, Mengeling MA, Chrischilles EA, Lynch CF, Ward MM. Determinants of Rectal Cancer Patients' Decisions on Where to Receive Surgery: a Qualitative Analysis. *Journal of Gastrointestinal Surgery*. 2019; 23(7): 1461-1473. PMID: 30203231. PMCID: PMC6409182.
3. Del Vecchio NJ, Schlichting JA, Chioreso C, Kahl AR, Hrabe JE, Lynch CF, West MM, **Charlton ME**. Guideline-recommended care for rectal cancer patients at high-volume hospitals: a trend in the right direction *Diseases of the Colon & Rectum*. Oct 2019;62(10):1186-1194. PMID: 31490827.
4. **Charlton ME**, Hrabe JE, Wright KB, Schlichting JA, McDowell BD, Halfdanarson TR, Lin C, Stitzenberg KB, Cromwell JW. Hospital characteristics associated with guideline concordant staging and treatment of stage II/III rectal cancer: Analysis of Surveillance, Epidemiology and End Results (SEER)-Medicare data. *Journal of Gastrointestinal Surgery* May 2016; 20(5):1002-11.

3. VARIATION IN TREATMENT OF COLORECTAL CANCER AND ASSOCIATED OUTCOMES

Since 2009 I have been investigating the treatment patterns for colorectal cancer and associated patient and provider factors using data from sources including SEER and the Cancer Care Outcomes Research and Surveillance Consortium (CanCORS) datasets. These studies were among the first to demonstrate how real-world treatment patterns varied by patient demographics, geographic location and rurality, and by clinical and provider characteristics.

1. **Charlton ME**, Stoltenberg KB, Lin C, Schlichting JA, Halfdanarson TR, Juarez GY, Pendergast JF, Chrischilles EA, Wallace RB. Predictors of long-term quality of life for Stage II/III rectal cancer survivors in the Cancer Care Outcomes Research and Surveillance Consortium (CanCORS). *Journal of Oncology Practice*. July 2015.11(4):e476-86. PMID: 26080831.
2. Chioreso C, Gao X, Gribovskaja-Rupp I, Lin C, Ward MM, Schroeder MC, Lynch CF, Chrischilles EA, **Charlton ME** (2019). Hospital and surgeon selection for Medicare beneficiaries with stage II/III rectal cancer: the role of rurality, distance to care and colonoscopy provider. *Annals of Surgery*. 2019. PMC7176526.
3. Gao X, Weeks KS, Gribovskaja-Rupp I, Hassan I, Ward MM, **Charlton ME**. Provider Viewpoints in the Management and Referral of Rectal Cancer. *Journal of Surgical Research*. 2021 Feb;258:370-380. PMID: 33051062; PMCID: PMC7850858.
4. Gao X, Kahl AR, Goffredo P, Lin AY, Vikas P, Hassan I, **Charlton ME**. Treatment of Stage IV Colon Cancer in the United States: A Patterns-of-Care Analysis. *Journal of the National Comprehensive Cancer Network*. 2020 Jun;18(6):689-699. PMID: 32502984.

4. INTERVENTIONS TO IMPROVE COLORECTAL CANCER (CRC) SCREENING IN RURAL VETERANS

A series of projects funded through the VA Rural Health Resource Center have involved assessing urban rural differences in CRC screening, and mailing of fecal immunochemical tests (FITs) to Eastern Iowa Veterans overdue for colorectal cancer screening to determine the feasibility of this approach. Results from the pilot projects for which I secured funding and was the PI, have demonstrated that people overdue for CRC screening are willing to take FITs mailed to their home, an overwhelming majority are also amenable to taking it again one year later, participants reported high level of satisfaction with this method, and overall that the mailing approach transcends distance barriers in improving CRC screening rates. Other VA Medical Centers are now evaluating similar approaches on a larger scale.

1. **Charlton ME**, Mengeling MA, Halfdanarson TR, Makki N, Malhotra A, Klutts JS, Levy BT, Kaboli PJ. Evaluation of a home-based colorectal cancer screening intervention in a rural state. *Journal of Rural Health*. Summer 2014; 30(3): 322-32. PMID: 24164375. PMCID: PMC4266988.
2. Schlichting JA, Mengeling MA, Halfdanarson TR, Makki N, Malhotra A, Klutts JS, Levy BT, Kaboli PJ, **Charlton ME**. Increasing colorectal cancer screening in an overdue population: participation and cost impacts of adding telephone calls to a FIT mailing program. *Journal of Community Health*. Apr 2014; 39(2):239–47. PMID: 24499966. PMCID: PMC4267004.
3. Schlichting JA, Mengeling MA, Halfdanarson TR, Makki N, Malhotra A, Klutts JS, Levy BT, Kaboli PJ, **Charlton ME**. Feasibility of Veterans' Continued Participation in an Annual Fecal Immunochemical Test

Mailing Program for Colorectal Cancer Screening. *Journal of American Board of Family Medicine*. Jul-Aug 2015; 28(4):494-7. PMID: 26152441.

4. Malhotra A, Sarrazin MV, **Charlton ME**, Rosenthal G. Comparison of Colorectal Cancer Screening in Veterans Based on the Location of Primary Care Clinics. *Journal of Primary Care and Community Health* Jan 2014; 5(1):24-29. PMID: 24327586.

5. QUALITY AND COMPLETENESS OF DATA CAPTURED BY SEER CANCER REGISTRIES

Since 2010 I have become increasingly involved with the Iowa SEER Cancer Registry and have worked on a number of projects with the National Cancer Institute and with local Iowa cancer researchers and registry staff including analyses of KRAS testing among Stage IV colorectal cancer patients, completeness of new site specific factors being collected for colorectal and bladder cancers, and impact of reporting sources on the incidence of cutaneous melanoma in Iowa. These studies have helped me to take on a leadership role within the Iowa SEER Cancer Registry, and have provided valuable resources to researchers around the nation and the world who analyze SEER data.

1. Kahl AR, **Charlton ME**, Pagedar NA, Sperry SM, Matt B, Platz CC, Lynch CF. Accuracy of the HPV status site-specific factor 10 (SSF-10) variable for head and neck cancer patients in the Iowa Cancer Registry, 2010-2014 *Head and Neck*. Oct 2018;40(10):2199-220. PMID: 29934978; PMCID: PMC6197903
2. Altekruze S, **Charlton ME**, Chen VW, Hsieh MC, Jessup J, Ries L, Ruiz BA. Analysis of Stage and Clinical/Prognostic Factors for Colon and Rectal Cancer from SEER Registries: Collaborative Stage Data Collection System, Version 1 & Version 2. *Cancer*. Dec 2014; 120(Suppl 23): 3793-806. PMID: 25412391; PMCID: PMC4239669.
3. **Charlton ME**, Kohler B, Adamo P. Bladder cancer collaborative stage variables and their data quality, usage and clinical implications: A review of SEER data, 2004-2010. *Cancer*. Dec 2014; 120(Suppl 23): 3815-25. PMID: 25412393; PMCID: PMC4267579.
4. **Charlton ME**, Kahl A, Greenbaum A, Karlitz JJ, Lin C, Chen VW, Lynch CF. KRAS Testing, Tumor Location and Survival in Stage IV Colorectal Cancer Patients: SEER, 2010-2013. *Journal of the National Comprehensive Cancer Network*. Dec 2017. 15(12): 1484-1493. PMID: 29223986.