PREPARED: March 2021

PERSONAL DATA

Maxim Topaz, PhD, RN, MA
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Birthplace: Russia

ACADEMIC APPOINTMENTS, CLINICAL APPOINTMENTS, AND OTHER WORK EXPERIENCE

9/2018-Present	Elizabeth Standish Gill Associate Professor of Nursing (non-tenured)	Columbia University School of Nursing
9/2018-Present	Affiliated Senior Researcher	Center for Home Care Policy & Research, Visiting Nurse Services of New York (VNSNY)
9/2018-Present	Affiliated Faculty	Data Science Institute, Columbia University
10/2016-9/2018	Senior Lecturer	University of Haifa, the Cheryl Spenser Department of Nursing, Faculty of Social Welfare and Health Sciences
5/2015-10/2016	Assistant Professor/ Adjunct Lecturer	Northeastern University, School of Nursing
9/2016-Present	Affiliated Research Scientist	Harvard Medical School & Brigham Women's Health Hospital
9/2010-8/2014	Research Assistant/ Teaching Assistant	University of Pennsylvania, School of Nursing
9/2008-9/2010	Research Assistant/ Teaching Assistant	Faculty of Social Welfare and Health Science, University of Haifa, Haifa, Israel
9/2007-6/2010	Registered Nurse	Rambam Medical Center, Internal Medicine, Haifa, Israel
1/2000-12/2002	Combat Medic (First Sergeant)	Military Police, Israel Defense Forces

EDUCATION AND TRAINING

8/2014- 8/2016	Post-Doctoral Research Fellow, Medicine	Harvard Medical School and Brigham Women Health Hospital
9/2010-8/2014	PhD, Nursing	University of Pennsylvania
10/2007-8/2009	MA, cum laude, Gerontology	University of Haifa, Haifa, Israel
9/2003-8/2007	BA, Nursing	University of Haifa and the Technion Institute of Technology, Haifa, Israel

Title of Dissertation: "Developing a Tool to Support Decisions on Patient Prioritization at Admission to Home Health Care"
Thesis Advisor: K.H. Bowles
Dissertation Citation: Topaz, Maxim, "Developing a Tool to Support Decisions on Patient Prioritization at Admission to Home Health Care" (2014). Publicly Accessible Penn Dissertations. 1473.
https://repository.upenn.edu/edissertations/1473

EXPLANATION OF ANY GAPS IN WORK/TRAINING/EDUCATION

None

LICENSURE AND BOARD CERTIFICATION

Licensure

2007	Certified Registered Nurse (Ministry of Health, Israel)
2000	Combat Medic (Israeli Defense Forces)

Board and Other Certification

2012	Certification of Omaha System Coder & Certification of Omaha System-Encoded Clinical Guidelines Expert (Minnesota, US)
2009	Certificate in Geriatric Facility Administration (Ministry of Social Affairs and Social Services, Israel)
2002	Management and Organization of a Military Clinic Certificate (Israeli Defense Forces)

HONORS AND AWARDS

Year	Name of Honor/ Prize	Awarding Organization	Explanation
2020	**IMIA Working Group of the Year Award**	International Medical Informatics Association	The IMIA Working Group of the Year Award recognizes and rewards the efforts and achievements of Working Groups in support of IMIA's mission. Given to "Students and Emerging Professionals Special Interest Group" Dr. Topaz co-chairs.
2016	**1st Prize:** Brigham Women's Hospital Innovation Hub	Idea Lab with Microsoft: Machine Learning in Healthcare	Project focused on identifying patients with opiate overdoses.
2016	**1st Prize and Best Cancer Hack Award**	MIT Hacking Medicine (hakathon)	Creating a home-based sensor for post-surgical wound management (team lead, Sentrix).

2016	**2nd Place**: Veterans Administration (VA) Developers Challenge	VA developers challenge: Care Coordination for Improved Outcomes Challenge (**team lead**)	http://legacy.health2con.com/devchallenge/va-care-coordination-for-improved-outcomes-challenge/
2016	**Best paper competition finalist**	Tri-annual Congress in Nursing Informatics (Geneva, Switzerland 2016)	Peltonen… Topaz (2016). Nursing Informatics Research Priorities for the Future: Recommendations from an International Survey.
2015	**Theresa I. Lynch Award** for contribution to the School of Nursing	University of Pennsylvania School of Nursing, Philadelphia, PA.	Awarded for consistent contributions and advancement of the University of Pennsylvania School of Nursing.
2015	**Best Paper Competition Finalist**	MEDINFO bi-annual congress, Sao-Paulo, Brazil.	Zhou L, ... M, Topaz M, et al. Identifying Patients with Depression Using Free-text Clinical Documents. MEDINFO 2105 proceedings.
2015	**Paper of the Month**	Swiss Patient Safety Foundation	Rising drug allergy alert overrides in a computerized provider order entry system: a decade of experience. Journal of American Medical Informatics Association.
2014	**Business Plan Competition Winner**	Harvard Medical School, Healthcare Innovation and Entrepreneurship course.	
2013	**PhD Student Methodologist Award**	First International Conference on Research Methods for Standardized Terminologies, Eagan, MN.	Awarded for contribution to health terminologies development/research.
2013	**Best Student Paper Competition Finalist**	American Medical Informatics Association Annual Symposium, Washington, DC	
2012	**Inducted member**	Sigma Theta Tau International, Xi Chapter, Honor Society for Nursing	
2012	**Best of AMIA** 2012 hot picks	Presentation by Radhakrishnan et al. "Association of patient characteristics and telehealth alerts with key medical events experienced by patients with heart failure in homecare" was	

		selected to the "Best of AMIA 2012 Hot Picks".	
2010	**Best Poster Award**	Poster: Topaz M & Doron I, (2010). Ageism among nurses as reflected in knowledge and attitudes toward elderly patients in acute care.	Presented at the Annual Conference of the Faculty of Social Welfare and Health, University of Haifa.
2010	**Fulbright award**	The Fulbright Program, U.S. Department of State	Award for PhD studies in the U.S. ($25,000).
2010	**Fulbright Alumni Prize**	Fulbright Israel	
2010	**Spencer Scholarship**	University of Haifa	Award for PhD studies in the U.S. ($100,000).
2008-2009	**Academic Excellence** Scholarship for M.A. students	University of Haifa	
2006	**Israeli Government Commendation**	Ministry of Defense, Israel	Awarded for fulfilling hospital duty under rocket fire during 2006 Lebanon war.
2004	**Community Volunteer Award**	University of Haifa	
2003	**Scholarship for Academic Excellence**	University of Haifa	
2002	**Citation for Saving Lives**	Israeli Defense Forces	

ADMINSTRATIVE LEADERSHIP AND ACADEMIC SERVICE

Academic Service (Local)

2020-Present	Member, Diversity Subcommittee on Fostering an Inclusive Environment	School of Nursing, Columbia University
2020-Present	Postdoctoral admissions	Data Science Institute, Columbia University
2019	Co-chair: Heath Equity in Research Committee	School of Nursing, Columbia University
2019- Present	Member, Data science education working group	Data Science Institute, Columbia University
2016-2018	Member, Master's degree application and enrollment committee	School of Nursing, University of Haifa, Israel
2015	Member, Postdoc interview/selection committee (R01, PI: Adam Wright)	Harvard Medical School & BWH

2014-2016	Board Member	Harvard Medical School Postdoctoral Student Organization
2011-2012	PhD students representative, Dean's Advisory Board	School of Nursing, University of Pennsylvania
2011-2012	President	Doctoral Students Organization, University of Pennsylvania

Academic Service (National and International)

2020-2021	Member, Program Committee	American Medical Informatics Association (AMIA) 2021 Virtual Clinical Informatics Conference
2019- Present	Chairperson and Co-founder	International Medical Informatics Association, Students and Emerging Professionals Working group
2019- Present	Co-chair, Nursing Informatics Education group	International Medical Informatics Association, Nursing Informatics Special Interest Group
2018-2019	Member, Planning committee	The Summer Institute in Nursing Informatics (SINI), University of Maryland
2018-2019	Co-chair, Education committee	Nursing Informatics Working Group, AMIA (American Medical Informatics Association)
2015-2016	Elections Nomination Committee: Member	Nursing Informatics Working Group, AMIA (American Medical Informatics Association)
2015	Best Paper Awards Committee: Member	Nursing Informatics Working Group, AMIA (American Medical Informatics Association)
2014-2015	'Lite' Nursing Informatics Congress Committee: Member	Nursing Informatics Working Group, IMIA (International Medical Informatics Association)
2014-2015	Elections Nomination Committee: Chair	Nursing Informatics Working Group, AMIA (American Medical Informatics Association)
2014-2016	Member-at-Large	Nursing Informatics Working Group, American Medical Informatics Association
2013- Present	Chair (Organizing Committee) and Co-founder	Home Healthcare and Hospice Information Technology International Conference (H3IT)
2012-2016	Chairperson and Co-founder	International Medical Informatics Association, Nursing Informatics Special Interest Group-Students' Working group
2011-2013	Public Policy Committee	Nursing Informatics Working Group, AMIA (American Medical Informatics Association)

Other Service

2008-2009	Law in the Service of the Elderly/ Volunteer Consulted elderly concerning civil rights and Health Law issues (Israel, Haifa)
2003-2004	"Yadid" Project/ Volunteer Participated in educating and counseling immigrants on their health-related rights (Israel, Haifa)
2004-2005	PERAH project/ Volunteer Educated Ethiopian immigrants on health-related issues (Israel, Haifa)

PROFESSIONAL ORGANIZATIONS AND SOCIETIES

Memberships and Positions

2012- Present	Sigma Theta Tau International, Xi Chapter, Honor Society for Nursing	Member
2010- Present	American Medical Informatics Association	Member
2010- Present	Gerontological Society of America	Member
2011-2014	Council for the Advancement of Nursing Science	Member
2009-2014	Israeli Gerontological Society	Member

Consultative

2020-2021	Center for Progressive Recovery (www.recoverypad.com)	Scientific adviser (speech recognition + natural language processing)
2017-2019	Deloitte analytics (https://www2.deloitte.com/us/en/pages/deloitte-analytics/solutions/deloitte-analytics.html)	Senior consultant (natural language processing)
2014- Present	PatientInsight (http://www.mypatientinsight.com/)	Consultant (natural language processing)
2014-16	Meetcaregivers (http://meetcaregivers.com/)	Consultant (machine learning)
2014	Global Health Delivery Project, Harvard University	Expert advisor
2013-2016	Ministry of Health, Department of Computer Systems, Israel	Consultant
2013	Office of National Coordinator for Health Information Technology (ONC), Washington, DC	Intern
2012-2013	Center for Teaching and Learning Graduate Fellowship for Teaching Excellence, University of Pennsylvania	Fellow for Teaching Excellence

2012-2013	Institute of Medicine Global Forum on Innovation in Health Professional Education, Washington, DC	Participant
2011	Philadelphia Computer Institute, Philadelphia, PA	Consultant
2003-2005	Citizens' Rights Center (Yedid), Haifa, Israel	Instructor

Journal Reviewer

Applied Clinical Informatics
Journal of Biomedical Informatics
International Journal of Older People Nursing
Journal of American Medical Informatics Association
Methods of Information in Medicine
BMJ Open
Pediatrics
American Journal of Managed Care
Journal of Clinical Nursing
Journal of Cardiovascular Nursing
Journal of Doctoral Nursing Students Scholarship
Supportive Care in Cancer
Medical Decision Making
PLOS-One
Annals of Internal Medicine
Journal of Internet Medical Research
Journal of American Medical Directors Association
International Journal of Medical Informatics
BMJ European Journal of Hospital Pharmacy

Editorial Board

2018-Present	Editorial Board, Member	*Journal of American Medical Informatics Association*
2014-2018	Editorial Board, Member	*Journal of Nursing Doctoral Students Scholarship (JNDSS)*
2013-2015	Student Editorial Board, Member	*Methods of Information in Medicine*
2013-2015	Student Editorial Board, Member	*Journal of American Medical Informatics Association*
2011-2013	Editor-in-Chief & Co-founder	*Journal of Nursing Doctoral Students Scholarship (JNDSS)*
2011-2014	Contributing Editor	*Online Journal of Nursing Informatics*

Grant Review Activities

2020	Ad Hoc Reviewer	National Institute of Health (NIH) Review Panel: Leveraging Health Information Technology (Health IT) to Address Minority Health and Health Disparities (https://grants.nih.gov/grants/guide/pa-files/par-19-093.html)
2020	Ad Hoc Reviewer	National Institute of Health (NIH) Review Panel: Healthcare Delivery and Methodologies

2020	Ad Hoc Reviewer	Columbia University Data Science Institute: Pilot Grant Proposals in Data Science
2020	Ad Hoc Reviewer	New Frontiers in Research Funds – Exploration 2020 competition (NFRFE 2020), Social Sciences and Humanities Research Council of Canada
2020	Ad Hoc Reviewer	US National Academy of Medicine Launches Global Competition: Seeking Solutions for Improving Healthy Longevity (Proposal reviewer)
2019- Present	Ad Hoc Reviewer	Israeli Science Foundation (ISF)
2017	Ad Hoc Reviewer	Austrian Science Fund (FWF)
2016	Ad Hoc Reviewer	Israel National Institute for Health Policy & Health Services Research
2016	Ad Hoc Reviewer	Medical Research Council (MRC), United Kingdom, http://www.mrc.ac.uk/
2010 - 2014	Ad Hoc Reviewer	New-Courtland Center for Transitions in Health, University of Pennsylvania
2010 - 2014	Ad Hoc Reviewer	Center for Integrative Science in Aging, University of Pennsylvania

FELLOWSHIP AND GRANT SUPPORT

Active Research Funding

2020-2024 **Homecare-CONCERN: Building risk models for preventable hospitalizations and emergency department visits in homecare (R01HS027742)**
Agency for Health Research and Quality - $1,500,000
Role: PI

This study brings together an interdisciplinary team of experts in homecare, data science, nursing and risk model development to explore whether cutting-edge data science approaches can improve timely identification of patients at risk in homecare. Specific aims are to: 1. Further develop and validate a preventable hospitalization or ED visit risk prediction model (Homecare-CONCERN). We will apply traditional (time varying Cox regression) and cutting-edge time-sensitive analytical methods (Deep Survival Analysis and Long-Short Term Memory Neural Network) for risk model development. 2. Prepare Homecare-CONCERN for clinical trial via pilot testing. We will apply user centered design to develop Homecare-CONCERN clinical decision support tool and pilot test the tool for clinical validity and acceptability. 3. Inform the future implementation of Homecare-CONCERN clinical decision support tool in the homecare setting. We will examine if all risk elements can be mapped to a data standard (Fast Healthcare Interoperability Resources - FHIR) and conduct interviews with key informants across the US about current readiness, barriers and facilitators, and implementation strategies for adopting such tools in homecare setting.

2019-2022 **Improving Patient Prioritization During Hospital-homecare Transition: A Mixed Methods Study of a Clinical Decision Support Tool** (R01NR018831)
National Institute of Nursing Research - $2,000,000

Role: PI

We developed an innovative decision support tool called "Priority for the First Nursing Visit Tool" (PREVENT) to assist nurses in prioritizing patients in need of immediate first homecare nursing visits. The proposed study assembles a strong interdisciplinary team of experts in health informatics, nursing, homecare, and sociotechnical disciplines to evaluate PREVENT in a pre-post intervention efficacy study. Specifically, the study aims are: *Aim 1)* Evaluate the effectiveness of the PREVENT tool on process and patient outcomes. Using survival analysis and logistic regression with propensity score matching we will test the following hypotheses: Compared to not using the tool in the pre-intervention phase, when homecare clinicians use the PREVENT tool, high risk patients in the intervention phase will: a) receive more timely first homecare visits and b) have decreased incidence of rehospitalization and have decreased emergency department use within 60 days. *Aim 2)* Examine aspects of PREVENT's reach, adoption, and implementation. Aim 2 will be assessed using mixed methods including homecare admission staff interviews, think-aloud observations, and analysis of staffing and other relevant data.

2020-2022 **Using natural language processing to improve identification and prediction of Alzheimer's disease and other dementias** (R21AG065753)
National Institute of Aging - $260,000
Role: Multiple-PI, Contact PI M. Ryvicker

Nurses' documentation of patient diagnoses, symptoms and interventions for home care patients with Alzheimer's Disease and related dementias: A natural language processing study Alzheimer's disease and related dementias (ADRD) affect about 5 million people in the U.S. Home health care nurses provide care for many people with ADRD and document what they observe about their patients' needs in the form of free-text notes. This study will use a method known as 'natural language processing' to gain new knowledge from nurses' notes and identify ways to better support people with ADRD and their caregivers.

2020-2021 **Using artificial intelligence to identify homecare patient's risk of hospitalization and emergency department visits: speech-recognition feasibility study**
Amazon Sponsored Research Proposal, Columbia Center of AI Technology (CAIT)- $150,000; Columbia Nursing Pilot Grant - $14,000; Eugenie and Joseph Doyle Research Fund (Visiting Nurse Service of New York)- $10,000; combined funding $174,000
Role: Multiple-PI, Contact PI M. Zolnoori (Topaz's postdoctoral fellow)

This work explores the feasibility of improving homecare patient risk prediction by using a critical but underexplored data stream: verbal communication between nurses and patients. This study applies advanced artificial intelligence methods to explore whether audio recorded nurse-patient communication during routine homecare visits can inform identification of patients at risk for hospitalization or ED visits. Aims : 1) Assess the feasibility of a nurse-patient encounter audio recording during homecare encounters; 2) Evaluate the accuracy of two automated speech recognition methods (commercial software versus open source software); and 3) Explore whether features of audio recorded nurse-patient encounters can be used to predict (via machine learning) patient hospitalizations or ED visits.

2019-2021 **Artificial Intelligence-Assisted Identification of Child Abuse and Neglect in Hospital Settings with Implications for Bias Reduction and Future Interventions**
Columbia Data Science Institute – $200,000
Role: Contact-PI, Multiple-PI A. Landau

Child abuse and neglect is a social problem that has reached epidemic proportions. The broad adoption of electronic health records in clinical settings offers a new avenue for addressing this epidemic. This grant develops an innovative artificial intelligence system to detect and assess risk for child abuse and neglect within hospital settings. Our algorithm incorporates elements that would prioritize the prevention and reduction of bias against Black and Latinx communities.

2019-2021 **Advancing Symptom Science in Home Care Through Natural Language Processing and Patient-Reported Outcomes**
Precision in Symptom Self-Management (PriSSM) Center at Columbia University - $15,000

Role: PI
The goals of the study are to: 1) create and test a natural language processing algorithm, 2) examine the prevalence of symptoms by race and ethnicity, 3) examine associations between symptoms and ED or hospital admission, and 4) explore the potential contribution of patient-reported symptoms to refining the symptom algorithm.

2019-2021 **Data Science for Better Health Outcomes: A Nursing Perspective (course development grant)**
Columbia Collaboratory Fund - $150,000
Role: Contact PI, Multiple PIs K. Cato, K. Mullen
This pioneering course will expose nursing students at the Columbia University School of Nursing to the fascinating world of data science. Tailored to nursing, course topics will employ interactive flipped classroom learning of fundamental data science technologies (e.g., machine learning and text mining), discussion of ethical aspects of data science, and a hands-on data science project in collaboration with Columbia University Data Science Institute students.

2018-2022 **P20: Center for Improving End-of-Life Care for Vulnerable Adults with Multiple Chronic Conditions (**P20NR018072) (Multiple-PIs P. Stone & J. Shang)
National Institute of Nursing Research - $2,7000,000
Role: Site PI (Visiting Nurse Service of New York, Contribution: oversee pilot grants and support collaboration between study sites)
The Center for Improving Palliative Care for Vulnerable Adults with MCC (CIPC) core mission includes three objectives: 1. Develop a sustainable infrastructure that supports interdisciplinary researchers to develop into transdisciplinary teams that conduct biobehavioral, palliative care research across health care settings for vulnerable adults with MCC. 2. Develop new programs of biobehavioral, palliative care research for vulnerable adults with MCC led by nurse scientists. 3. Enhance the knowledge and skills of participating investigators on transdisciplinary, biobehavioral, palliative care research methods across health care settings for vulnerable adults with MCC and disseminate new knowledge to relevant stakeholders.

2020-2022 **INEADS: Incapacitated with No Evident Advance Directives or Surrogates** (1R21NR019319-01) (PI B. Cohen)
National Institute of Aging- $250,000
Role: Co-I (Contribution: build a natural language processing pipeline)
Most Americans do not have advance directives or appointed surrogates to guide their medical care in the event that they lose the capacity to make decisions for themselves. Healthcare teams are sometimes able to identify "default" surrogates, i.e., family or friends who can provide information about the patient's values, goals, preferences, and beliefs. However, a growing number of patients become decisionally incapacitated without any advance directives, appointed surrogates, or default surrogates, which leaves them vulnerable to receiving care that is unaligned with these tenets. Currently there is almost no data describing the prevalence of patients who are Incapacitated with No Evident Advance Directives or Surrogates (INEADS) or how clinical decisions are made for them. The proposed study will address this gap with two specific aims. In Aim 1 we will determine (1a) what are the prevalence and characteristics of adults who are INEADS or at risk of becoming INEADS, and (1b) how clinical decisions are currently made for patients who are INEADS. In Aim 2 we will qualitatively explore the phenomenon of INEADS from clinical and patient perspectives.

2020-2021 **Identifying documentation of workplace violence towards home healthcare nurses in clinical notes: a text mining study** (PI H. Byon)
Eugenie and Joseph Doyle Research Fund (Visiting Nurse Service of New York)- $10,000
Role: Co-I (Contribution: mentorship on natural language processing)
Type II (customer-on-worker) workplace violence (WPV) is a serious threat to the health and safety of home healthcare nurses (HHNs). WPV is grossly underreported across healthcare settings. This pilot study extracts and classify Type II WPV-related information from HHNs' clinical notes using a novel word-embedding-based natural language processing (NLP) and machine learning (ML) approach. By doing so, we will reveal and describe Type II WPV toward HHNs, enabling better case detection and analysis. The specific aims are: 1. Applying NLP and ML,

identify Type II WPV cases by type (physical and non-physical) using related words and expressions from HHNs' free-text clinical notes in EHRs. 2. Determine the 12-month prevalence of Type II violence WPV identified in Aim 1, overall and by type (physical vs. non-physical). 3. Compare the prevalence from Aim 2 with that from established reporting systems.

2020-2021 **The Impact of COVID-19 on Health Informatics: Supporting Health Information Technology Innovation Through Knowledge Synthesis, Transfer, and Exchange** (PI C. Ronqillio)
COVID-19 Rapid Response Research Grant, Ryerson University - $5,000
Role: Co-I (Contribution: international survey design and analysis)

The purpose of this project is to develop insight into the nature of healthcare professionals' health information technology use as a result of the COVID-19 pandemic. This is a cross-sectional exploratory descriptive study that used an online survey as the method of data collection. The project goals are twofold: (1) to gather feedback from healthcare professionals who are working with health information technologies in their clinical practice and conduct regular analyses and updates of results to be made openly available on a dedicated website (2) to conduct secondary analyses of these data to share results with through traditional outputs (journal publications, conference proceedings).

2020-2021 **A chatbot utilizing machine learning and natural language processing to implement the brief negotiation interview to improve engagement in buprenorphine treatment among justice-involved individuals** (R43DA051267-01A1) (PI M. Pantalone)
National Institute on Drug Abuse- $251,500
Role: Consultant (Contribution: build a natural language processing pipeline)

The people at greatest risk of dying from an opioid overdose are the least likely to get life-saving medication. Justice-involved individuals coming out of prison have the highest risk of death by overdose (8x greater than the general population), yet only 1 in 20 of these individuals receive buprenorphine (bup), a safe, effective medication that has been shown to reduce a person's risk of death by overdose by half. There is an urgent need to facilitate an increase in bup treatment engagement among these individuals. Two of the top barriers to receiving bup for these individuals are 1) system level barriers and, 2) low levels of individual motivation. Our prior research shows that delivering individual level treatment engagement interventions increase the rate at which individuals receive bup. Thus, our solution is to improve engagement in bup treatment among justice-involved individuals by 1) "disrupting" system level barriers by circumventing the pieces of the probation system that are stigmatizing and reduce the chances of a bup referral by using an artificial intelligence (AI)-based chatbot to make the referral, and 2) addressing low individual motivation by programming the chatbot to deliver the BNI itself, without the need for a trained professional.

Past Support

2019-2020 **Project DAViD (Data Visualization for Doctors)** (SBIR, R43 LM013130) (PI S.Sims)
National Institute of Health, Small Business Innovation Research Grants - $150,000
Role: Co-I (Contribution: build natural language processing pipeline)

Project DAViD (Data Visualization for Doctors) is a novel platform to unify electronic health records data across disparate systems and using advanced analytics and natural language processing, to mine and prioritize the most relevant information in a visual design that that is intuitive to how physicians make diagnostic and treatment decisions.

2019-2020 **Exploring Prevalence of Wound Infections and Related Patient Characteristics in Homecare Using Natura Language Processing**
Eugenie and Joseph Doyle Research Fund & Columbia Nursing Pilot Grant - $25,000
Role: Multiple-PI, Contact PI K. Woo

This study used natural language processing to identify patients with wound infections in homecare settings. The study explored patient level characteristics associated with developing a wound infection.

2019-2020 **Automated Data Abstraction for Accreditations (Partnership with American College of Cardiology)** (SBIR, R43 LM012955-01) (PI S.Sims)
National Institute of Health, Small Business Innovation Research Grants - $150,000
Role: Consultant, (Patient Insight Inc.), (Contribution: build natural language processing pipeline)
Health service accreditation and certification programs are a critical mechanism to direct quality improvements and ensure compliance with regulations. Reporting on requisite accreditation measures currently requires human data abstractors to interpret heterogeneous and disparately presented data elements in an electronic health record, both structured and unstructured, which is resource intensive for hospitals. This study creates a platform to implement automated data abstraction methods and a novel data visualization to improve the human workflow.

2019 **Artificial Intelligence for Nursing: Ethical, Legal and Social Implications (workshop organizing grant)**
Brocher Foundation, Geneva, Switzerland (October 2019) - $15,000
Role: Multiple-PI, PI C. Ronqilio
This project brought together international (15 countries) leaders in AI in a 3 day workshop in Geneva. The workshop addressed the inevitable ethical, legal and social implications that arise with the growing proliferation of AI systems. This workshop elucidated the implications of AI in the microcosm of nursing and its broader ramifications in global healthcare.

2018-2019 **Using Deep Learning to Extract Comorbid Conditions and Health Interventions From Clinical Narratives: A Pilot Study With Hebrew Text (Phase I)**
Sheba Tel-ha-Shomer Innovation Fund - $20,000
Role: PI
Pilot (phase 1) funding to develop rapid natural language processing solutions to extract information about patient's comorbid conditions and health interventions. We use previously developed NimbleMiner platform (software for rapid text mining based on word embeddings) to mine narrative clinical data in Hebrew.

2017-2018 **Multidisciplinary Health Informatics for Better and Safer Healthcare: Creating a Massive Open Online Course (MOOC) for edX (http://www.edx.org/)**
The Israeli Council for Higher Education - $170,000
Role: PI
An award for creating a first of a kind massive open online course (MOOC) for the acclaimed edX platform.

2017-2018 **Do Electronic Health Records Enable Patient Centered Care? A Mixed Methods Study of Physicians' and Nurses' Attitudes in Inpatient and Outpatient Settings in Israel.**
The Israeli Institute for Health Policy Research - $35,000
Role: PI
Patient centered care (PCC) approach suggests tailoring care for each patient based on their preferences and values. The electronic medical record (EHR) is one of the main tools for providing PCC trough storage and presentation of relevant information. We aimed: to identify facilitators and barriers to PCC in the Israeli EHR systems; to create an innovative tool to assess the extent of EHR support for PCC; to examine physicians' and nurses' attitudes towards PCC and to assess the extent of EHR support in PCC.

2013-2017 **Encoding and Processing Patient Allergy Information in Electronic Health Records** (R01HS022728) (**L. Zhou)**
Agency for Health Care Research and Quality (AHRQ) - $2,000,000
Role: Postdoctoral fellow (Contribution: assist with building a natural language processing pipeline)
Managing allergy information within the electronic health record (EHR) is vital to ensuring patient safety. The goal of this study is to propose a comprehensive solution to assess existing terminology standards and knowledge bases for representing allergy information, develop and evaluate a natural language processing (NLP) system for

extracting and encoding allergy information from free-text clinical documents, and finally measure the feasibility of using NLP output to facilitate the allergy reconciliation process.

2015-2017 **Natural Language Processing of Legal Claims Data: Building Automated Safety Systems in Healthcare**
CRICO, Harvard University, Boston, USA - $200,000
Role: Co-I, PI L. Zhou (Contribution: assist with building a natural language processing pipeline)
We developed and applied an innovative health information technology application (Natural Language Processing and Machine Learning) to enable faster, higher accuracy and better quality data coding and analytics for malpractice claims.

2015- 2017 **Rethinking Patient Prioritization During Homecare Admission: A Pilot Study**
Eugenie and Joseph Doyle Research Partnership Fund, Visiting Nurse Services of New York (VNSNY) - $6,500
Role: PI
The study examined patient admission processes at one of world largest homecare organization in the world (VNSNY) and piloted a tool for patient prioritization developed in my dissertation (PREVENT).

2015 **Veterans Administration Developers Challenge: Care Coordination for Improved Outcomes Challenge (CAREDINATOR)**
Veterans Administration (VA), USA - $5,000
Role: PI
The study developed a prototype application for interprofessional care coordination called CAREDINATOR. The application used natural language processing for free text and structured data to reconcile patient and provider goals and identify interventions that are conflicting, missing or redundant.

2013-2014 **Do Unique Clinical Risk Profiles Predict Hospitalization Among Community-Dwelling Older Adults?**
The New Courtland Center for Transitions and Health, University of Pennsylvania - $10,000
Role: Co-I, PI M. O'Connor (Contribution: assist with designing the study methods)
The goal of the study was to investigate predictors of rehospitalization among community dwelling older adults.

2014-2014 **Developing a Tool to Support Decisions on Older Patient Prioritization at Admission to Home Health Care**
Faculty Senate Research Committee Awards, Office of Nursing Research, University of Pennsylvania - $5,000
Role: PI
The goal of the study was to develop and validate a clinical decision support tool for risk assessment of older adults discharged from hospitals to homecare.

2013-2014 **Developing a Tool to Support Decisions on Older Patient Prioritization at Admission to Home Health Care**
Frank Morgan Jones Fund, Center for Integrative Science and Aging, University of Pennsylvania - $8,500
Role: PI
The goal of the study was to develop and validate a clinical decision support tool for risk assessment of older adults discharged from hospitals to homecare.

2013-2014 **Massive Open Online Courses Awareness Initiative in Russian Federation**
Alumni Engagement Innovation Fund, Fulbright Foundation &U.S. Department of State - $25,000
Role: Collaborator, PI L. Orlov (Contribution: assist with creating resources)

The goal of this project was to develop and implement a web platform and series of seminars to promote the adoption of Massive Open Online Courses (MOOCs) in Russian Federation.

2012-2013 **Exploration of Homecare Agency Admission Process for Older Adults: A Qualitative Study.**
Frank Morgan Jones Fund, Center for Integrative Science and Aging, U of Pennsylvania - $4,634
Role: PI

The goal of the study was to explore the facilitators and inhibitors of a patient quality transition to home health settings.

2012-2013 **Translation of Heart Failure Clinical Practice Guidelines for Home Care Electronic Health Record using Standardized Nursing Terminology**
Faculty Senate Research Committee Awards, Office of Nursing Research, University of Pennsylvania - $3,000
Role: PI

The goal of the project was to incorporate nursing specific clinical guidelines into a computer-interpretable format.

2012-2013 **Social Media and Related Technologies for Emergency Readiness in India: SMARTER**
Alumni Engagement Innovation Fund, Fulbright Foundation & U.S. Department of State - $25,000
Role: Collaborator, PI Z. Formalin (Contribution: Support creation of a meaningful emergency network)

The goal of the study was to develop and implement a mobile application for disaster preparedness and management in India.

Pending Funding

2020 (submitted Oct 2020, preparing to resubmit in October 2021) **Communication of Nursing Concern for Healthcare Associated Infections: CONCERN HAI** (R01HS027582)
Agency for Health Research and Quality, R01
Role: Multiple-PI, Contact PI K. Cato (Columbia Nursing)

EDUCATIONAL CONTRIBUTIONS

Direct Teaching/Precepting/Supervising

2021-Present	Data Science for Better Health Outcomes: A Nursing Perspective (new summer 20121 course for students from Nursing, Public Health, Data Science, Engineering, Computer Science, & Statistics)	Columbia University, School of Nursing, Faculty of Record
2019-2020	Scholarly Writing and Dissemination I & II (120 students in general, divided into subgroups of ~20 students per instructor, NURSN9151), offered every year, spring and fall semesters	Columbia University, School of Nursing, Subgroup Leader
2019	Independent study (Natural language processing), 1 PhD student	Columbia University, School of Nursing, Guided Study Leader
2019-Present	Informatics for Practice (~100 students, NURSN9412), offered every year, summer semester	Columbia University, School of Nursing, Faculty of Record
2019	Introduction to Evidence-Based Practice	Columbia University, School of Nursing, Subgroup Leader

	(120 students in general, divided into sections of ~20 students per instructor, NURSN7000), offered every year, summer semester	
2019- Present	Columbia Data Science Institute: Data Science Scholars Internship Program Supervised 10 students from multiple schools (Engineering, Journalism, Statistics, etc.) in different data science internship projects. Internship is open for new students every fall semester.	Columbia University, Supervisor
2019- Present	Health Informatics for Better and Safer Care (https://www.edx.org/course/multidisciplinary-health-informatics-for-better-and-safer-healthcare) Self-paced course scheduled to open automatically few times every year. Taught ~2,000 international participants of all ages and academic levels.	edX - Massive Open Online Course (MOOC) platform, Faculty of Record
2016-2018	Development and Implementation of Health Information Technology (30 students) BA level students	University of Haifa, Faculty of Record
2016-2018	Introduction to Nursing (120 students)	University of Haifa, Faculty of Record
2016-2018	Organizational Aspects of Healthcare Systems (30 students)	University of Haifa, Lecturer
2013-2014	Growing Old around the Globe Taught ~7,000 international participants of all ages and academic levels.	University of Pennsylvania, Coursera, Massive Open Online Course (MOOC) Teaching assistant
2012-2013	NUR 551: Applied Nursing Informatics Graduate student seminar (6 students)	University of Pennsylvania, Co-teacher
2011-2012	NUR 607: Advanced Physiology and Pathophysiology Graduate students (90 students)	University of Pennsylvania, Teaching assistant
2010-2011	NUR 050: Introduction to Nursing 1st year nursing students (80 students)	University of Pennsylvania, Teaching assistant
2008-2010	Evidence based practice for allied-health professions Graduate students (30 students)	University of Haifa , Teaching assistant and course coordinator

Advising and Mentorship

2020-Present Mollie Hobensack- PhD sponsor, Columbia School of Nursing.
Topic: Identifying best treatments for wound healing through natural language processing.
Expected graduation: 2022

2020-Present	Jiyoun Song- Postdoctoral Scientist's Main Supervisor, Columbia School of Nursing. Topic: Using natural language processing and machine learning to identify patients at risk for poor outcomes.
2019-Present	Maryam Zolnoory- Postdoctoral Scientist's Main Supervisor, Columbia School of Nursing. Topic: Using speech recognition and natural language processing to improve patient outcomes in home healthcare.
2012	Urvi Awasthi- Senior, Applied Mathematics and Data Science, Columbia University Co-mentor on summer research project funded by the Center for Data, Media & Society (Columbia University) Topic: Public opinion toward psychiatric diseases- a social media text mining study.
2019-Present	Shazia Mitha- PhD co-sponsor, Columbia School of Nursing. Topic: Cardiotoxicity among women with breast cancer. Expected graduation: 2021.
2016-2018	Zarina Paltiel- MA sponsor, University of Haifa. Topic: Development of a data-driven personalized clinical decision support tool to promote breastfeeding rates among ethnically diverse women in Israel.
2016-Present	Natlie Flaks-Manov – PhD committee member, University of Haifa. Topic: Using big data to identify readmissions. Expected graduation: 2020.
2011-2014	Peer mentor for: Sarah Abboud, MSN, RN, first year PhD student, UPenn; Nadya Golfenshtein, MA, RN, first year PhD student, UPenn; Kelly Barsan Silverman, MSc, first year PhD student, UPenn

Continuing Education and Professional Education (Local)

2020	Nursing Informatics in Times of COVID 19: Achievements, Challenges, and New Ideas. Webinar presentation (role: moderator). American Medical Informatics Association.
2019	ReX Seminar: Using data science to uncover insights from nursing data. Columbia School of Nursing.
2019	Making the most of your Postdoc. Postdoctoral students' presentation at Columbia School of Nursing.
2019	Making the most of your PhD program: keys to success. PhD student's presentation at Columbia School of Nursing.
2018	Natural language processing: a premier. Machon Lev, Jerusalem, Israel. Certificate in Nursing Informatics program.
2018	Nursing informatics and clinical decision support. Machon Lev, Jerusalem, Israel. Certificate in Nursing Informatics program.
2017	Natural language processing- an introduction and application in nursing. University of Pennsylvania, Philadelphia, USA, NUR 551 Applied Nursing Informatics
2017	Applying natural language processing to health data: a practical premier. Deloitte Analytics, Israel.

2016	Natural Language Processing of Medical Texts: open access tools of trade (KNIME). Methods in Health Informatics (course), Harvard Medical School.
2016	Data and text mining: methods and tools. Quantitative research methods class (PhD students). Haifa University, Haifa, Israel
2016	Data and text mining in healthcare. Assistive technology class (MA students). Haifa University, Haifa, Israel
2016	Data mining and natural language processing with health data: a research trajectory. Health seminar series. IBM, Haifa, Israel.
2016	Data and text mining in healthcare. Medical School. Technion University, Israel
2015	Business opportunities: creating a perfect healthcare business pitch. Healthcare Innovation and Commercialization Course, Harvard Medical School
2015	Rising drug allergy interaction alert overrides: overview of the recent trends. Informatics seminar series. Harvard Medical School & Department of General and Internal Medicine, Brigham Women's Health Hospital
2015	Natural language processing and speech recognition: cutting edge approaches to data analytics and decision support. Informatics seminar series. Harvard Medical School & Department of General and Internal Medicine, Brigham Women's Health Hospital
2015	Trends in allergy modeling. HL7 allergy standards working group meeting.
2014	Making your way up the scientific ladder: publishing during your PhD. University of Pennsylvania, DSO Speaker Series.
2013	Attitudes towards aging. Invited guest lecture, Drexel University, Philadelphia. Course: PTRS 653 Life Span Development II. Program: Doctor of Physical Therapy. Prof: Jan Meiers.
2012	Strategies for interactive lecturing, Center for Teaching and Learning workshop, University of Pennsylvania, Teaching Seminar
2012	Working with international students, Center for Teaching and Learning workshop, University of Pennsylvania, Teaching Seminar

Continuing Education and Professional Education (Regional)

2012	International nursing theories: a systematic literature review (thought while at UPenn). Invited guest lecture, Saginaw Valley State University, MI.
2011	The Secrets of Nursing Theory (thought while at UPenn). Invited guest lecture, Saginaw Valley State University, MI.

<u>Continuing Education and Professional Education (International)</u>

2021	Uncovering Nursing insights in Big Data. Invited presentation, Quebec Association of Nurses in Information Systems and Technologies (AQIISTI), Webinar lecture series.

REPORT OF CLINICAL PRACTICE, INNOVATIONS, LEADERSHIP

Clinical Practice

2007-2010	Internal Medicine, Nursing	Full time employment (Rambam Hospital, Haifa, Israel)

Clinical Innovations

2016-Present	NimbleMiner: a rapid multi-lingual health text mining system	Developed and implemented NimbleMiner: a rapid multi-lingual health text mining software. The system is in open access (https://github.com/mtopaz/NimbleMiner) and has been used by clinicians and health researchers in the United States, Israel, and Russia.
2014	PREVENT: a clinical decision support tool for patient prioritization during homecare admission	Developed and tested a clinical decision support tool for patient prioritization during homecare admission- PREVENT. The tool showed promising impact on health outcomes and is currently being further tested.

PUBLICATIONS

Peer reviewed publications
*Indicates Senior Author
# Indicates data-based publication

1. Song, J., Zolnoori, M., McDonald, M.V., Barron, Y., Cato, K., Sockolow, P., Sridharan, S., Onorato, N., Bowles, K. H., & **Topaz, M.*** (2021). Factors associated with timing of the start-of-care nursing visits in home health care. *J Am Med Dir Assoc*. *[ACCEPTED March 2021]*

2. Sockolow, P., Bowles, K.H., **Topaz, M.**, Koru, G., Hellesø, R., O'Connor, M., Bass, EJ. (2020). The time is now: informatics research opportunities in home health care. *Appl Clin Inf, [ACCEPTED January 2021]*

3. **#Topaz, M.,** Koleck, T. A., Onorato, N., Smaldone, A., Bakken, S. (2020). Nursing documentation of symptoms is associated with higher risk of emergency department visits and hospitalizations in homecare patients. *Nurs Res.* S0029-6554(20)30714-4. https://doi.org/10.1016/j.outlook.2020.12.007. PMID: 33386145

4. #Woo, K., Adams, V., Wilson, P., Fu, L., Cato, K., Rossetti, S. C., McDonald, M., Shang, J., **Topaz, M**.* (2020). Identifying urinary tract infection-related information in homecare nursing notes. *J Am Med Dir Assoc.* S1525-8610(20)31059-8. https://doi.org/10.1016/j.jamda.2020.12.010. PMID: 33434568

5. #Song, J., Woo, K., Shang, J., Ojo, M., & **Topaz, M.*** (2020). Predictive risk modeling of wound infection in home health care: machine learning algorithms. *Adv Skin Wound Care* [ACCEPTED December 2020]

6. #Buck, H. G., Shadmi, E., **Topaz, M.,** & Sockolow, P. S. (2020). An integrative review and theoretical examination of chronic illness mHealth studies using the Middle-Range Theory of Self-care of Chronic Illness. *Res Nurs Health*, 10.1002/nur.22073. https://doi.org/10.1002/nur.22073 PMID: 32931601

7. #Abraham, C.M., Zheng, K., Norful, A.A., Ghaffari, A., Liu, J., **Topaz, M.,** & Poghosyan, L. (2020). use of multifunctional electronic health records and burnout among primary care nurse practitioners. *J Amer Ass Nurs Pract [ACCEPTED September 2020]*

8. **#Topaz, M.,** Adams, V., Wilson, P., Woo, K., Ryvicker, M. (2020). Free-text documentation of dementia symptoms in home healthcare: a natural language processing study. *Gero Geri Med*, *6*, 2333721420959861. https://doi.org/10.1177/2333721420959861 PMID: 33029550

9. Zolnoori, M., McDonald, M., Barron, Y., Cato, K., Sockolow, P., Onorato, N., Bowles, K., **Topaz, M.*** (2021). Improving patient prioritization during hospital-homecare transition: A protocol of a mixed-methods study of a clinical decision support tool implementation. *J Int Med Res: Res Protocols.* 10(1), e20184. https://doi.org/10.2196/20184. PMID: 33480855

10. #Koleck, T. A., Tatonetti, N. P., Bakken, S. B., Mitha, S., Henderson, M. M., George, M., Miaskowski, C., Smaldone, S., & **Topaz, M.*** (2020). identifying symptom information in clinical notes using natural language processing. *Nurs Res.* 10.1097/NNR.0000000000000488. https://doi.org/10.1097/NNR.0000000000000488. PMID: 33196504

11. **# Topaz, M.,** Woo, K., Ryvicker, M., Zolnoori, M., & Cato, K. (2020). home healthcare clinical notes predict patient hospitalization and emergency department visits. *Nurs Res,* 10.1097/NNR.0000000000000470. Advance online publication. https://doi.org/10.1097/NNR.0000000000000470. PMID 32852359

12. Atique, S., Bautista, J. R., Block, L. J., Lee, J., Lozada-Perezmitre, E., Nibber, R., O'Connor, S., Peltonen, L. M., Ronquillo, C., Tayaben, J., Thilo, F., & **Topaz, M. *** (2020). A nursing informatics response to COVID-19: perspectives from five regions of the world. *J Adv Nurs*, 10.1111/jan.14417. Advance online publication. https://doi.org/10.1111/jan.14417. PMID: 32420652

13. **#Topaz, M.,** Naylor, M.D., Holmes, J.H., Bowles, K.H. (2020). factors affecting patient prioritization decisions at admission to home healthcare: a predictive study to develop a risk screening tool. *Comput Inform Nurs*. 38(2):88–98. PMID: 31804243.

14. #Flaks-Manov, N., **Topaz, M**., Hoshen, M., Balicer, R.D., Shadmi, E. (2019). Identifying patients at highest-risk: the best timing to apply a readmission predictive model. *BMC Med Inform and Dec Mak.* 19(1), 118, PMID: 31242886.

15. #Peltonen, L.M., Nibber, R., Lewis, A., Block, L., Pruinelli, L., **Topaz, M**., Perezmitre, E.L., Ronquillo, C. (2019). emerging professionals' observations of opportunities and challenges in nursing informatics. *Nurs Leadersh (Tor Ont).* 32(2), 8-18. PMID: 31613210.

16. #O'Connor, S., Chu, C.H., Thilo, F., Lee, J.J., Mather, C., **Topaz, M**.* (2019). Professionalism in a digital and mobile world: A way forward for nursing. *J Adv Nurs*. 76(1):4–6. PMID: 31588582.

17. **Topaz, M.,** Murga, L., Bar-Bachar, O., McDonald, M., Bowles, K. (2019). nimbleminer: an open-source nursing-sensitive natural language processing system based on word embedding. *Comput Inform Nurs*. 37(11):583–590. PMID: 31478922.

18. #Peltonen, L.M., Pruinelli, L., Ronquillo, C., Nibber, R., Peresmitre, E. L., Block, L., … **Topaz, M.*** (2019). The current state of Nursing Informatics – An international cross-sectional survey. *Finnish Journal of EHealth and EWelfare*. 11(3), 220–231. https://doi.org/10.23996/fjhw.77584

19. **#Topaz, M.**, Bar-Bachar, O., Admi, H., Denekamp, Y., Zimlichman, E. (2019). Patient-centered care via health information technology: a qualitative study with experts from Israel and the U.S. *Inform Health Soc Care*. 1-12. doi:10.1080/17538157.2019.1582055, [Epub ahead of print]. PMID: 30917717.

20. #Kwon, J.Y., Karim, M.E., **Topaz, M.**, Currie, L.M. (2019). Nurses "seeing forest for the trees" in the age of machine learning: using nursing knowledge to improve relevance and performance. *Comput Inform Nurs*. 37(4):203–212. PMID: 30688670.

21. **#Topaz, M.**, Murga, L., Gaddis, K.M., McDonald, M.V., Bar-Bachar, O., Goldberg, Y., Bowles, K. (2019). Mining fall-related information in clinical notes: comparison of rule-based and novel word embedding-based machine learning approaches. *J Biomed Inform*. 90:103-109. PMID: 30639392.

22. #Blumenthal, K.G., **Topaz, M. (Co-first-author)**, Zhou, L., Harkness, T., Sa'adon, R., Bar-Bachar, O., Long, A.A. (2019). mining social media data to assess the risk of skin and soft tissue infections from allergen immunotherapy. *J Allergy Clin Immunol*. 144(1):129–134. PMID: 30721764.

23. #Dhopeshwarkar, N., Sheikh, A., Doan, R., **Topaz, M.**, Bates, D.W., Blumenthal, K.G., Zhou, L. (2019). drug-induced anaphylaxis documented in electronic health records. *J Allergy Clin Immunol Pract*. 7(1):103–111. PMID: 29969686.

24. **#Topaz, M.**, Trifilio, M., Maloney, D., Bar-Bachar, O., Bowles, K.H. (2018). Improving patient prioritization during hospital-homecare transition: A pilot study of a clinical decision support tool. *Res Nurs Health*. 41(5):440–447. PMID: 30203417.

25. **#Topaz, M.**, Schaffer, A., Lai, K.H., Korach, Z.T., Einbinder, J., Zhou, L. (2018). medical malpractice trends: errors in automated speech recognition. *J Med Syst.* 42(8):153. PMID: 29987660.

26. **#Topaz, M.**, Schaffer, A., Lai, K., Korach, T., Einbinder, J., Zhou, L. (2018). Malpractice cases involving allergy information in the electronic health records: implications for safer systems. *Pers of Health Inform Managm*. 54(2): 1-9. https://perspectives.ahima.org/malpracticecasesinvolvingallergy/

27. #Goss, F.R., Lai, K.H., **Topaz, M.**, Acker, W.W., Kowalski, L., Plasek, J.M., Blumenthal, K.G., Seger, D.L., Slight, S.P., Wah Fung, K., Chang, F.Y., Bates, D.W., Zhou, L. (2018). A value set for documenting adverse reactions in electronic health records. *J Am Med Inform Assoc*. 1;25(6):661-669. PMID: 29253169.

28. #Acker, W.W., Plasek, J.M., Blumenthal, K.G., Lai, K.H., **Topaz, M.**, Seger, D.L., Goss, F.R., Slight, S.P., Bates, D.W., Zhou, L. (2017). Prevalence of food allergies and intolerances documented in electronic health records. *J Allergy Clin Immunol.* 140(6):1587-1591.e1. PMID: 28577971.

29. #O'Connor, M., Hanlon, A., Mauer, E.,…**Topaz, M.**, Naylor, M. (2017). Identifying distinct risk profiles to predict adverse events among community-dwelling older adults. *Geriatr Nurs*. 38(6):510–519. PMID: 28479081.

30. #Navathe, A., Zhong, F., Lei, V.J., Chang, F.Y., Sordo, M., **Topaz, M.,** Navathe, S.B., Rocha, R.A., Zhou, L. (2017). hospital readmission and social risk factors identified from physician notes. *Health Serv Res*. 53(2):1110–1136. PMID: 28295260.

31. **#Topaz, M.,** Goss, F., Blumenthal, K., Lai, K., Seger, D.L., Slight, S.P., Wickner, P.G., Robinson, G.A., Fung, K.W., McClure, R.C., Spiro, S., Acker, W.W., Bates, D.W., Zhou, L. (2016) Towards improved drug allergy alerts: Multidisciplinary expert recommendations. *Int J Med Inform.* 97:353-355. PMID: 27729200.

32. **#Topaz, M.,** Lai, K., Dowding, D., Lei, V.J., Zisberg, A., Bowles, K.H., Zhou, L. (2016). Automated identification of wound information in clinical notes of patients with heart diseases: Developing and validating a natural language processing application. *Int J Nurs Stud.* 64:25-31. PMID: 27668855.

33. **#Topaz, M.,** Seger, D.L., Goss, F., Lai, K., Slight, S.P., Lau, J.J., Nandigam, H., Zhou, L. (2016). Standard information models for representing adverse sensitivity information in clinical documents. *Methods Inf Med*. 55(2):151–157. PMID: 26905461.

34. **#Topaz, M.**, Radhakrishnan, K., Blakley, S., Lei, V., Lai, K., Zhou, L. (2016). Studying associations between heart failure self-management and rehospitalizations using natural language processing. *West J Nurs Res*. 39(1):147–165. PMID: 27628125.

35. #Huang, K.P., Joyce, C.J., **Topaz, M.**, Guo, Y., Mostaghimi, A. (2016). Cardiovascular risk in patients with alopecia areata (AA): A propensity-matched retrospective analysis. *J Am Acad Dermatol*. 75(1):151–154. PMID: 27183846.

36. #Koru, G., AlHuwail, D., **Topaz, M.**, Norcio, A.F., Mills, M.E. (2016). Investigating the challenges and opportunities in home care to facilitate effective information technology adoption. *J Am Med Dir Assoc*. 17(1):53–58. PMID: 26612483.

37. #Nandigam, H., **Topaz, M**. (2016). Mapping systematized nomenclature of medicine clinical terms (snomed-ct) to international classification of diseases 10 (icd-10-cm): lessons learned from applying national library of medicine's mappings. *Perspect Health Inform Manag.* 45(3):1-6.

38. **#Topaz, M.,** Seger, D.L., Slight, S.P., Goss, F., Lai, K., Wickner, P.G., Blumenthal, K., Dhopeshwarkar, N., Chang, F., Bates, D.W., Zhou, L. (2016). Rising drug allergy alert overrides in electronic health records: an observational retrospective study of a decade of experience. *J Am Med Inform Assoc*. 23(3):601–608. PMID: 26578227.

39. **#Topaz, M.,** Lisby, M., Morrison, C.R., Levtzion-Korach, O., Hockey, P.M., Salzberg, C.A., Efrati, N., Lipsitz, S., Bates, D.W., Rozenblum, R. (2016). Nurses' perspectives on patient satisfaction and expectations: an international cross-sectional multicenter study with implications for evidence-based practice. *Worldviews Evid Based Nurs.* 13(3):185-96. PMID: 26840190.

40. #Plasek, J.M., Goss, F.R., Lai, K.H., Lau, J.J., Seger, D.L., Blumenthal, K.G., Wickner, P.G., Slight, S.P., Chang, F.Y., **Topaz, M.**, Bates, D.W., Zhou, L. (2015). Food entries in a large allergy data repository. *J Am Med Inform Assoc*. 23(e1):e79–e87. doi:10.1093/jamia/ocv128, PMID: 26384406.

41. **Topaz, M.**, Ronquillo, C., Pruinelli, L., Ramos, R., Peltonen, L.M., Siirala, E., Atique, S., Hamann, G., Badger, M.K. (2015). Central trends in nursing informatics: students' reflections from International Congress on Nursing Informatics 2014 (Taipei, Taiwan). *Comput Inform Nurs*. 33(3):85-9. PMID: 25793554.

42. #Lai, K.H., **Topaz, M.**, Goss, F.R., Zhou, L. (2015). Automated Misspelling Detection and Correction in Clinical Free-Text Records. *J Biomed Inform*. 55:188–195. PMID: 25917057.

43. #Bowles, K.H., Chittams, J., Heil, E., **Topaz, M.**, Rickard, K., Bhasker, M., Tanzer, M., Behta, M., Hanlon, A.L. (2015). Successful electronic implementation of discharge referral decision support has a positive impact on 30- and 60-day readmissions. *Res Nurs Health*. 38(2):102-14. PMID: 25620675; PMCID: PMC4363131.

44. **#Topaz, M.**, Kang, Y., Holland, D., Bowles, K.H. (2015). Higher 30 and 60-day readmissions among patients who refuse post acute care serves. *Am J Manag Care*. 21(6):424–433, PMID: 26168063.

45. #George, M., **Topaz, M.,** Rand, C., Mao, C. & Shea, J.A. (2014). Negative inhaled corticosteroid beliefs and complementary and alternative medicine use in urban adults with asthma. *J Allergy Clin Immunol.* 134(6):1252-9, PMID: 25218286.

46. #Zisberg, A., **Topaz, M.**, Winterstein, T. (2014). Effect of nursing education on students' knowledge, attitudes and preferences to work with older adults: An Israeli perspective. *J of Transcult Nurs.* 26: 193-201. PMID: 24848351.

47. **#Topaz, M.**, Golfenshtein, N., Bowles, K.H. (2014). The Omaha System: a systematic review of the recent literature. *J Am Med Inform Assoc*. 21(1):163–170. PMID: 23744786.

48. #Masterson Creber, R., **Topaz, M.**, Lennie, T.A., Lee, C.S., Puzantian, H., Riegel, B. (2014). Identifying predictors of high sodium excretion in patients with heart failure: A mixed effect analysis of longitudinal data. *Eur J Cardiovasc Nurs*. 13(6):549–558. PMID: 24366985.

49. #Bowles, K.H., Hanlon, A., Holland, D., Potashnik, S.L., **Topaz, M**. (2014). Impact of discharge planning decision support on time to readmission among older adult medical patients. *Prof Case Manag*. 19(1):29–38. PMID: 24300427.

50. #Radhakrishnan, K., **Topaz, M. (first co-author)**, Creber, R.M. (2014). Adapting heart failure guidelines for nursing care in home health settings: challenges and solutions. *J Cardiovasc Nurs*. 29(4):E1–E8. doi:10.1097/JCN.0000000000000091. PMID: 24231891.

51. #Creber, R.M., Lee, C.S., Lennie, T.A., **Topaz, M.**, Riegel, B. (2014). Using growth mixture modeling to identify classes of sodium adherence in adults with heart failure. *J Cardiovasc Nurs*. 29(3):209–217. PMID: 23416937.

52. **Topaz, M.**, Ash N. (2013). Overview of the US policies for health information technology and lessons learned for Israel [In Hebrew]. *Harefuah*. 152:262-6, 310, 309. PMID: 23885448.

53. **Topaz, M**. (2013). The Hitchhiker's Guide to nursing informatics theory: using the Data-Knowledge-Information-Wisdom framework to guide informatics research. *Online Journal of Nursing Informatics*. 17 (3). http://ojni.org/issues/?p=2852

54. **#Topaz, M.**, Rao, A., Masterson Creber, R., Bowles, K.H. (2013). Educating clinicians on new elements incorporated into the electronic health record: theories, evidence, and one educational project. *Comput Inform Nurs*. 31(8):375–381. PMID: 23774448.

55. **#Topaz, M.**, Doron, I. (2013). Nurses' attitudes toward older patients in acute care in Israel. *Online J Issues Nurs*. 18(2):9. PMID: 23758427.

56. **Topaz, M.**, Troutman (Flood), M., MacKenzie, M. (2013). Construction, Deconstruction and Reconstruction: A history and evolution of theories of aging. *Nursing Science Quarterl.* 19;27(3):226-233. PMID: 24951524

57. #Radhakrishnan, K., Bowles, K., Hanlon, A., **Topaz, M.**, Chittams, J. (2013). A retrospective study on patient characteristics and telehealth alerts indicative of key medical events for heart failure patients at a home health agency. *Telemed J E Health.* 19(9):664-70. PMID: 23808888.

58. #George, M., **Topaz, M**. (2013). A systematic review of complementary and alternative medicine for asthma self-management. *Nurs Clin North Am*. 48:53-149, PMID: 23465447

59. #Bowles, K.H., Potashnik, S., Ratcliffe, S.J., Rosenberg, M., Shih, N.W., **Topaz, M.**, Holmes, J.H., Naylor, M.D. (2013). Conducting research using the electronic health record across multi-hospital systems: semantic harmonization implications for administrators, *J Nurs Adm*. 43(6):355–360. PMID: 23708504

60. **#Topaz, M.**, Johnson, A., Pinilla, R., Rand, C., George, M. (2012). Primary care providers' attitudes and beliefs about patients' complementary and alternative medicine use for asthma self-management: an exploratory study. *J Asth & Allerg Educ.* 3:255-263.

61. #Riegel, B., Dickson, V.V., **Topaz, M**. (2012). Qualitative analysis of naturalistic decision making in adults with chronic heart failure, *Nurs Res*. 62(2):91–98. PMID: 23154659.

62. **Topaz, M.**, Shafran-Topaz, L., Bowles, K.H. (2012). ICD-9 to ICD-10: evolution, revolution and current debates in the US, *Perspect Health Inform Manag*. 56(2):1-8, PMID: 23805064.

63. **Topaz M**, Bowles KH. (2012). Electronic health records and quality of care: mixed results and emerging debates. *Online J Nurs Inform*. 16; 1-5.

64. **#Topaz, M.**, Radhakrishnan, K., Masterson-Creber, R., Bowles, K.H. (2012). Putting evidence to work: Using standardized terminologies to incorporate clinical practice guidelines within homecare electronic health records. *Online J Nurs Inform.* 16:1694-1699.

65. Meleis, A.I., **Topaz, M**. (2011). Nursing theory of the future: situation-specific theories. *Pflege* [German journal, article in English]. 24:345-347. PMID: 22272417

Peer reviewed publications under review

1. #Mitha, S., Smaldone, A., **Topaz, M.*** Natural language processing of data generated by nurses: a systematic review. *App Clin Inform*

2. #Zolnoori, M., Song, J., McDonald, M.V., Barron, Y., Cato, K., Sockolow, P., Sridharan, S., Onorato, N., Bowles, K. H., & **Topaz, M.*** (2021). Text mining of reasons for late visits in home healthcare. *Gerontolog*

3. #Kang, Y., **Topaz. M.,** Dunbar, S. The utility of nursing notes among Medicare patients with heart failure to predict 30-day rehospitalization: a pilot study. *Eur J Cardiovasc Nurs*

4. **#Topaz, M.,** Murga, L., Grossman, C., Daliyot, D., Jacobson, S., Rozendorn, N., Zimlichman, E., Furie, N. Multi-lingual text mining system: a case study of identifying medical conditions and procedures in clinical notes in Hebrew. *Comp Meth Progr Biomed*

5. #Woo, K., Adams, V., Wilson, P., Fu, L., Cato, K., Rossetti, S. C., McDonald, M., Shang, J., **Topaz, M**.* risk factors for urinary tract infection among home health care patients: analysis using routinely collected clinical data. *PLOS One*

6. #Woo, K., Adams, V., Wilson, P., Fu, L., Cato, K., Rossetti, S. C., McDonald, M., Shang, J., **Topaz, M**.* Exploring prevalence of wound infections and related patient characteristics in homecare using natural lang uage processing, *Nurs Res*

Peer-reviewed conference proceedings

1. #Barakati, SS., **Topaz, M.,** Peltonen, LM., Mitchell, J., Alhuwail, D., Risling, T., & Ronquillo, C. (2020). Health informatics solutions in response to COVID-19: Preliminary insights from an international survey. EFMI Special Topic Conference 2020: November 26-27, 2020, e-Conference.

2. **#Topaz, M.,** Murga, L., Grossman, C., Daliyot, D., Jacobson, S., Rozendorn, N., Zimlichman, E., Furie, N. (2019). Identifying diabetes in clinical notes in hebrew: a novel text classification approach based on word embedding. *Stud Health Technol Inform*. 264:393-397. PMID: 31437952.

3. **#Topaz, M.,** Murga, L., Bar-Bachar, O., Cato, K., Collins, S. (2019). Extracting alcohol and substance abuse status from clinical notes: the added value of nursing data. *Stud Health Technol Inform*. 264:1056-1060. PMID: 31438086

4. #Al Assad, W., **Topaz, M.,** Tu, J., Zhou, L. (2017). The application of machine learning to evaluate the adequacy of information in radiology orders. *IEEE International Conference on Bioinformatics and Biomedicine (BIBM),* Kansas City, MO, 2017, pp. 305-310.

5. #Wang, L., **Topaz, M.,** Plasek, J., Zhou, L. (2017). Content and trends in medical informatics publications over the past two decades. *Bi-annual World Congress on Medical and Health Informatics*, (MEDINFO).

6. **#Topaz, M.,** Ronquillo, C., Peltonen, L.M., Pruinelli, L., Sarmiento, R.F., Badger, M.K., Ali, S., Lewis, A., Georgsson, M., Jeon, E., Tayaben, J.L., Kuo, C.H., Islam, T., Sommer, J., Jung, H., Eler, G.J., Alhuwail, D., Lee, Y.L. (2017). Nurse informaticians report low satisfaction and multi-level concerns with electronic health records: results from an international survey. *AMIA Annu Symp Proc*. 2017 Feb 10;2016:2016-2025. eCollection 2016. PMID: 28269961. PMCID: PMC5333337. **[Nominated for best paper award]**

7. #Peltonen, L., **Topaz, M.,** Ronquillo, C., Pruinelli, L., Sarmiento, R., Badger, M., Ali, S., Lewis, A., Georgsson, M., Jeon, E., Tayaben, J., Kuo, C., Islam, T., Sommer, J., Jung, H., Eler, J., Alhuwail, D. (2016). Nursing informatics research priorities for the future: recommendations from an international survey. The Bi-annual Congress in Nursing Informatics 2016, (NI 2016). *Stud Health Technol Inform*. 2016;225:222-6. PMID: 27332195. **[Nominated for best paper award]**

8. **#Topaz, M.,** Ronquillo, C., Peltonen, L., Pruinelli, L., Sarmiento, R., Badger, M., Ali, S., Lewis, A., Georgsson, M., Jeon, E., Tayaben, J., Kuo, C., Islam, T., Sommer, J., Jung, H., Eler, J., Alhuwail, D. (2016). Advancing nursing informatics in the next decade: recommendations from an international survey. The Bi-annual Congress in Nursing Informatics 2016, (NI 2016). *Stud Health Technol Inform*. 2016;225:123-7. PMID: 27332175.

9. #Zhou, L., Baughman, A.W., Lei, V.J., Lai, K.H., Navathe, A.S., Chang, F., Sordo Sanchez, M., **Topaz, M.**, Zhong, F., Murrali, M., Navathe, S., Rocha, R.A. (2015). Identifying patients with depression using free-text clinical documents. MEDINFO 2015 proceedings, *Stud Health Technol Inform*. 216:629–633. PMID: 26262127. **[Best Paper Award Nominee]**.

10. **#Topaz, M.**, Seger, D., Lai, K., Wickner, P., Goss, F., Dhopeshwarkar, N., Chang, F., Bates, W.D., Zhou, L. (2015). High override rate for opioid drug-allergy interaction alerts: current trends and recommendations for future. MEDINFO 2015 proceedings, *Stud Health Technol Inform*. 216:242–246. PMID: 26262047.

11. Gerber, A., **Topaz, M**. (2014). Promoting meaningful use of health information technology in israel: ministry of health vision. Nursing Informatics Bi-Annual International Congress Proceedings, *Stud Health Technol Inform*. 201:108–115. PMID: 24943532.

12. **#Topaz, M.**, Shalom, E., Masterson-Creber, R., Rhadakrishnan, K., Monsen, K.A., Bowles, K.H. (2013). Developing nursing computer interpretable guidelines: a feasibility study of heart failure guidelines in

homecare. *AMIA Annu Symp Proc*. 2013:1353-61. eCollection 2013. PMID: 24551412. [**Nominated for best paper award**]

13. **#Topaz, M**. (2013). Developing a clinical decision support tool for patient prioritization at admission to home health care, *AMIA Annu Symp Proc 2013* [Section: Doctoral Consortium on Sociotechnical Issues in Biomedical Informatics] 2013:681-686.

Peer-reviewed conference proceedings under review

1. Hobensak, M., Song, J., Zolnoory, M., **Topaz, M.*** Identifying narrative documentation of clinician concern about patient deterioration in home healthcare: a text mining study. *AMIA Annu Symp 2021*

Other Peer-Reviewed Publications

Reviews, Chapters, Monographs, Editorials

1. #Ronquillo, C., **Topaz, M.,** Pruinelli, L., Peltonen, LM., Nibber, R. (2017). Competency recommendations for advancing nursing informatics in the next decade: international survey results. In: *Forecasting Informatics Competencies for Nurses in the Future of Connected Health*. 232:119-129. PMID: 28106590.

2. **Topaz, M.,** Pruinelli, L. (2017). Big data and nursing: implications for the future. In: *Forecasting Informatics Competencies for Nurses in the Future of Connected Health*. 232:165-171. PMID: 28106594.

3. **Topaz, M.** (2017). Informatics Theory and Practice (Chapter 2), In: T. Hedba & K, Hunter. Handbook of Informatics for Nurses & Healthcare Professionals (6th Edition).

4. **Topaz, M**. (2014). Benefits and lessons learned from organizing and managing an international nursing students' group in informatics. *Journal of Nursing Doctoral Students Scholarship* 2014;1: 4-7.

5. **#Topaz, M**. (2013). Ageism among Nurses in Israel: Knowledge and attitudes toward elderly patients in acute care settings [In Hebrew]. *In: Doron I, ed. Ageism in Israeli Society*. Van-Leer Institute publication: Jerusalem, Israel, 2013:96-105.

6. **Topaz, M**. (2013). One paper's journey: from class assignment to journal publication, *Journal of Nursing Doctoral Students Scholarship* 2013;1:54-57.

7. #Zisberg, A., Band-Wintershtein, T., **Topaz, M**. (2011). Nurses attitudes toward older adults: A comparison between freshmen nursing students and young nurses. In: *Zysberg L, ed. Student Attitudes*. Nova publisher, 2011: 259-272.

8. Other Non-Peer Reviewed Publications in Print or Other Media**Topaz, M**. (2018). Project highlight: NimbleMiner: an open source nursing sensitive natural language processing software. *Quarterly Newsletter IMIA NISIG*, 2018.

9. Joseph, P., Streur, M., **Topaz, M**. (2014). Academic Dishonesty: Plagiarism and its Consequences. *Journal of Nursing Doctoral Students Scholarship.* 2014;1: 2-3.

10. Sefcik, J.S., **Topaz, M.** (2014). Peer reviewing: the benefits and value. *Int J Older People Nurs*. 2014;9(2):93-4. doi: 10.1111/opn.12047. PMID: 24813720.

11. **Topaz, M.**, Sefcik, J., Joseph, P. (2013). Celebrating the creation of a first journal for doctoral students in nursing: reflections and vision moving forward. *Journal of Nursing Doctoral Students Scholarship*. 1:58-59.

12. **Topaz, M.**, Frizzell, L. (2013). Authoring Scholarly Papers for AMIA Annual Symposium: Suggestions and Tips for your Success. Summary of Dr. P. Dykes Webinar, AMIA Students' Working Group Newsletter 2013.

13. Patel, S., **Topaz, M.**, George, M. (2013). Validating the accuracy of the Doser^{tm}: A replication study, Association of Asthma Educators newsletter 2013.

14. **Topaz, M.**, Ronquillo, C., Hunt, A., Badger, M., Jensen, R., Yeh, Z., Lewis, A. (2012). International Medical Informatics Association Strategic Plan Update and Re-focus: IMIA-NISIG- Students Group comments, Report submitted to IMIA General Assembly, 2012.

15. **Topaz, M.**, Sefcik, J. (2012). The role of the Doctoral Student Organization: University of Pennsylvania's example, The International Network for Doctoral Education in Nursing (INDEN) Newsletter 2012;10:4-6.

PEER-SELECTED PRESENTATIONS

Regional

1. Landau, A.Y., Blanchard, A., Atkins, N., Salazar, S., Patton, D.U., **Topaz, M.** Artificial Intelligence-Assisted Identification of Child Abuse and Neglect in Hospital Settings with Implications for Racial Bias Reduction [Poster presentation]. Machine Learning in Science and Engineering, Columbia University, NYC, USA. 2020.

2. **Topaz, M.** NimbleMiner: an Open Source Natural Language Processing System for Nursing-sensitive Data. Mount Sinai Nursing Research Day 2018 [Poster presentation]. 2018.

3. **Topaz, M.** NimbleMiner: an Open Source Natural Language Processing System for Nursing-sensitive Data. Data Science Institute Health Analytics Presentations day, Columbia University, New York, USA [Poster presentation]. 2018.

4. Plasek, J.M., Lau, J., Lai, K., Vartak, M., Goss, F.R., **Topaz, M.**, Tang, C., Seger, D., Chang, F.Y., Bates, D., Zhou, L. Automated Encoding of Allergy Information in Clinical Notes An Application of the Medical Text Extraction, Reasoning, and Mapping System (MTERMS), Poster, Annual Biomedical Informatics Retreat, Division of General Medicine, Brigham Women's Health & Harvard Medical School, Boston, MA, USA. 2014.

5. **Topaz, M.**, Masterson-Creber, R., Radhakrishnan, K., Shalom, E. & Bowles, K.H. Heart failure and co-morbidities: identifying evidence for home health nursing, Poster, Multi-morbidity Management Conference, the Cheryl Spencer Institute for Nursing Research, Haifa, Israel. 2013.

6. **Topaz, M.**, Troutman (Flood), M., & MacKenzie, M. Construction, Deconstruction, Reconstruction: A history and evolution of theories of aging, Poster, Institute of Aging Annual Retreat, UPenn, Philadelphia, PA. 2011.

National

1. Landau, A.Y., Blanchard, A., Atkins, N., Salazar, S., Patton, D.U., & **Topaz, M.**, Considerations for Development of Child Abuse and Neglect Phenotype with Prioritizing Reduction of Racial Bias: A Qualitative Study. AMIA 2021 Virtual Clinical Informatics Conference, Virtual. [Podium presentation]. 2021.

2. Song, J., McDonald, M., Barron, Y., Cate, K., Rossetti, SC., Sridharan, S., Chae, S., Tark, A., Adams, V., Woo, K., Kang, MJ., Hobensack, M., Ojo, M., Bowles, K., & **Topaz, M.** Identifying factors associated with patient's risk for hospitalization or emergency department visits in home health care. AMIA 2021 Virtual Clinical Informatics Conference, Virtual. [Podium presentation]. 2021.

3. Zolnoori, M., McDonald, M., Cato, K., Sockolow, P., Onorato, N., Barrón, Y., Sridharan, S., Bowles, K., **Topaz, M**. Using data science to explore reasons for late start of care nursing visit in home healthcare. Annual International Conference on Home Healthcare, Hospice, and Information Technology (H3IT) conference, Virtual. [Podium presentation]. 2020.

4. **Topaz, M**. Woo, K., Ryvicker, M., Zolnoori, M., Cato, K. Predicting Patient Hospitalization and Emergency Department Visits Using Clinical Notes: A Data Science Study in Home Healthcare. Annual International Conference on Home Healthcare, Hospice, and Information Technology (H3IT) conference, Virtual. [Podium presentation]. 2020.

5. Blumenthal, K.G., **Topaz, M.**, Zhou, L., Harkness, T., Sa'adon, R., Bar-Bachar, O., Long, A.A. Mining social media data to assess the risk of skin and soft tissue infections from allergen immunotherapy. The American Academy of Allergy, Asthma & Immunology (AAAAI, San Francisco, USA) Annual Congress [Poster presentation]. 2019.

6. Woo, K., Adams, V., Wilson, P., Fu, L., Cato, K., Rossetti, S. C., McDonald, M., Shang, J., **Topaz, M**. Using natural language processing to examine early signs of urinary tract infection in homecare notes. Podium presentation for Annual International Conference on Home Healthcare, Hospice, and Information Technology (H3IT) conference, Seattle, WA, USA. 2019.

7. **Topaz, M.**, McDonald, M., Bowles, K. Using clinical decision support to reduce rehospitalizations during homecare admission. The Summer Institute in Nursing Informatics (SINI), University of Maryland (Baltimore, USA) [Podium presentation]. 2019.

8. **Topaz, M.**, Murga, L., Bar-Bachar, O., Bowles, K., McDonald, M., Collins, S., Cato, K. NimbleMiner: an Open Source Natural Language Processing System for Nursing-sensitive Data. Home Healthcare and Hospice Information Technology Conference (H3IT), Grapevine, TX, USA [Podium presentation]. 2018.

9. **Topaz, M.**, Gaddis, K., McDonald, M., Bowles, K. Creation and validation of a tool to extract falls' history, interventions and fall risk from narrative homecare clinician notes. Home Healthcare and Hospice Information Technology Conference (H3IT), Nashville, Tennessee, USA [Podium presentation]. 2017.

10. **Topaz, M.** & Zhou, L. Natural language processing and speech recognition: Technology overview and potential applications in homecare. Home Healthcare and Hospice Information Technology Conference (H3IT), Chicago, IL, USA 2016 [Podium panel presentation]. 2016.

11. **Topaz, M.**, Trifilio, M., Maloney, D., Bowles, K. Improving Patient Prioritization during Homecare Admission- a Pilot Study. Home Healthcare and Hospice Information Technology Conference (H3IT), Chicago, IL, USA 2016 [Podium panel presentation]. 2016.

12. Lai, K., Blumenthal, K., Wickner, P., Goss, F., Seger, D., Slight, S., **Topaz, M.**, Chang, F., Zhou, L. Reported Incidence of Adverse Reactions to Non-Steroidal Anti-Inflammatory Drugs: A Large-Scale

Retrospective Study Using Electronic Health Records. American Academy of Allergy, Asthma and Immunology Annual Meeting, Los-Angeles, CA, USA. 2016.

13. Lai, K., Blumenthal, K., Wickner, P., Goss, F., Seger, D., Slight, S., **Topaz, M.**, Chang, F., Zhou, L. Reported Incidence of Adverse Reactions to Non-Steroidal Anti-Inflammatory Drugs: A Large-Scale Retrospective Study Using Electronic Health Records. Division of General Internal Medicine Research Day, Brigham Women's Health Hospital, Boston, MA, USA. 2015.

14. O'Connor, M., Hanlon, A., Megani, S., Masterson-Creber, R., Bowles, K.H., Riegel, B., Van Cleave, J., Marcantonio, S., Coburn, K., Greenberg, S., Davitt, J., Sefcik, J., **Topaz, M.**, Kong, D., Naylor, M. Paper presentation. Do Unique Clinical Risk Profiles Predict Hospitalization Among Community-Dwelling Older Adults? Eastern Nursing Research Society 27th Annual Scientific Sessions. Nursing Science, Evidence, and Policy: Creating a Culture of Health. Washington, DC, USA. 2015.

15. Koru, G., Alhuwail, D., **Topaz, M.**, Mills, M., Norcio, E. Toward Effective and Efficient Health IT Adoption in Home Healthcare: a Qualitative Investigation of Maryland Home Health Agencies. Podium presentation, Home Healthcare and Hospice Information Technology Conference (H3IT), Washington, DC, USA. 2014.

16. **Topaz, M.**, Bowles, K.H. Developing a Tool to Support Decisions on Patient Prioritization at Admission to Home Health Care. Podium presentation, Home Healthcare and Hospice Information Technology Conference (H3IT), Washington, DC, USA. 2014.

17. Bowles, K.H., **Topaz, M.**, Kang, Y., Holland, D. Characteristics and Outcomes of Older Adults Who Refuse Post-Acute Care Services. Poster, 67th Gernotological Society of America Annual Scientific Meeting, Washington, DC, USA. 2014.

18. Al-Huwail, D., Koru, G., Alaiad, A., Norcio, A., **Topaz, M**. Health Information Technology Adoption in Home Health. Research Update, Poster, AMIA Annual Symposium 2014, Washington, DC, USA. 2014.

19. Monsen, K.A., Swenson, S.M., Lytton, A.B., **Topaz, M.**, & Martin, K.S. Toward Universal Representation of Evidence-Based Practice, Poster, The Omaha System International Conference, Eagan, MN, USA. 2013.

20. **Topaz, M.**, & Bowles, K.H. The Omaha System: A Systematic Review of the Recent Literature, Poster, The Omaha System International Conference, Eagan, MN, USA 2013.

21. **Topaz, M.**, Radhakrishnan, K., Masterson-Creber, R., Shalom, E. & Bowles, K.H. Five Step Process to Create Nursing-Specific, Computer Interpretable, Clinical Practice Guidelines, Poster, The Omaha System International Conference, Eagan, MN, USA. 2013.

22. **Topaz, M.**, Shalom, E., Masterson-Creber, R., Radhakrishnan, K. & Bowles, K.H. Generating Nursing Specific, Time-Oriented, Hierarchical Computer Interpretable Guidelines: Tools Used and Lessons Learned, Podium presentation, First International Conference on Research Methods for Standardized Terminologies, Eagan, MN, USA. 2013.

23. **Topaz, M.**, Rao, A., Masterson-Creber, R. & Bowles, K.H. Educating clinicians on new elements incorporated into the electronic health record: theories, evidence and one educational project, Poster, 6th Annual Mid-Atlantic Healthcare Informatics Symposium, Philadelphia, PA, USA. 2013.

24. Koru, G., Norcio, A.F., **Topaz, M.**, Alhuwail, D., Antol, S. & Mills, M.E. On the Effectiveness and Efficiency of Health IT Adoption by Home Health Agencies: A Status Report from Ongoing Work, Poster, Summer Institute in Nursing Informatics – SINI, Baltimore, MD, USA. 2013.

25. Bowles, K.H., Holmes, J., Naylor, M.D., Ratcliffe, S.J., Potashnik, S., **Topaz, M.**, Diaz, Z. Putting nursing data to work: Building decision support for identifying patients at risk for poor post discharge outcomes, Poster, Electronic Data Methods Forum for Comparative Effectiveness Research, Academy Health, Baltimore, MD, USA. 2013.

26. **Topaz, M.**, Molkin, D., Jarrin, O., Radhakrishnan, K., O'Connor, M. & Bowles, K.H. Who Shall We Visit First? Great Variation in How Home Health Prioritizes Patients' First Home Visit, Poster, 66th Gernotological Society of America Annual Scientific Meeting, New-Orleans, LA, USA. 2013.

27. Radhakrishnan, K., **Topaz, M.**, Masterson-Creber, R. Adapting Heart Failure Guidelines for Nursing Care in Home Health Settings: Challenges and Solutions, Poster, 66th Gernotological Society of America Annual Scientific Meeting, New-Orleans, LA, USA. 2013.

28. **Topaz, M.**, Molkin, D., Koru, G., Jarrin, O., Radhakrishnan, K., O'Connor, M. & Bowles, K.H. Late breaker podium presentation: "We're all in our own little island": A Qualitative Exploration of Patient Information Exchange during Admission to Home Health Agency, AMIA Annual Symposium 2013, Washington, DC, USA. 2013.

29. Bowles, K.H., Holland, D., Potashnik, S., **Topaz, M**. (2013). Discrepancies between Clinicians' Decisions and Patients' Acceptance of Post-Acute Care Referrals, Poster, 66th Gernotological Society of America Annual Scientific Meeting, New-Orleans, LA, USA 2013.

30. **Topaz M**, Masterson-Creber R, Radhakrishnan K, Shalom E & Bowles KH. A Lack of Guidelines for the Care of Elderly Patients with Heart Failure and Other Co-morbidities: An Alarming Issue for Home Health Nursing, Poster, 66th Gernotological Society of America Annual Scientific Meeting, New-Orleans, LA, USA. 2013.

31. **Topaz, M.** Developing a Clinical Decision Support Tool for Patient Prioritization at Admission to Home Health Care, Poster, Workshop on Interactive Systems in Health (WISH 2013). http://wish2013workshop.wordpress.com/posters/ ,Washington, DC, USA. 2013.

32. Streletsky, Y., **Topaz, M.**, & Bowles, K. Discharge Decision Support Tool Identifies Patients Likely to have Problems and Unmet Needs after Discharge, Poster, American Nurses Credentialing Center (ANCC) National Magnet Conference, Los- Angeles, CA, USA. 2012.

33. **Topaz, M.**, & Bowles, K. Omaha System- a systematic literature review, Podium presentation, The 2012 National State of the Science Congress on Nursing Research, Washington, DC, USA. 2012.

34. Dickson, V.V., Riegel, B., & **Topaz, M**. A Qualitative Analysis of Naturalistic Decision Making in Adults with Chronic Heart Failure, Podium presentation, The 2012 National State of the Science Congress on Nursing Research, Washington, DC, USA. 2012.

35. Bowles, K.H., Holland, D., Potashnik, S., **Topaz, M.**, & Hanlon, A. Impact of Discharge Planning Decision Support on 30 and 60 Day Readmissions, Podium presentation, American Medical Informatics Association Annual Symposium 2012. Chicago, IL, USA. # AMIA-0276-A. 2012.

36. Radhakrishnan, K., Bowles, K.H., Hanlon, A., & **Topaz, M**. Association of patient characteristics and telehealth alerts with key medical events experienced by patients with heart failure in homecare, Podium presentation, American Medical Informatics Association Annual Symposium 2012. Chicago, IL, # AMIA-0325-A2012.R1, USA. 2012.

37. Masterson-Creber, R., Lee, C., **Topaz, M.**, & Riegel, B. Identifying predictors of higher than recommended sodium intake in HF patients: a mixed effect analysis of longitudinal data, Podium presentation, Heart Failure Society of America 16th Annual Scientific Meeting, Seattle, WA, USA. 2012.

38. Holland, D.E., Bowles, K.H., Potashnik, S., Hanlon, A.L., & **Topaz, M**. Discharge Planning Decision Support: Targeting the Right Patients, Podium presentation, 65th Gernotological Society of America Annual Scientific Meeting, (Proceedings in Gerontologist, 52, 350) San-Diego, CA, USA. 2012.

39. Kang, Y., Bowles, K., **Topaz, M.**, & Dansky, K.H. State of Science: Telehomecare and Heart Failure, Poster, 65th Gernotological Society of America Annual Scientific Meeting, (Proceedings in Gerontologist, 52, 532) San-Diego, CA, USA. 2012.

40. **Topaz, M**., Troutman (Flood) M. & MacKenzie M. Remapping successful aging: The evolving theoretical framework, Poster, 65th Gernotological Society of America Annual Scientific Meeting, (Proceedings in Gerontologist, 52, 84) San-Diego, CA, USA. 2012.

41. **Topaz, M.**, & Doron, I. After all, it is about knowledge: Nurses' attitudes toward older patients in acute care in Israel, Poster, 65th Gernotological Society of America Annual Scientific Meeting, (Proceedings in Gerontologist, 52, 84) San-Diego, CA, USA. 2012.

42. **Topaz, M.**, & Doron, I. Ageism among nurses as reflected in knowledge and attitudes toward elderly patients in acute care, Poster, Doctoral Student Organization (DSO) Spring Research Colloquium Poster Session, UPenn, Philadelphia, PA, USA. 2011.

International

1. Barakati, S. S., **Topaz, M.,** Peltonen, L. M., Mitchell, J., Alhuwail, D., Risling, T., & Ronquillo, C. Health Informatics Solutions in Response to COVID-19: Preliminary Insights from an International Survey. EFMI Special Topic Conference 2020 (Virtual). *Studies in health technology and informatics*, *275*, 222–223. https://doi.org/10.3233/SHTI200727 [Virtual presentation]. 2020.

2. **Topaz, M.,** Pruinelli, L., Peltonen, L., Nibber, R., Ronquillo, C. Grand challenges in using artificial intelligence in nursing: summary of an international think-tank. International Congress on Nursing Informatics 2021. Brisbane, Australia. [Panel presentation]. 2021.

3. **Topaz, M**., Zolnoori, M., Kim, E., Sacco, D., Chernick, L., Schultebraucks, K., Cato, K. Symptoms Associated with COVID-19: A Natural Language Processing Study. International Conference on Artificial Intelligence in Medicine (AIME 2020, Workshop 1: Artificial Intelligence and the Coronavirus), Virtual. [Virtual presentation]. 2020.

4. Curie, L., **Topaz. M.,** Dowding, D. Artificial Intelligence for Wound Diagnosis and Treatment in Community Healthcare Settings: an International Panel. Panel presentation. Bi-annual World Congress on Medical and Health Informatics. MEDINFO, Lyon, France. 2019.

5. Lewis, A., Block, L., Peltonen, L., Pruinelli, L., **Topaz, M.**, Lozada Perezmitre, E. Emerging Professional's View of the Landscape: Nursing Informatics Curriculum, Competencies, and Career Opportunities. Stud Health Technol Inform. 2018;250:60-61. PMID: 29857372. Guadalajara, Mexico. [Panel presentation]. 2018.

6. Block, L., Peltonen, L.M., Ronquillo, C., Lewis, A., Nibber, R., Pruinelli, L., **Topaz, M**. Building Capacity in Student and Emerging Nursing Informatics Professionals Through Participation in an International Community of Practice. Stud Health Technol Inform. 2018;250:82. PMID: 29857388. Guadalajara, Mexico. [Poster presentation]. 2018.

7. **Topaz, M.**, Gaddis, K., McDonald, M., Bowles, K. A novel system for rapid natural language processing in healthcare (NimbleMiner): fall information extraction case study. Biomedical Informatics Symposium. Technion, Haifa, Israel. [Poster presentation]. 2017.

8. **Topaz, M.**, Schaffer, A., Acker, W., Lai, K., Korah, Z., Einbinder, J., Zhou, L. Health information technology involved in malpractice cases: trends review and opportunities for safety improvement. European Federation for Medical Informatics Conference. Tel Aviv, Israel. [Podium presentation]. 2017.

9. **Topaz, M.**, Gaddis, K., McDonald, M., Bowles, K. Developing and validating a novel rapid clinical text mining approach based on word embeddings (NimbleMiner) to extract falls' history, interventions and fall risk from narrative homecare clinician notes. European Federation for Medical Informatics Conference. Tel Aviv, Israel. [Podium presentation]. 2017.

10. **Topaz, M.**, Lewis, A., O'Connor, S., Block, L., Peltonen, L., Pruinelli, L., Ronquillo, C. From established to emerging research trends in health information technology for nurses. International Conference on Nursing. Athens, Greece. 2016.

11. Pruinelli, L., **Topaz, M.**, Ronquillo, C., Peltonen, L.M. Nursing Informatics Competencies for Emerging Professionals: International Leaders Panel Geneva, Switzerland 13th International Congress on Nursing Informatics -NI2014 2016. Geneva, Switzerland. [Podium panel presentation]. 2016.

12. **Topaz, M.**, Lai, K., Dowding, D., Lei, V., Zisberg, A., Bowles, K., Zhou, L. Using natural language processing to automatically identify wound information in narrative clinical notes: application development and testing. Home healthcare and hospice information technology conference (H3IT). Nashville, TN, USA [Podium presentation]. 2016.

13. **Topaz, M.**, Lai, K., Dhopeshwarkar, N., Seger, D., Sa'adon, R., Goss, F., Rozenblum, R., Zhou, L. Comparing medication side effects in clinical data and social media: Aspirin and Lipitor pilot study. Podium presentation, Healthcare Informatics Summit 2015. Istanbul, Turkey. 2015.

14. Ronquillo, C., Abbott, P.A, Bakken, S., Hardiker, N.R., Marin, H., **Topaz, M.**, Badger, M., Jensen, R., Yeh, K., Park, J.I. Nursing Informatics and Global Health Panel: Past Successes and Lessons Learned, Present Developments, and Untapped Potentials, Podium presentation [Panel], 12th International Congress on Nursing Informatics -NI2014. Taipei, Taiwan. 2014.

15. **Topaz, M.**, Masterson Creber, R., Ronquillo, C., Jensen, R., Barros da Costa, J., Yeh, K., Park, J., & Zaslavsky, O. Promoting Health Equity with Informatics: International Nursing Students' Vision, Poster 12th International Congress on Nursing Informatics -NI2014 Taipei, Taiwan 2014.

16. **Topaz, M.**, Coenen, A., Hardiker, N.R, Keenan, G.K., Monsen, K., & Saba, V.K. Standardized Nursing Terminologies- Celebrating the Past, Analyzing the Present, Envisioning the Future: Terminologies' Leaders Panel, Podium presentation [Panel],12th International Congress on Nursing Informatics -NI2014 Taipei, Taiwan. 2014.

17. **Topaz, M.**, Ronquillo, C., Dykes, P., Park, H.A., Simpson, R., Badger, M., Jensen, R., Yeh, K., & Park, J.I. Nursing Informatics Careers and Opportunities for Emerging Professionals: International Leaders panel, Podium presentation [Panel]: 12th International Congress on Nursing Informatics -NI2014. Taipei, Taiwan. 2014.

18. Zisberg, A., **Topaz, M.**, & Winterstein, T. Effect of nursing education on students' knowledge, attitude, Podium presentation, The 20th IAGG World Congress of Gerontology and Geriatrics. Seoul, Korea. 2013.

19. **Topaz, M.** & Ash, N. Overview of the U.S. Policies for Health Information Technology and Lessons Learned for Israel, Podium presentation, The Israel Association for Medical Informatics Annual Congress. Tel-Aviv, Israel. 2013.

20. Zisberg, A., Winterstein, T., & **Topaz, M**. Nurses attitudes toward older adults: A comparison of freshman students and young nurses, Podium presentation, The 19th Biennial Conference of the Israel Gerontological Society Tel-Aviv, Israel. 2012.

21. Shemi, G., **Topaz, M.,** & Shadmi, E. What prevents nurses from performing evidence based nursing practice? Poster, Annual Conference of the Faculty of Social Welfare and Health, University of Haifa, Haifa, Israel, 2010.

22. **Topaz, M.,** & Doron, I. Ageism among nurses as reflected in knowledge and attitudes toward elderly patients in acute care, Poster, Annual conference of the faculty of Social Welfare and Health, University of Haifa, Haifa, Israel. 2010. **Best poster award.**

INVITED ORAL AND POSTER PRESENTATIONS

Regional

1. **Topaz, M.** A multi-lingual approach to healthcare text mining: NimbleMiner. Columbia Data Science Day, Columbia University, New York, USA [System demonstration]. 2019.

2. **Topaz, M.** A user driven multi-lingual approach to healthcare text mining with deep learning. Columbia DSI/TRIPODS Deep Learning Workshop, Columbia University, New York, USA [Podium presentation]. 2019.

3. **Topaz, M.** Working collaboratively in health informatics. Data Science day, Decker School of Nursing at Binghamton University, State University of new York. 2019.

4. **Topaz, M.** Natural Language Processing to enable faster, higher accuracy and better quality data coding and analytics. Nurse Innovation and Entrepreneurship: Summit and Hackathon; Northeastern University, Boston, USA. 2016.

5. **Topaz, M.** Cutting edge approaches to data analytics and decision support: natural language processing and speech recognition. Northeastern University, Boston, USA. 2016.

6. **Topaz, M.**, & Bowles, K. Omaha System- a systematic literature review of the recent literature. Doctoral Student Organization (DSO) Spring Research Colloquium Poster Session, UPenn, Philadelphia, PA. 2012.

National

1. **Topaz, M.** Using nursing data to identify patient deterioration: a natural language processing approach. Rita Kobb Nursing and Health Informatics National Symposium, University of Florida. [Podium presentation]. 2021.

2. **Topaz, M.** Natural Language Processing of Nursing Data for Better Decision Support. Methodologies Boot Camp: Artificial Intelligence, National Institute of Nursing Research, Bethesda, DC, USA [Presentation and system demonstration]. 2019.

3. **Topaz M**. Heart Failure Evidence-based Standardized Care Plans, Online presentation, Omaha System Partnership Scientific Team Meeting, 2013.

International

1. **Topaz, M.** Artificial intelligence in nursing: A new frontier. **Keynote opening presentation** at the 40th Annual Conference or the Japanese Academy of Nursing Science, (JANS, virtual presentation). 2020.

2. **Topaz, M.** Nursing Informatics: Current trends and new frontiers. **Keynote opening presentation** at the Canadian Nursing Informatics Association Annual Conference. 2019.

3. **Topaz, M.** Health Information Technology Revolution: Cutting Edge Trends and Current Challenges. **Keynote opening presentation** at Healthcare Informatics Summit (Istanbul, Turkey). 2015.

OTHER MEDIA

1. An article titled "Developing a Clinical Decision Support Tool to Enhance Home Care" in EHR INTELIGENCE describes our research project focused on improving homecare outcomes during health transitions https://ehrintelligence.com/news/developing-a-clinical-decision-support-tool-to-enhance-home-care

2. Interview for an article "Speech Recognition Technology for EDs May Increase Malpractice Risks" for ED Legal Letter (2019) https://www.reliasmedia.com/products/238-ed-legal-letter-print-online-1-year-subscription-w-auto-renew

3. Interview for an article "Improving Patient Prioritization During Care Transitions Could Halve Re-Hospitalization Rates" published in Home Health Care News (2018) https://homehealthcarenews.com/2018/10/improving-patient-prioritization-during-care-transitions-could-halve-readmission-rates/

4. Our paper entitled "Prevalence of food allergies and intolerances documented in electronic health records" published in the Journal of Allergy Clinical Immunology was covered by 138 news outlets including the New York Times, CBS News, etc.

5. My paper entitled "Higher 30-day and 60-day readmissions among patients who refuse post-acute care services" published in the American Journal of Managed Care was covered by 22 news outlets, including the CNN, Washington Post, etc.

6. Interview for an article "Masters of Information" published in Columbia Nursing Magazine (2018) https://issuu.com/columbianursing/docs/columbia_nursing_fall_2018/a/81733

7. Interview for an article "Cultivating a More Powerful Voice in Nursing" published in *up-FRONT* 2014;15; 4-8. (http://flipbook.nursing.upenn.edu/i/288918).