
BIOGRAPHICAL SKETCH

NAME: **Brennan M.R. Spiegel, MD, MSHS, FACG, AGAF**

eRA COMMONS USER NAME: bspiegel

POSITION TITLE: UCLA Professor of Medicine and Public Health in Residence; Director of Health Services Research, Cedars-Sinai Health System

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Tufts University, Medford, Massachusetts	B.A.	1994	Philosophy
Tufts University, Medford, Massachusetts	Certificate	1994	Community Health
New York Medical College, New York	M.D.	1998	Medicine
UCLA School of Public Health, Los Angeles, Calif	M.S.H.S.	2004	Health Services

A. Personal Statement

I am a Professor of Medicine and Public Health at UCLA and Director of Health Services Research for Cedars-Sinai Health System. I am trained in health services research methods, including biostatistics, psychometrics, decision analysis, meta-analysis, “big data” analytics, epidemiology and clinical trial design. I direct the Cedars-Sinai Center for Outcomes Research and Education ([CS-CORE](#)), a health services research unit that develops and tests value-based healthcare delivery innovations. CORE focuses on how to use digital health and information technologies in a cost-effective manner while optimizing patient outcomes. My research combines traditional health services techniques with digital health platforms, including: (1) mobile health (mHealth) smartphone applications; (2) electronic health records (EHRs); (3) patient-provider portals with clinical decision support (CDS); (4) social media analytics to conduct clinical research while gaining insight into patient knowledge, beliefs, and behaviors; and (4) wearable biosensors to continuously, inexpensively, and unobtrusively monitor health outside of the traditional provider visit. I have been a Principal Investigator for VA and NIH projects that evaluate novel informatics for healthcare delivery, including using big data approaches to predict patient outcomes, use of e-portals to connect patients and providers, and techniques to electronically monitor patient reported outcomes (PROs). For example, I was the PI of a VA Merit Award to conduct a pragmatic clinical trial in colon cancer screening using novel educational and informatics approaches. Similarly, I was PI on a VA Merit evaluating CDS for safe prescribing of nonsteroidal anti-inflammatory drugs. I have served as PI of an NIH grant to develop EHR-based PROs via the Patient Reported Outcome Measurement Information System (PROMIS®) U01 consortium. Most recently, I was PI on a large analysis of social media data to understand patient knowledge, attitudes, and beliefs around opioid use in America – a study that received broad media attention. I am currently a site leader for the UCLA Clinical and Translational Science Institute (CTSI), a member of the Food and Drug Administration Gastroenterology Field Advisory Board, and Editor-in-Chief for the American Journal of Gastroenterology.

B. Positions and Honors

Positions

2004 – Present	<i>Professor, UCLA School of Medicine and Public Health</i>
2014 – Present	<i>Director, Health Services Research, Cedars-Sinai Health System</i>
2016	<i>Site Leader, UCLA Clinical and Translational Science Institute (CTSI)</i>
2010 – 2015	<i>Principal Investigator, NIH/NIAMS PROMIS® Steering Committee</i>
2015 – Present	<i>Editor-in-Chief, American Journal of Gastroenterology</i>
2012 – Present	<i>Board Member, American College of Gastroenterology (ACG)</i>
2012 – 2015	<i>Chair, ACG Research Committee</i>
2008 – Present	<i>Member, FDA GI Field Advisory Committee</i>

Selected Honors

1997	Alpha Omega Alpha National Honors Society, Iota Chapter, New York Medical College
1998	Leo G Rigler Award for “Resident of the Year” at Cedars-Sinai Medical Center
2003	Janssen Research Excellence in Gastroenterology and Liver (REGAL) Award
2004	CURE Digestive Diseases Research Center Named New Investigator Award
2004	AstraZeneca Emerging Leaders in Gastroenterology Award
2004	VA HSR&D Entry Level Career Development Award
2005	AGA/FDHN Outcomes Research Award
2007	VA HSR&D Career Development Transition Award (CDTA)
2007	International Foundation for Functional Gastrointestinal Disorders (IFFGD) Distinguished Clinical Investigator Award
2007	VA HSR&D Career Development Transition Award (CDTA)
2008	Appointed as Fellow of the American College of Gastroenterology (FACG)
2008	Appointed to FDA Gastroenterology Field Advisory Board
2009	American College of Gastroenterology Leadership Award
2011	Appointed as Fellow of the American Gastroenterological Association (FAGA)
2014	Outstanding Manuscript of 2013, American Society of Gastrointestinal Endoscopy (ASGE)
2015	Elected Co-Editor-in-Chief, American Journal of Gastroenterology

C. Contribution to Science

1. Advancing the Science of Digital Health

Fueled by population health mandates from the Affordable Care Act, and buoyed by advances in computing technologies, healthcare delivery now relies heavily on digital platforms, including electronic health records (EHRs), smartphone applications, mobile health (mHealth) devices, and wearable biosensors. However, it is hard for patients and their providers to know how to interpret and act upon the overwhelming amount of data streaming from these platforms. My research lab studies the impact of digital health on patient and provider outcomes. I combine expertise in medicine, psychology, epidemiology, decision science, information technology, and statistics to develop, test, and implement digital technologies in the “clinical trenches.” For example, I developed and validated an abdominal biosensor that non-invasively monitors digestion and helps make decisions about hospital discharge. I also developed an mHealth application that can outperform a doctor in obtaining a patient history. My team also uses social media to conduct epidemiologic research across wide populations. Forbes Magazine [recently profiled](#) our work in digital health, emphasizing our mission to advance the science and provide an honest accounting of where technologies can – and cannot – improve the value of care. I also teach this material in a class called [Health Analytics](#) at the UCLA School of Public Health. The articles, below, offer examples of our work in developing and testing digital health technologies.

- Whitman CB, Reid MW, Arnold C, Patel H, Ursos L, Sa’adon R, Pourmorady J, **Spiegel BM**. Balancing opioid-induced gastrointestinal side effects with pain management: insights from the online community. *J Pain Management* 2015 Sep-Oct;11(5):383-91
- Almario CV, Chey WD, Iriana S, Dailey F, Robbins K, Patel AV, Reid M, Whitman C, Fuller G, Bolus R, Dennis B, Encarnacion R, Martinez B, Soares J, Modi R, Agarwal N, Lee A, Kubomoto S, Sharma G, Bolus S, Chang L, **Spiegel BM**. Computer versus physician identification of gastrointestinal alarm

features. *Int J Med Inform.* 2015 Jul 26. pii: S1386-5056(15)30023-X. doi: 10.1016/j.ijmedinf.2015.07.006. [Epub ahead of print] PubMed PMID: 26254875. [Spiegel=corresponding author]

- c) Almario CV, Chey W, Kaung A, Whitman C, Fuller G, Reid M, Nguyen K, Bolus R, Dennis B, Encarnacion R, Martinez B, Talley J, Modi R, Agarwal N, Lee A, Kubomoto S, Sharma G, Bolus S, Chang L, **Spiegel BM**. Computer-generated vs. physician-documented history of present illness (HPI): results of a blinded comparison. *Am J Gastroenterol.* 2015 Jan;110(1):170-9. doi: 10.1038/ajg.2014.356. Epub 2014 Dec 2. PubMed PMID: 25461620; PubMed Central PMCID: PMC4289091. [Spiegel=corresponding author]
- d) **Spiegel BM**, Kaneshiro M, Russell MM, Lin A, Patel A, Tashjian VC, Zegarski V, Singh D, Cohen SE, Reid MW, Whitman CB, Talley J, Martinez BM, Kaiser W. Validation of an acoustic gastrointestinal surveillance biosensor for postoperative ileus. *J Gastrointest Surg.* 2014 Oct;18(10):1795-803. doi:10.1007/s11605-014-2597-y. Epub 2014 Aug 5. PubMed PMID: 25091837.

2. Integrating Patient Reported Outcomes (PRO) Into Clinical Practice

Because we ultimately judge the value of healthcare by its impact on the patients we serve, I have long been interested in measuring patient reported outcomes (PROs) in clinical practice. I have published extensively on the development and validation of health related quality of life (HRQOL) instruments and have expertise in psychometric techniques. However, my focus has been to *integrate* PROs into everyday clinical practice to improve shared decision making, enhance patient satisfaction, and maximize outcomes. As a PI for the NIH PROMIS® consortium, I developed computer-administered item banks to monitor symptoms in patients with chronic illness. I also created short-form questionnaires for use in clinical practice, created an online library of PROs for research and clinical care, and am conducting an NIH-funded study comparing PROMIS® vs. usual care in everyday clinical practice. The articles, below, offer examples of this work.

- a) **Spiegel BM**, Hays RD, Bolus R, Melmed GY, Chang L, Whitman C, Khanna PP, Paz SH, Hays T, Reise S, Khanna D. Development of the NIH Patient-Reported Outcomes Measurement Information System (PROMIS) Gastrointestinal Symptom Scales. *Am J Gastroenterol.* 2014 Nov;109(11):1804-14.
- b) **Spiegel BM**, Khanna D, Bolus R, Agarwal N, Khanna P, Chang L. Understanding gastrointestinal distress: a framework for clinical practice. *Am J Gastroenterol.* 2011 Mar;106(3):380-5.
- c) Khanna P, Agarwal N, Khanna D, Hays RD, Chang L, Bolus R, Melmed G, Whitman CB, Kaplan RM, Ogawa R, Snyder B, **Spiegel BM**. Development of an online library of patient-reported outcome measures in gastroenterology: the GI-PRO database. *Am J Gastroenterol.* 2014 Feb;109(2):234-48.
- d) **Spiegel B**, Camilleri M, Bolus R, Andresen V, Chey WD, Fehnel S, Mangel A, Talley NJ, Whitehead WE. Psychometric evaluation of patient-reported outcomes in irritable bowel syndrome randomized controlled trials: a Rome Foundation report. *Gastroenterology.* 2009 Dec;137(6):1944-53.e1-3.

3. Making More Cost-Effective Decisions

I have a longstanding interest in measuring how best to use healthcare resources in cost-constrained environments. I have expertise in decision science and [teach a class](#) in cost-effectiveness analysis at the UCLA School of Public Health. I have used this training to study how to make more cost-effective decisions in healthcare. For example, I published a widely cited paper in *Ann Intern Med* demonstrating that cox-2 inhibitors like celecoxib are not cost-effective under most any scenario. I also published a decision model that revealed the national dyspepsia management guidelines to be highly cost-ineffective; the subsequent guidelines cited this work and adopted the strategy identified in our paper. I published another high impact study showing that patients with irritable bowel syndrome (IBS) should first be tested for celiac sprue before confirming the IBS diagnosis; this has also been featured in national guidelines. My highest cited analyses are listed, below.

- a) **Spiegel BMR**, Vakil NB, Ofman JJ. Dyspepsia management in primary care: a decision analysis of competing strategies. *Gastroenterology* 2002;122:1270-1285
- b) **Spiegel BMR**, DeRosa VP, Gralnek IM, Wang V, Dulai GS. Testing for celiac sprue in diarrhea-predominant irritable bowel syndrome: a cost-effectiveness analysis. *Gastroenterology* 2004;126:1721-32
- c) **Spiegel BMR**, Targownik LE, Dulai GS, Gralnek IM. The cost-effectiveness of cyclooxygenase-2 selective inhibitors in the management of chronic arthritis. *Annals of Internal Medicine* 2003;138:795-806

- d) Kanwal F, Gralnek IM, Martin P, Dulai GS, Martin P, **Spiegel BMR**. The cost-effectiveness of competing therapies in the management of chronic infection with hepatitis B virus. *Annals of Internal Medicine* 2005;142:821-31.

4. Improving Quality and Education around Cancer Screening

As a physician and professor of public health, I am deeply interested in providing high-quality cancer screening. For example, I published a series of studies that identified opportunities for improving quality in colorectal cancer (CRC) screening, including a study that found a relationship between time of day and polyp detection with colonoscopy: hour-by-hour as the day goes on, colonoscopists find fewer and fewer polyps. Subsequent investigators confirmed this work. In a series of two VA Merit Awards, we first developed an educational booklet that improved patient preparation for colonoscopy, and then created “big data” analytics approach to predicting “no shows” for colonoscopy; the latter study tested a novel scheduling technique to conditionally overbook slots to improve patient throughput. Most recently our group published a series of studies demonstrating that African American patients are less likely than others to obtain CRC screening, and developed a blueprint for addressing this inequity. Selected studies are provided, below.

- a) **Spiegel BM**, Talley J, Shekelle P, Agarwal N, Snyder B, Bolus R, Kurzbard N, Chan M, Ho A, Kaneshiro M, Cordasco K, Cohen H. Development and validation of a novel patient educational booklet to enhance colonoscopy preparation. *Am J Gastroenterol*. 2011 May;106(5):875-83. Epub 2011 Apr 12.
- b) May FP, Bromley EG, Reid MW, Baek M, Yoon J, Cohen E, Lee A, van Oijen MG, **Spiegel BM**. Low uptake of colorectal cancer screening among African Americans in an integrated Veterans Affairs health care network. *Gastrointest Endosc*. 2014 Aug;80(2):291-8. Doi PubMed PMID: 24674351
- c) Reid MW, Cohen S, Wang H, Kaung A, Patel A, Tashjian V, Williams D, Martinez B, **Spiegel BM**. Preventing patient absenteeism: Validation of a predictive overbooking model. *Am J Manag Care*. 2015 Dec;21(12):902-10
- d) Chan M; Cohen H; **Spiegel BM**. Colonoscopy yields fewer polyps as the day progresses: Experience in a Veteran Administration teaching hospital. *Clinical Gastroenterology and Hepatology* 2009 Nov;7(11):1217-23

Please [click here](#) for my complete list of published work in Pubmed (H-Index=40+)

D. Research Support *(Representative sample selected from 15 research grants from past 3 years)*

INSTITUTION AND LOCATION	RESPONSIBILITIES	DATE
“Maximizing VA Colonoscopy Capacity through No-Show Predictive Overbooking”, VA, HSR&D Merit Award, Veteran’s Administration, West Los Angeles VA, Los Angeles, California	Principal Investigator. Pragmatic clinical trial comparing a novel scheduling technique called “no-show predictive overbooking” vs. status quo “one patient, one slot” scheduling for colonoscopy appointments.	4/1/12-3/31/16
“Development and Initial Validation of PROMIS GI Distress Scale”, NIH/NIAMS, UCLA-West LA VA, Los Angeles, California	Principal Investigator. Developed a GI Symptom Scale for the NIH PROMIS® consortium.	9/30/09-7/31/14
“Validation of GI PROMIS® Measures in Clinical Practice: A Pragmatic Trial Using a Novel e-Platform”, U01 NIH/NIAMS Supplemental, Cedars-Sinai Medical Center, Los Angeles, California	Principal Investigator. Testing implementation of NIH PROMIS® scale in clinical practice setting	7/1/14 - 6/30/16
UCLA Clinical and Translational Science Institute (CTSI)	Site Leader, Cedars-Sinai. Multi-site collaborative research partnership that brings biomedical innovations to bear on the greatest health needs of Los Angeles.	7/1/16

<p>“Harnessing Social Media to Estimate Health-Related Quality of Life (HRQOL),” Robert Wood Johnson Foundation, Cedars-Sinai, Los Angeles California</p>	<p>Principal Investigator. Developing an algorithm to estimate HRQOL in patients using Twitter</p>	<p>12/15/14 – 6/14/16</p>
<p>“Developing the Automated Evaluation of Gastrointestinal Symptoms (AEGIS) Platform”, Ironwood Pharm., Cedars-Sinai Medical Center, Los Angeles, California</p>	<p>Principal Investigator. Developing a mobile health application to improve patient provider communication for digestive diseases</p>	<p>10/2011-9/2016</p>
<p>“Transforming the Care of Patients with GI Conditions through Education on Diet and Nutrition”, Nestle Global, UCLA, Los Angeles, California</p>	<p>Principal Investigator. Developing a platform module pertaining to diet and nutrition using biosensor technology and patient reported outcomes (PROs).</p>	<p>12/2013-11/2016</p>
<p>“Concept Development of a Smartphone-Biosensor Intervention to Improve Adherence among Prescription Medication Users with Rheumatoid Arthritis”, Amgen Pharm., Cedars-Sinai, Los Angeles, California</p>	<p>Principal Investigator. Developing and conducting an intervention pertaining to adherence to prescription drugs using biosensor technology and patient reported outcomes (PROs).</p>	<p>10/2013- 9/2015</p>
<p>“Navigating Use of Biologics in IBD: Development of A Novel Patient Decision Aid Using Conjoint Analysis and Social Media Insights”, Takeda Pharmaceuticals, Cedars-Sinai, Los Angeles, California</p>	<p>Principal Investigator. Using conjoint analysis to develop an online decision aid to help patients with IBD make better decisions when starting biologic therapies</p>	<p>3/15/15 – 3/31/16</p>