

**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: **Bar-Shain, David Solomon, M.D.**

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

- POSITION TITLE:
- Associate Professor of Pediatrics
  - Director of Informatics for Clinical Decision Support
  - Assistant Program Director, Fellowship in Clinical Informatics

*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 (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Yale University	BA	05/1989	Philosophy
Case Western Reserve University/University Hospitals/Institute of Pathology (Student Fellowship)	Not applicable	06/1993	Pathology
Case Western Reserve University/School of Medicine	MD	05/1995	Medicine
Case Western Reserve University/Rainbow Babies and Children’s Hospital (PGY1-3)	Not applicable	05/1998	Pediatrics

**A. Personal Statement**

I am a practicing primary care pediatrician, the Director of Informatics for Clinical Decision Support for the MetroHealth System, and an Assistant Program Director of the Case Western Reserve University/MetroHealth Clinical Informatics Fellowship. These three roles allow me to pursue my combined passions of clinical pediatrics, technical innovation, and mentoring the next generation. To accomplish this, I leverage my broad knowledge of the Epic electronic health record (EHR) obtained through 20+ years of practical experience as a user, and more than a decade of experience as a physician developer and programmer. In order to expand the skillset that I can use to solve problems, I have pursued analyst-level certification from the Epic Systems Corporation in EpicCare Ambulatory, and I am one of just a few physicians around the world who are certified as an Epic Chronicles Database Programmer.

A huge portion of my informatics career has been focused on increasing immunization rates among children and adults. This led me to develop (and to continually improve) decision support which helps clinicians in the trenches recognize immunization care gaps and makes it easy for them to place the right orders (including, most recently, optimizing the suggestions of when to use pediatric combination vaccines). In addition, I have worked to improve the integrity of our patients’ immunization data by configuring our records to promote interoperability with our state immunization registry and other trading partners, and by advocating for changes in the ways that we are exchanging the data. Finally, I have sought to empower patients by deploying an effective immunization outreach messaging cascade, by configuring our patient portal to allow patients to recognize their own immunization care gaps, and by helping to develop pioneering functionality which allows adult patients to enter immunization data directly into their own health records. This latter functionality was adopted by several other large health systems and has since become a standard feature of our EHR.

I make significant efforts to disseminate my knowledge and experience. To this end, I have published four (4) unique Epic Clinical Programs (technical blueprints that others can use to replicate our successes in their systems) on subjects such as optimizing the prescribing of ADHD stimulant medications, configuring decision support for immunizations, and recognizing pediatric hypertension. I have also given more than 40 peer-to-peer sessions about my innovations-- many of them with a pediatrics focus-- at national conferences. With the

hope helping providers care for children and adults at the highest, safest level of care and with the best of sustainable innovations, I sit on several, national pediatric and decision support advisory panels. I use these seats-at-the-table to cajole our EHR vendor (Epic) to provide better software to care for children and adolescents.

Additionally, I seek to transfer my knowledge, skills, and vision to the next generation of clinical informaticists. I am a core faculty member in MetroHealth's Clinical Informatics Fellowship and have responsibility for supervising and mentoring our fellows on a Scholarly Activity Project which serves as a capstone of their two-year training program. Finally, with the goal of increasing professional informatics opportunities for early-career providers, I founded and serve as the Chairperson of the Epic Physicians Advisory Mentorship Program. Mentees come from a variety of professional roles and care for children and adults, including primary care and sub-specialty physicians, APRNs, anesthesia assistants, dentists, et al. In our first two years of the cross-generational, cross-institution, cross-specialty program, we have nurtured more than 130 mentorship pairings. I am particularly proud of the facts that we are providing this opportunity to many women and under-represented minorities, and that we are beginning to see some of our mentees publish, get promoted, and assume leadership roles in the field of clinical informatics.

## **B. Positions, Scientific Appointments and Honors**

### **Positions and Employment**

2018–present	Chief Medical Informatics Officer, Better Health Partnership, Cleveland, OH
2017–present	Senior Scholar, Center for Health Care Research and Policy (CWRU-MetroHealth) Program in Clinical Informatics, Cleveland, OH
2017–present	Associate Professor, Department of Pediatrics, The MetroHealth System, Case Western Reserve University, Cleveland, OH
2016–present	Assistant Program Director, Case Western Reserve University (MetroHealth), Clinical Informatics Fellowship Program, Cleveland, OH
2014–present	Director of Informatics for Clinical Decision Support, The MetroHealth System, Case Western Reserve University, Cleveland, OH
2010–2014	Associate Director of Medical Informatics for the Women's and Children's Patient Care Unit, The MetroHealth System, Case Western Reserve University, Cleveland, OH
1999–2010	Associate Medical Director, Child Protection Team, Department of Pediatrics, The MetroHealth System, Case Western Reserve University, Cleveland, OH
1999–2017	Assistant Professor, Department of Pediatrics, The MetroHealth System, Case Western Reserve University, Cleveland, OH
1999–1999	Instructor, Department of Pediatrics, The MetroHealth System, Case Western Reserve University, Cleveland, OH
1998–present	Attending Physician, Department of Pediatrics, The MetroHealth System, Case Western Reserve University, Cleveland, OH
1995–1998	Resident Physician, Pediatrics Residency, Rainbow Babies and Children's Hospital, Case Western Reserve University, Cleveland OH
1992–1993	Student Fellow in Pathology, Institute of Pathology, Case Western Reserve University, Cleveland, OH

### **Other Experience and Professional Membership (selected)**

American Academy of Pediatrics	Fellow (2000-2010, 2019–present) Member COCIT (2019–present) Member Section on Child Abuse (2000–2010)
American Medical Informatics Association	Fellow (2020–present) Member (2014, 2016–present)
American Prof. Society on the Abuse of Children	Member (1999–2003)
Northern Ohio Pediatrics Society	Member (2000–2003)

### **Editorial Boards (selected)**

- ***Journal of Adolescent Health*** (2018–2020) *ad hoc*, peer-review of pre-publication manuscripts.
- ***American Medical Informatics Association*** (2016–2018, 2020–2021) peer-review of submissions to the scientific program. (2017) question writer for the Clinical Informatics Inservice Training Exam.

- **Journal of Hospital Medicine** (2005) *ad hoc*, peer-review of pre-publication manuscript.
- **Centers for Disease Control** (2003–2004) *ad hoc*, peer-review of pre-publication CME program.
- **Case Western Reserve University School of Medicine, Primary Care Track** (2002) pre-publication review of website for students doing community preceptorships.
- **American Committee on Immunization Practices** (2001) *ad hoc*, peer-review of pre-publication CME programs.
- **Clinical Pediatrics** (2000) *ad hoc*, peer-review of pre-publication manuscript.

#### Advisory Groups (i.e. foundation services, etc.)

##### National:

- **Epic Children’s Health Steering Board (Epic Systems Corporation):** 2019–present
- **Health Maintenance Brain Trust (Epic Systems Corporation):** 2019–present
- **Epic Physicians Advisory Council Mentorship Program:** (2019–present) Chairman and Founder
- **Epic Primary Care Pediatrics Steering Board (Epic Systems Corporation)**
  - (2016–present) Member. (2017–2018) Chairperson.
- **Immunization Scheduling Experts Discussion Group (Epic Systems Corporation, Member):** 2016–present
- **CDC Tabletop Pilot, “Advancing Immunization-Related Capabilities Within Electronic Health Records and Other Clinical Software” (CNI Advantage, Panel Member):** September 10, 2014
- **Physicians Advisory Council (Epic Systems Corporation):**
  - (2011–present) Member. (2018–2020) Member of the Steering Board.

##### Regional/Local:

- **Children’s Health Initiative Committee (Better Health Partnership, Technical Committee Member):** 2015–present
- **Cuyahoga Board of Health Committee on Child Passenger Restraint Use (The Cleveland Foundation, MetroHealth Liaison):** 2001–2003

#### Honors (selected)

- 2021 **Fellow of the American Informatics Association.** *Applied Informatics Recognition Program*
- 2020 **3<sup>rd</sup> Place Poster Award.** *The MetroHealth System: 2<sup>nd</sup> Annual Patient Safety Awareness Week Poster Competition.*
- 2020 **America’s Best Doctors**
- 2019 **The Chairman’s Award for Excellence.** *Department of Pediatrics, The MetroHealth System. Annual award by the Department Chair in recognition of extensive contributions in pediatric informatics that directly benefit patients and providers throughout the health system.*
- 2018 **Excellence in Interprofessional Teaching Award.** *Department of Psychiatry, The MetroHealth System. Annual award presented by the residents and fellows of the American Psychological Association accredited Doctoral Residency Program in Pediatric and Clinical Psychology at The MetroHealth System.*
- 2017 **Epic PACademy Award.** *Physicians Advisory Council of the Epic Systems Corporation. “In recognition of outstanding contributions to the Epic community.” NOTE: Approximately 600 physicians from around the world select the recipient of this award.*
- 2015 **Davies Enterprise Award.** *Healthcare Information and Management Systems Society (HIMMS) to The MetroHealth System. Note: The MetroHealth System’s application highlights my work in several areas. <http://s3.amazonaws.com/rdcms-himss/files/production/public/FileDownloads/MetroHealth%20Clinical%20Value%20Proposition.pdf>*
- 2015 **HIMMS Stage 7 EMRAM (Electronic Medical Record Adoption Model) Hospital and Ambulatory Award.** *Healthcare Information and Management Systems Society (HIMMS) to The MetroHealth System. Note: The MetroHealth Case Study cites my work in several areas. [http://www.himssanalytics.org/system/files\\_force/MetroHealth.pdf?download=1](http://www.himssanalytics.org/system/files_force/MetroHealth.pdf?download=1)*
- 2015 **Top Patient Communicator Award.** *Office of Patient Experience, The MetroHealth System. Given to providers who are rated in the top 5% of all providers by patients on post-visit surveys.*

- 2014 **Immunization Coverage Improvement Award.** *Ohio Department of Health. Awarded to MetroHealth Main Campus Pediatrics. Note: My work on immunization workflows, decision support, clinical advisories, and order sets was integral to the health system's winning of this award.*
- 2013, 2014, 2018 & 2019 **Best Doctors in Cleveland: General Pediatrics.** *Cleveland Magazine*
- 2012 **Best Poster Award.** *Council on Clinical Information Technology (COCIT), American Academy of Pediatrics*
- 2001 **Community Advocacy Program: Provider of the Year Award.** *The MetroHealth System. In recognition of outstanding collaboration with the Legal Aid Society of Cleveland and selfless advocacy on behalf of patients of the MetroHealth System.*
- 2007 **The Mark Richards Humanism in Medicine Award.** *Department of Pediatrics, The MetroHealth System. Presented by the residents of the Pediatrics, and Internal Medicine-Pediatrics Residency Program to a faculty member who embodies the finest qualities of a healer and a teacher.*
- 2000, 2002, 2003, 2005, 2007 **Excellence in Teaching Award.** *Department of Pediatrics, The MetroHealth System. Selected by the residents. In recognition of outstanding effort and achievement in resident education.*
- 1996 **NICU Award.** *Department of Neonatology, Rainbow Babies and Children's Hospital. Given to an intern who excels in the care of critically ill, premature infants.*
- 1995 **Award of Distinction.** *Department of Family Medicine, Case Western Reserve University. Presented by the faculty to a graduating medical student who excels in the Family Medicine Concentration.*
- 1989 **Cum Laude.** *Undergraduate honors.*

### C. Contribution to Science

1. Much of my informatics career has been devoted to designing, building, and implementing improved immunization workflows. I configured Epic's pediatric immunization forecasting engine so that the MetroHealth System could become an early adopter of it. I extended the decision support to solve other problems in the immunization workflow, decrease errors of omission and commission, decrease cancellation of orders, and greatly improve patient throughput and engagement. As a result, we were able to use of the forecast to reach out to adolescent patients through phone calls, texting, or postcards, and demonstrate a significant increase in immunization rates. I have since extended my work beyond pediatrics to adult and geriatric patients. This has yielded a dramatic increase (~325%) in the provision of pneumococcal conjugate vaccine to our eligible, vulnerable adults. Furthermore, I helped develop pioneering, cross-platform EHR technology to detect potential immunization adverse events, bring those to clinicians' attention, and facilitate reporting to the CDC's Vaccine Adverse Event Reporting System. During the first year of deployment, we observed a 30-fold increase in vaccine adverse event reporting.
  - a. **Bar-Shain, David S.,** Margaret M. Stager, Anne P. Runkle, Janeen B. Leon, and David C. Kaelber. *Direct Messaging to Parents/Guardians to Improve Adolescent Immunizations.* Journal of Adolescent Health Supplement, 56.5 (2015): S21-26.
  - b. Baker MA, DC Kaelber, **DS Bar-Shain**, PL Moro, B Zambarano, M Mazza, C Garcia, A Henry, R Platt, M Klompas. *Advanced Clinical Decision Support for Vaccine Adverse Event Detection and Reporting.* Clinical Infectious Diseases. (2015): civ430.
  - c. Portier, Faith, and **DS Bar-Shain.** "Epic Clinical Program: Increasing Up-to-Date Pediatric and Adult Immunizations." Epic UserWeb. Epic Systems Corporation, 17 Mar. 2016. Web. 04 Apr. 2016. <<https://galaxy.epic.com/?#Browse/page=1!68!421!2805952>>.
  - d. **DS Bar-Shain** and PJ Greco. *EPIC CLASSIC - Automated Immunization Reconciliation: Lessons Learned.* User Group Meeting, Epic Systems Corporation, Verona, WI (August 28, 2019).
  - e. **DS Bar-Shain.** Closing Care Gaps with Storyboard and Combination Vaccines. Physicians Advisory Council: Expert Group Meeting, Epic Systems Corporation. Virtual webinar. (May 2021).
  - f. **DS Bar-Shain,** Tien M. Custom Childhood Immunization Metrics to Enhance Tracking and Outreach. Physicians Advisory Council: Expert Group Meeting, Epic Systems Corporation. Virtual webinar. (May 2021).

2. A second major focus of my career has been improving the recognition of abnormal blood pressure (BP) measurements. At the outset of my informatics career, I built a suite of clinical alerts directed at pediatric triage personnel and providers. These more than doubled the recognition of pediatric high BP measurements (from approximately 25% to 58%). I presented the findings and technical details in several national fora: at Epic's User Group Meeting, at the Pediatric Academic Society meeting, and at the American Academy of Pediatrics meeting where it won a 1st place poster award. Subsequently, I teamed with others in a regional health collaborative to improve the health of our adult population. To apply elements of a hypertension Best Practice to our safety-net population, I built a clinical alert that encourages a repeat measurement when the first BP in a visit is high. We have seen increased recognition of elevated BPs, and improved BP control and follow-up. Finally, with the aim of addressing social determinants of health which are adversely impacting our hypertensive and asthmatic children and adults, I helped pioneer an automated referral system to United Way.
  - a. **DS Bar-Shain**, K Palcisco, D Kaelber, and PJ Greco. *Clinical Decision Support to Impact the Recognition of High Pediatric Blood Pressure Measurements*. American Academy of Pediatrics National Conference and Exhibition. New Orleans LA. 2012. (Poster Presentation, 1<sup>st</sup> place poster)
  - b. SD Bolen, DE Einstadter, **D Bar-Shain**, PJ Greco, M Behmer, RD Cebul. *Implementation of a hypertension best practice substantially improves blood pressure control in a safety net primary care clinic*. Society for General Internal Medicine: Midwest Regional Meeting. Cleveland, OH. August 27, 2015. (Oral Abstract)
  - c. Mendenhall, Meg, and **DS Bar-Shain**. "Epic Clinical Program: Improving Detection of Pediatric Hypertension." Epic UserWeb. Epic Systems Corporation, 08 Sep. 2016. Web. 16 Sep. 2016.
  - d. SD Bolen, J Misak, A Caron, DE Einstadter, S Lewis, T Love, **D Bar-Shain**, PJ Greco, RD Cebul. *A successful strategy for implementing elements of a hypertension best practice in safety net clinics*. Society for General Internal Medicine: Annual Meeting. Hollywood, FL. May 12, 2016. (Poster Presentation)
  - e. SD Bolen, T Love, **D Bar-Shain**, PJ Greco, DE Einstadter, M Behmer, H Ways, A Caron, RD Cebul. *A positive deviance approach substantially improves blood pressure control in safety net populations*. Society for General Internal Medicine: Annual Meeting. Hollywood, FL. May 12, 2016. (Poster Presentation)
  - f. Einstadter D, Bolen SD, Misak JE, **Bar-Shain DS**, Cebul RD. Association of Repeated Measurements with Blood Pressure Control in Primary Care. JAMA Intern Med. 2018 Jun 1;178(6):858-860. doi: 10.1001/jamainternmed.2018.0315. PubMed PMID: 29710186; PubMed Central PMCID: PMC6061958
  - g. Davis, K. Gibson, **D. Bar-Shain**, J. Siff, D. Gunzler, D. Kaelber. *Using Clinical Decision Support to Decrease the Use of Teratogenic Antihypertensive Medications in Women of Childbearing Age*. American Medical Informatics Association: Clinical Informatics Conference. Atlanta, GA. April 30, 2019. (Poster presentation)
  - h. SD Bolen, J Lever, S Smith, **DS Bar-Shain**, E Ordillas, W Ali-Matlock, J DaPrano, M Finley. *Addressing Social Determinants of Health: Connecting Disadvantaged Primary Care Patients to United Way Community Resource Navigation*. Society for General Internal Medicine: Annual Meeting. Washington DC. May 10, 2019. (Poster Presentation)

### My Bibliography of Published Work

<http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/50187392/?sort=date&direction=ascending>

### My Professional Portfolio

<http://dbarshainmd.weebly.com>