<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Faculty Title</th>
<th>Faculty School Primary Appointment</th>
<th>Faculty Department</th>
<th>Faculty Email Address</th>
<th>Master-level or Doctoral-level Student</th>
<th>Short Research Project Description</th>
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<tbody>
<tr>
<td>Maria Papaleontiou</td>
<td>Associate Professor</td>
<td>School of Nursing / Medical School</td>
<td>Systems, Populations and Leadership / Transplant Surgery</td>
<td><a href="mailto:mpapaleo@umich.edu">mpapaleo@umich.edu</a></td>
<td>Either</td>
<td>Predictive big health data analytics: This project will interrogate large, complex, multisource, and incongruent biomedical and health datasets using model-free machine learning methods. Examples of studies that will be examined includes progressive neurodegenerative disorders (e.g., ALS, Parkinson’s, Alzheimer’s). We will use supervised and unsupervised ML strategies to identify salient features in the data, forecast univariate clinical outcomes, and explicate derived computable phenotypes.</td>
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<tr>
<td>Mary Javner</td>
<td>Assistant Research Scientist</td>
<td>School of Public Health</td>
<td>Health Behavior and Health Education</td>
<td><a href="mailto:mjavner@umich.edu">mjavner@umich.edu</a></td>
<td>Either</td>
<td>The student applicant will support a faculty investigator in a mixed-methods stepped wedge cluster randomized trial that is being conducted in eight primary care clinics of the University of Michigan. The study is designed to test the hypothesis that a community-based platform for promoting informed shared decision-making will improve patient engagement and adherence for screening and management of osteoporosis. The student will be involved in survey design, recruitment, data entry, data cleaning, and analysis.</td>
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<tr>
<td>Jeffrey Kugler</td>
<td>Assistant Professor</td>
<td>University of Michigan Medical School</td>
<td>Department of Internal Medicine</td>
<td><a href="mailto:jkugler@med.umich.edu">jkugler@med.umich.edu</a></td>
<td>Either</td>
<td>Overtreatment with thyroid hormone (i.e., prescription of drugs that are too high based on biochemical results) and its misuse (i.e., initiation for inappropriate indications) in older individuals may have adverse effects on their health. Very little is known about factors that influence providers’ decision-making regarding use of thyroid hormone replacement in older adults. Whether these decisions vary by type of provider is not known. We are conducting a national physician survey, targeting primary care physicians, endocrinologists and gastroenterologists, to obtain information on their knowledge, attitudes and beliefs on thyroid hormone replacement and in older adults. The survey also includes questions on screening and management of osteoporosis. The student will be exposed to a wide range of methodologies, including survey design, data management, and analysis.</td>
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### 2018 IHPI/HSR Summer Student Fellowship and Internship Program - Faculty Projects

- **Maria Papaleontiou**
  - Faculty Title: Associate Professor
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  - Faculty Department: Systems, Populations and Leadership / Transplant Surgery
  - Faculty Email Address: mpapaleo@umich.edu
  - Master-level or Doctoral-level Student: Either
  - Short Research Project Description: Predictive big health data analytics: This project will interrogate large, complex, multisource, and incongruent biomedical and health datasets using model-free machine learning methods. Examples of studies that will be examined includes progressive neurodegenerative disorders (e.g., ALS, Parkinson’s, Alzheimer’s). We will use supervised and unsupervised ML strategies to identify salient features in the data, forecast univariate clinical outcomes, and explicate derived computable phenotypes.

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  - Faculty School Primary Appointment: School of Public Health
  - Faculty Department: Health Behavior and Health Education
  - Faculty Email Address: mjavner@umich.edu
  - Master-level or Doctoral-level Student: Either
  - Short Research Project Description: The student applicant will support a faculty investigator in a mixed-methods stepped wedge cluster randomized trial that is being conducted in eight primary care clinics of the University of Michigan. The study is designed to test the hypothesis that a community-based platform for promoting informed shared decision-making will improve patient engagement and adherence for screening and management of osteoporosis. The student will be involved in survey design, recruitment, data entry, data cleaning, and analysis.

- **Jeffrey Kugler**
  - Faculty Title: Assistant Professor
  - Faculty School Primary Appointment: University of Michigan Medical School
  - Faculty Department: Department of Internal Medicine
  - Faculty Email Address: jkugler@med.umich.edu
  - Master-level or Doctoral-level Student: Either
  - Short Research Project Description: Overtreatment with thyroid hormone (i.e., prescription of drugs that are too high based on biochemical results) and its misuse (i.e., initiation for inappropriate indications) in older individuals may have adverse effects on their health. Very little is known about factors that influence providers’ decision-making regarding use of thyroid hormone replacement in older adults. Whether these decisions vary by type of provider is not known. We are conducting a national physician survey, targeting primary care physicians, endocrinologists and gastroenterologists, to obtain information on their knowledge, attitudes and beliefs on thyroid hormone replacement and in older adults. The survey also includes questions on screening and management of osteoporosis. The student will be exposed to a wide range of methodologies, including survey design, data management, and analysis.
MyVoice is a national text message poll of youth age 14-24 years. It was created to collect the real-time thoughts and opinions of youth and currently has over 1800 respondents from around the United States. MyVoice polls youth on a wide-range of policy topics, from health insurance and race to brain drain and barriers to voting.

MyVoice collects both open and closed-ended responses and uses natural language processing and mixed methods to analyze results. Our team includes a large interdisciplinary group of students, physicians, and researchers whose aim is to translate this data into products (infographics, white papers, brief reports, commentaries, manuscripts) that can be used to influence policy.

Our team is looking for a dynamic candidate with a passion for health policies and practices related to youth. MyVoice offers opportunities to gain in-depth experience in a number of areas with an expectation for ownership over at least one project over the summer with a resultant product (abstract to a national conference, manuscript, etc.).

- Areas for potential project development:
  - Survey development and fielding
  - Informatics and Data Analytics
  - Natural Language Processing
  - Agency/Policymaker relations
  - Specific Health Policies (ie. Health Insurance Reform)
  - Specific Health Topics (ie. Opioid use)
  - Specific Social Issues (ie. Jobs, Education)

- Qualifications
  - Excellent oral and written communication skills are required.
  - Quantitative data analysis and data visualization experience is preferred.
  - The three projects are: 1) disseminating results of an intervention study to protect nurses from hazardous drug exposure; 2) a mixed-methods study of clinical documentation systems, clinician communication, and adverse patient events in outpatient oncology settings, and; 3) Developing a disseminating a novel chemotherapy safety curriculum to practicing nurses and pharmacists.

We study improving quality of care for patients with painful eye infections through EHR data analysis and prediction modeling as well as image analysis.

In collaboration with the Taubman College of Architecture and School of Education we are using a multidisciplinary approach to combat the current epidemics of childhood obesity and physical inactivity. This is a novel classroom-based physical activity intervention to improve the fitness of both teachers and students, while simultaneously improving academic achievement. Our goal is to provide teachers with the necessary resources and instruction to lead their classes in 5, 4-minute activity breaks throughout the school day. These short duration activity breaks closely represent children’s natural physical activity patterns and may be an effective tool at energizing and motivating students to be physically active. The aim is to provide students and teachers with a cumulative 20 minutes of enjoyable exercise at a moderate-intensity each school day. IMPACT has been implemented in three elementary schools: Anderson Elementary (Trenton), Easlarbrook Elementary (Ypsilanti), and Columbia Elementary (Brooklyn) and is currently being implemented in Munger Elementary-Middle School (Detroit). For more information, visit the study website at: www.impaclknex.umich.edu.

This project seeks to apply operations research methods to understand workplace wellness initiatives and evaluate potential solutions to scaling mental health resources in a complex work environment. Components for evaluation include impact on workforce, medication use/misuse, and value of interventions. This work will be performed in partnership with UMS Depression Center, MHealthy and the Ford Motor Company.

Recent social and political changes in the U.S. have led to an increase in immigration enforcement and an increase in anti-immigrant rhetoric. Because immigrant communities are living with this increased anxiety, clinicians across the country have reported anecdotes of immigrant patients who are not seeking health and social services because they are afraid to leave their home unnecessarily. This project is a collaboration between UM researchers, Washtenaw County Health Department, Packard Health in Ann Arbor, and CHASS in Detroit to examine how these changes are affecting health care for undocumented immigrants and their families and what clinics and health departments can do to overcome these barriers. Specifically, this research is primarily qualitative with health service providers and immigrant patients but also includes a component of examining clinic records data for impacts on health service utilization. The ideal candidate would be bilingual (Spanish/English), have qualitative research experience, have prior experience with community-based public health work, and have a demonstrated interest in the topic area.
We are developing a curriculum designed to teach early career gastroenterologists and other physicians essential principles of practice management, health law/policy, and business that will allow them to successfully transition from medical training into practice and develop into effective healthcare leaders. This knowledge has not traditionally been a part of medical training yet is essential to the day-to-day practice of medicine, both in academic environments and in community practice. As gastroenterologists with advanced degrees in business (Allen) and law (Adams) and expertise in health policy, we would serve as co-mentors for this project. We would be pleased to work with an interested student to select a specific focus area within the larger curriculum that meshes with their area of interest, prior training, and career goals. The student would then assist with developing core curricular content within this focus area during their summer fellowship/internship. Once finalized and piloted at the University of Michigan, we intend to disseminate this curriculum nationally through a web-based platform.

We welcome potential summer interns interested in Medicare's Hospital Readmissions Reduction Program (HRRP), which penalizes hospitals for excess readmissions for applicable conditions. Recent work has shown that certain hospitals’ reductions in risk-adjusted readmissions may be due to ‘upcoding’ of patient severity of illness. Hospitals may also ‘game’ HRRP by coding cases as not involving an applicable condition (by using a secondary, rather than primary, diagnostic code to identify the condition that was treated), and therefore not subject to HRRP penalty. Incentives to game HRRP should vary by hospitals’ existing performance levels, because penalty levels are less likely to change for high and low performers. Incentives should be highest for hospitals without high or low performance metrics, and should also vary by teaching and safety-net status (because those hospitals forego more marginal revenue for each avoided readmission). Using administrative data, our aim is to examine gaming among hospitals subject to HRRP, and whether it is more likely among hospitals with larger compared to smaller HRRP incentives. Our findings can be useful for policymakers exploring the effectiveness of Medicare incentives.

The dramatic increase in opioid overdose deaths has raised critical awareness and interest in addressing the epidemic of addiction in the US, which is estimated to affect one in seven Americans and is associated with widespread impacts. I am an addiction psychiatrist clinician and health services researcher who is interested in understanding current challenges in the care delivery system for people with addiction and mental illness in order to improve access and care. There are a number of research projects to consider for an IHPI summer student examining care and outcomes for people with addiction using large healthcare databases. These include examining predictors of receiving effective treatments for people with opiod addiction using a large health claims dataset. Another project would be examining current use of evidence based and non-evidenced based care and associated costs for people with addiction in the US. Projects would involve use of large healthcare claims datasets or publicly available datasets (for example the National Survey on Drug Use and Health). Students with experience analyzing large datasets are preferable. In addition to conducting impactful research to examine care and outcomes for people with addiction, I would also provide direct mentorship to the student to help provide a clinical perspective and understanding of the field of addiction/mental health services research.

The purpose of this study is to reduce risky drinking behaviors among adolescents and emerging adults (ages 16-24) using dynamic alcohol use/misuse content as well as concurrent risk behaviors which takes place in Facebook groups facilitated by trained e-coaches.

Tasks may include:
- Primary task for this student will be using natural language processing software coding and analyzing sentiment analysis data.
- Using Facebook metrics software determining volume and type of participant engagement and interaction.
- Assist with recruitment activities using Qualtrics survey software and Microsoft Access.
- Send follow up surveys, survey reminders, and participant verification requests.
- Assist the project coordinator with training & providing day-to-day oversight of undergraduate RAs

Experience/skills:
- Must be familiar and comfortable using social media
- Self-motivated
- Detail-oriented
- Strong interpersonal skills
- Available to work nights/weekends
- Comfortable discussing sensitive topics like substance use

Previous research experience in psychology, public health, sociology or another health/social science field preferred.

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**Project Description**

Through an international collaborative focused on decreasing use of medical services that are not necessary or may be harmful, we are undertaking an analysis that examines the utilization of select potentially unnecesary services in the US and Canada. This project will ask: 1. To what extent has use of low-value health care services in the U.S. (commercial and VA) changed over time? 2. How does utilization rates of these services in the U.S. compare to the rates in Canada? Using evidence-based recommendations from sources such as Choosing Wisely and previous studies that have identified low-value services, the study team will construct algorithms to measure use of low-value medical services in the following three areas: 1) imaging tests (e.g., imaging for non-specific low back pain, suspicious chest radiographs); 2) outpatient procedures (e.g., spinal injections for low back pain, stress testing for stable coronary disease); and/or 3) laboratory tests (e.g., population screening for Vitamin D deficiency, preoperative laboratory tests). In addition to estimating use of select low-value services, regional and provider level variation, patient and provider level predictions of use, and downstream consequences (such as additional testing from incidental findings) will be examined.

**This project is seeking a candidate with a strong quantitative analytic background, such as a background in biostatistics, epidemiology, or computer science, to analyze claims-based data. Specifically, the candidate will work with a study team, including a senior-level data analyst, to analyze data from MarketScan.**

MarketScan data reflect the healthcare experience of employees and dependents covered by the health benefit programs of large employers; these claims data are collected from approximately 100 different insurance companies and third-party administrators. The preferred candidate would have experience working with large datasets, relational database, and analytic software such as STATA, R or SAS.

In addition to advancing their analytical and content skills, the student will have an opportunity to co-author the resulting manuscript and to present the work at national and external venues. Additionally, the student will have an opportunity to attend project team meetings of the Michigan Program on Value Enhancement (MPdOVE) and learn about other projects focused on enhancing value in health care.

If interested, please send e-mail to Eve Kerr (jken@umich.edu) and co-James Henderson (jehenderson@umich.edu).
Aim 1: To describe characteristics of patients utilizing cervical cancer screening between 2004 and 2015.

Aim 2: To determine whether the elimination of patient cost-sharing is associated with changes in visit utilization for cervical cancer screening.

Aim 3: To determine whether the elimination of patient cost-sharing, accounting for changes in cervical cancer screening guidelines, is associated with the provision of health care services and substance use-related consequences among young adults.

We propose to study the impact of the ACA in a large and diverse national sample of women enrolled in employer-based insurance. This sample provides an ideal data source to characterize the impact of the ACA on contraception use, pregnancy/birth rates and expenditures broadly, and the income diversity among ACA enrollees. These research questions would be addressed as part of a broader research and quality improvement project utilizing mixed methods but the focus of this intern would be the quantitative analysis for the above questions. In addition to data analysis, the student would have an opportunity to help prepare the results for publication along with our team. We would also ensure that the student would have opportunities to learn about and get involved in other MPrOVE projects based on interest.

The impact of healthcare reform on the utilization of cervical cancer screening

In 2019, an estimated 13,240 US women will be diagnosed with cervical cancer, and 4,170 will die of the disease. (American Cancer Society, 2018) Over the past several decades, incidence and mortality have steadily decreased; the current estimated incidence rate is 7.4 cases per 100,000 women per year. (National Cancer Institute, 2017) These decreases have been largely attributed to widespread screening. Although the benefits have been substantial, cervical cancer screening is costly, incurring approximately $6 billion in direct costs on the US health care system per year. (Cheezen et al., 2012)

Cervical cancer screening is common in the United States; an estimated 89% of the target population of about 70 million women report having been screened in the past five years. (Benard et al., 2014) Recent evidence-based guidelines for screening have refined the approach to focus on increasing the age at which to begin screening, lengthening the screening interval, and discontinuing screening in women at low risk for future cervical cancer. However, compliance with these guidelines is variable, resulting in unnecessary screening. Overuse of screening has been identified as one of the costliest low-value services, and contributes to higher health care costs without improving patient outcomes. (Mall et al., 2017)

Many experts were hopeful that the elimination of out-of-pocket costs for preventive care services under the Affordable Care Act (ACA) would increase access to cervical cancer screening. However, it is unclear how the ACA has impacted the relationship between access, appropriateness, and cost on utilization of cervical cancer screening. By using the natural experiment of the ACA’s implementation to observe changes in patient cost-sharing, cervical cancer screening patterns, and direct health care spending during the mandate’s implementation, our proposed work will provide the data needed to assess the value of this policy.

We propose to study the impact of the ACA on cervical cancer screening patterns, and direct health care spending during the mandate’s implementation. Our proposed work will provide the data needed to assess the value of this policy. We will also conduct a secondary analysis at the plan level to determine ordering appropriateness at both sites in a natural experiment.
Sickle cell disease is the most common inherited blood disorder, affecting 1 in 100,000 births. However, this disease receives relatively little NIH funding compared to a number of rarer inherited disorders with similar morbidity and mortality. For example, NIH funding for cystic fibrosis is almost ten times higher, even though it affects 1 in 30,000 births and has a comparable life expectancy as sickle cell disease.

One potential explanation for this disparity is racial bias, as sickle cell disease predominantly affects individuals of African-American descent in the U.S. However, there are also other potential explanations, including the possibility that society de-prioritizes diseases that primarily cause pain.

To explore these possibilities, we propose using conjoint analysis and a survey of the public to elucidate the factors drive societal valuation of childhood diseases. We will construct a series of tasks in which participants are presented with profiles of two diseases and asked which disease they would be more likely to invest research funds in if they were responsible for such a decision. The disease profiles will be composed of varying levels of specific “attributes” that may contribute to societal valuations of diseases (e.g., life expectancy, prevalence, type of symptoms). To evaluate the possibility of racial bias, we will randomize half of respondents to receive information on the racial/ethnic distribution of the disease as an attribute.

We seek an IHPI summer student to conduct the following tasks:
1) Conducting a literature search to identify potential attributes that may contribute to societal valuation of diseases
2) Conducting a search of the decision analysis and psychology literature on measuring racial bias
3) Setting up the logistics of the survey with a survey research firm
4) If time permits, conducting initial pilot testing of the conjoint analysis tasks

Larry An and Julia Chen
Larry An (Associate Professor) Julia Chen (Clinical Instructor)
Medical School General Medicine julia.chen@umich.edu

Analysis of the Impact of CORE program at MM

The CORE (Coordinating Optimal Referral Experiences) project consists of two parts: EConsults and Enhanced Referrals. EConsults are asynchronous encounters through the electronic health record from a primary care physician (PCP) to a specialist asking a focused question to allow the PCP to continue providing care for the patient without a formal office visit with a specialist. Enhanced Referrals suggest testing or treatment necessary before placing a traditional in-office referral to a specialist to streamline the workflow and allow the initial meeting to be as productive as possible. The program was developed by the AAMC who have guided Michigan Medicine in collaborating with 6 other academic medical centers across the U.S. The first wave of the project was launched in August 2017 and more than 1600 EConsults have been completed as of January 2018.

The primary goals of the program are to:
- Reduce total cost of care for primary care patients
- Improve quality of care thru enhanced timeliness of specialty input
- Improve patient satisfaction

Project with us could summarize experience at Michigan Medicine and possibly compare to AAMC database including, but not limited to:
- Number Type
- Percent completed (not converted to an in-office visit)
- Primary and Specialty clinicians involved
- Process of implementation
- ROI analysis
- Connection to overall Michigan Medicine clinical strategies

Determine whether initial goals were met
- Analyze primary and specialty clinician satisfaction (incorporate comp model and determine whether this enhances participation). We have completed an initial PCP survey, but still need to develop a specialty clinician survey.
- This information could be used to fine tune the current EConsult and Enhanced Referral templates
- Identify barriers to growth
- Analyze financial impact (ROI/cost savings) of the program or improved efficiency of the system
- Define 3-5 common conditions or questions for each specialty that could best be answered by eConsult and note current wait time by clinical service line