



# Division of Infectious Disease

Fellowship Training Program





### Main Campus and North Campus Research Center











### Michigan Medicine

- Large integrated health care system
  - 26,000 faculty, staff, students, trainees
  - All faculty are U of M employed
  - 3 hospitals (1000 beds)
- Multiple Outpatient Facilities throughout the Region
  - 40 outpatient locations
  - 2.1 million visits yearly





# Michigan Medicine IM 7<sup>th</sup> Nationally (USNWR) and Hospital 8<sup>th</sup> Nationally (Newsweek)



#### University of Michigan--Ann Arbor

Ann Arbor, MI

#7 in Internal Medicine Programs (tie)

#17 in Best Medical Schools: Research (tie)

#20 in Best Medical Schools: Primary Care (tie)

Ann Arbor, MI



#### HONOR ROLL

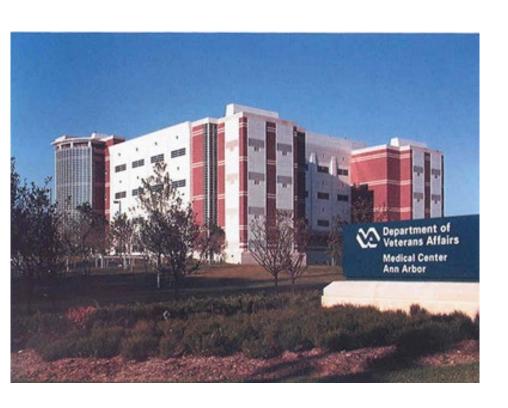
#11 in U.S. News Best Hospitals Honor Roll

Rank 🗻	Hospital	Score	City	US State
1	Mayo Clinic - Rochester	98.43%	Rochester	MN
2	Cleveland Clinic	92.36%	Cleveland	ОН
3	Massachusetts General Hospital	89.05%	Boston	MA
4	The Johns Hopkins Hospital	84.59%	Baltimore	MD
5	Stanford Health Care - Stanford Hospital	79.92%	Stanford	CA
6	Ronald Reagan UCLA Medical Center	79.78%	Los Angeles	CA
7	The Mount Sinai Hospital	79.75%	New York	NY
8	University of Michigan Hospitals - Michigan Medicine	79.63%	Ann Arbor	MI
9	Brigham And Women's Hospital	79.34%	Boston	MA
10	New York-Presbyterian Hospital-Columbia and Cornell	78.81%	New York	NY
11	Duke University Hospital	78.62%	Durham	NC





#### VA Ann Arbor Medical Center

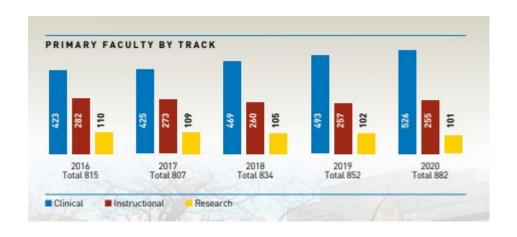


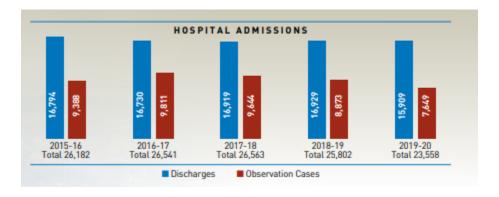
- 180,000 square foot clinical addition:1999
- New ambulatory clinic facilities and ICU's
- On-line order entry
- Computerized medical record system
- Electronic radiology system





#### Internal Medicine Statistics







## Post-Graduate Education



- 4<sup>th</sup> largest post-graduate program in the U.S.
- Ranked in all 20 USNWR specialties
- 2/3 of incoming trainees from out of state





### Division of Infectious Disease Faculty

- All full-time faculty
- 40 faculty members (research and clinical)
- Antimicrobial Stewardship program
- Hospital Epidemiology/Infection Prevention
- Transplant Infectious Disease Service
- Ryan White Funded HIV/AIDS program
- Multiple recently hired clinical faculty







### Transplant Infectious Disease

# University of Michigan Transplant Center



- 100 liver transplants
- 200 300 kidney transplants
- 25-30 heart transplants
- 30-35 lung transplants
- 200-250 hematopoietic stem cell transplants
- Dedicated transplant ID service
- 4 faculty
- Clinical research opportunities available
- All fellows spend a minimum of 2 months rotating on this service





### Antimicrobial Stewardship Program



#### **HMS** Hospitals



- 43 hospitals
- Diverse types / settings
- ${\color{red} \circ}$  Large AMCs-Small rural hospitals
- Hospital Participants
- o Physician Champion-hospitalist
- o Quality Lead
- Data Abstractor
- Improving Care
  - o Data / best practice sharing / facilitated implementation



JAMA Internal Medicine | Original Investigation | LESS IS MORE

Risk Factors and Outcomes Associated With Treatment of Asymptomatic Bacteriuria in Hospitalized Patients

Lindsay A. Petty, MD; Valerie M. Vaughn, MD, MSc; Scott A. Flanders, MD; Anurag N. Malani, MD;
Anna Conlon, PhD; Keith S. Kaye, MD, MPH; Rama Thyagarajan, MD; Danielle Osterholzer, MD; Daniel Nielsen, MS;
Gregory A. Eschenauer, PharmD; Sarah Bloemers, MPH; Elizabeth McLaughlin, BSN, MS; Tejal N. Gandhi, MD





#### **MDRO Service**

2-month experience (divided)

Optimize antimicrobial selection

Weekly case conference

Closely integrated with AST pharmacists

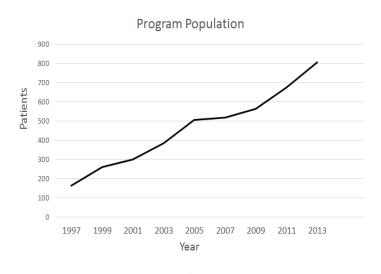
Microskills on MIC interpretation and dosing

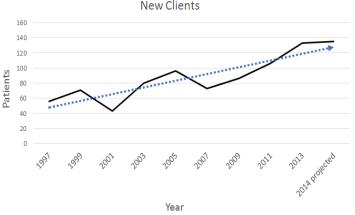




# HIV/AIDS Treatment Program

- Ryan White Funded since 1997
- 900 active patients
  - 100 to 120 new patients each year
- Dedicated RN, multiple social workers
- 2 medical assistants
- Additional 150 HIV patients at VA









### Antimicrobial Stewardship and HEIC

ANTIMICROBIA	L STEWARDSHIP
	PRE
All fellows completing the training program will have for elements of interdisciplinary AS programs after gradua	
Elements of t	he curriculum
IDSA Core Curriculum for Antimicrobial	<ul> <li>Fellows complete between month 7-18</li> </ul>
Stewardship	<ul> <li>Mentored experience over 1-2 weeks</li> </ul>
Attend at least once either  VA quarterly Antimicrobial Stewardship Meeting  UH weekly Antimicrobial Stewardship Meetina	<ul> <li>Date, time and link can be obtained from Dr. Gandhi (UH) or Dr. Patel (VA)</li> </ul>
MDRO rotation  8 weeks over two years  Includes weekly case conference	MDRO in 10 video series     Lab testing for antimicrobial susceptibility     VRE -mechanism of resistance and treatment     MRSA -mechanism of resistance and treatment options for persistent bacteremia     PK/PD principal – AUC, AUC/MIC ratio, rationale for extended infusion     Stenotrophomonas: mechanism of resistance and treatment options     Acinetobacter: resistance mechanisms and treatment strategies     Pseudomonas- mechanisms of resistance, novel agents     Amp C beta-lactamase     CRE mechanisms OXA, KPC, MBL and how that changes preferred treatment
Maissach is de suit	Antifungal resistance     2-week rotation
Microbiology Micro Rounds	
Didactic curriculum (2 year curriculum)	
Diadetic curriculum (2 year curriculum)	Antimicrobial Resistance (gram +)     Antimicrobial Resistance (gram -)
	<ul> <li>Antimicrobial Resistance (gram -)</li> <li>Antimicrobial Resistance (yeast)</li> </ul>
	Overview of Stewardship     Discourse Board Stewardship
	Disease Based Stewardship     Outpatient Stewardship
	Outpatient Stewardship     Board Review (AST)
AD1//	NCED

	GY/INFECTION PREVENTION  CORE		
Purpose: Fellows completing the training program will have foundational training in Hospital Epidemiology and Infection Prevention allowing participation in these programs after graduation.			
	Elements of the curriculum		
SHEA course	Has been cancelled due to COVID-19     Planned 2023 (Colorado)     On-line option (https://learningce.shea-online.org/content/primer-healthcare-epidemiology-infection-control-antimicrobial-stewardship-0#group-tabs-node-course-default4)		
Attend at least once the following:  Infection Prevention Workgroup  Topic specific Meeting  CAUTI and/or CLASBI  Infection Control Committee (Hospital wide)	Contact Dr. Washer for links to meetings		
Didactic curriculum (2 year curriculum)	Respiratory viruses in Hospitalized Patients     Prevention of Ventilator-Associated Pneumonia     Control of Antimicrobial-Resistant Organisms     Outbreak Investigation     Prevention of Surgical Site Infections     Prevention of Central Line-Associated Infections     Management of Communicable Diseases     Prevention of Catheter-Associated Urinary Tract Infections     Gastrointestinal Infections in Hospitalized Patients     Occupational Health for the ID Physician Infection Control Board Review		
AD	VANCED		
Fellows with an interest in pursuing a career for prepare for a leadership role and scholarly work benefit from a third year of training. HEIC Project	In HEIC. Interested and qualified fellows may     Mentor from HEIC faculty		
SHEA spring conference	HEIC track		
SPH Summer Session on Epidemiology	Biostatistics and/or Epidemiology course     More advanced course work available fo those with pre-requisites		





### HIV and Transplant ID

HIV	/AIDS
CC	DRE
Purpose: Fellows completing the training program will	be able to competently care for HIV positive patients.
Elements of t	the curriculum
HIV on-line course	<ul> <li>https://www.hiv.uw.edu/</li> </ul>
Patient experience:  Care for at least 10 HIV infected patients new to the University HATP beginning month 7-18 of fellowship  VA ID clinic	One weekly NP HIV slot beginning month     7 of fellowship
Didactic curriculum (1 year curriculum)	Antiretroviral Therapy     Opportunistic Infections     Adverse Reactions to HAART     Malignancy and Other Complication     Women's Health     Primary Care of the HIV Infected Patient     HIV and STDs     HIV Board Review
Structure HIV Care in the US- Ryan White Program	Amy Jacobs
ADVA	ANCED
Fellows with an interest in pursuing a career focu- prepare for a leadership role and scholarly work i	
Additional HATP clinic	Thursday morning
HIV/AIDS research project	Various
Conferences	CROI

TRANSF	PLANT INFECTIOUS DISEASE		
	CORE		
Purpose: Fellows completing the training program will be able to recognize and treat complications of HSCT and SOT and understand strategies to prevent post-transplant infections.			
	ments of the curriculum		
Transplant in 10	https://ast.digitellinc.com/ast/conferences/6/vie     How to screen and manage BK     My donor is infected: Safe to accept?     Vaccination in SOT patients     Drug-drug interactions and immunosuppression     PTLD     Opportunistic Transplant Infections (free but registration required)		
Attend at least once the following:  • Weekly transplant ID clinical meeting •	Monday 12:30-1:00 PM F4133		
Didactic curriculum (2 year curriculum)	Donor Derived Infection, vaccination, pretranpslant evaluation, safe living after transplantation     CMV infection     Non-CMV viral infections     Infections associated with LVADs     Fungal infections after HSCT and SOT (epi and diagnosis)     Fungal infections after HSCT and SOT (treatment and drug monitoring)     Prevention of infection in cancer patients     Infection risk associated with various forms of immunosuppression     Respiratory viral infection after transplantation     PTLD     Transplant ID board review  ADVANCED		
Fellows with an interest pursuing a caree	er focused on Transplant ID will have additional training to		
	rly work in Transplant ID, interested and qualified fellows		
AST Comprehensive Trainee Curriculum	https://ast.digitellinc.com/ast/courses     (program will cover cost, appendix sequences topics relevant to ID)		
Monday transplant meeting	Regular attendance		
Conferences	• ATC		





### Innovative Educational Practices



Emily Ann Abdoler, MD, MAEd (Associate Program Director)

Microskills (MIC interpretation and dosing)

**Reflective Practices** 



#### Infectious Disease Division Research

- Full spectrum of basic and clinical research opportunities available
- Collaboration with School of Public Health and other members of the University community
- Particular strength in antibiotic resistance intersection with antimicrobial stewardship











### **Divisional Research Committee**

Date	Time	Attendees	Purpose
Year 1: July	Wednesday 9 AM	Committee	Explain structure
		First year fellows	and requirements of
			research rotation
Year 1: July-August	Thursday 8 AM	Tom Schmidt	Lecture focused on
		First year fellows	content of scientific
			proposal (one page)
Year 1: Oct-Nov	Thursday 8 AM	Committee	Review proposed
		First year fellows	mentor and project
			(topic area); fellows
			will provide one-
			page written plan
			at least one week in
			advance
Year 1: Jan-Feb	Thursday 8 AM	Committee	Review detailed
		Mentor	proposed project;
		First year fellows	discuss GR
			presentation
Year 2: July-August	Thursday 8 AM	Committee	Review progress
		First year fellows	
		Mentor	





#### ID Consult Service Structure

#### General Rotation Template (flexible)

Year 1: July-December	UH ID General Consult Service (2 months)
	AAVA ID Consult Service (2 months)
	MDRO or Transplant ID Consult Service (2 months)
	Weekly Continuity clinic (UH)
Year 1&Year 2: January-December	Research Rotation
	Weekly Continuity (AAVA)
	Weekly Continuity clinic (UH)
Year 2: January -June	ID General Consult Service (2 months)
	AAVA ID Consult Service (2 months)
	MDRO or Transplant ID Consult Service (2 months)
	Weekly Continuity clinic (UH)

UH= University Hospital; AAVA=Ann Arbor VA; MDRO=multidrug resistant organism





# **Outpatient Clinic**

6 months	12 months	6 months
Tues AM (U)	Tues AM (U)* Fri AM (VA)	Tues AM (U)

- \* may "atrophy" if primary research career is goal







### **Elective Rotations**

- Microbiology
- Additional transplant ID
  - BMT service
  - Renal or liver transplant
- Hepatitis C
- Additional HIV
- School of Public Health courses

- SHEA hospital epidemiology course
- Travel medicine
- International rotations/research
- IDSA practice course





## Summer Session in Epidemiology



2022	2 Program Schedule		Week 1 July 11–15	Week 2 July 18–22	Week 3 July 25–2
Moming Cla	asses (8:30 am-12:00 pm, Monday-Friday)	Instructor			
EPID 701	Fundamentals of Biostatistics (3-week course)	Hui Jiang, PhD, University of Michigan	online	online	online
EPID 703	Applied Infectious Disease Modeling	Andrew Brouwer, PhD, University of Michigan		online	
EPID 716	Clinical Epidemiology and Evidenced-Based Research	Mitchell Levine, MD, MSc, FACP, FRCPC, McMaster University	in person*		
EPID 717	Design and Conduct of Clinical Trials	Stephen Farish, BSc(Hons), MEd, DEd, University of Melbourne		in person*	
EPID 718	Analysis of Clinical Trials	Stephen Farish, BSc(Hons), MEd, DEd, University of Melbourne			in perso
EPID 720	Applied Mediation Analysis	Linda Valeri, PhD, Columbia University			online
EPID 730	Simulation Modeling of Tobacco Use, Health Effects and Policy Impacts (full-day course)	Rafeel Meze, PhD, University of Michigan Jilyoun Jeon, PhD, MS, University of Michigan			onlin
EPID 766	Analysis of Longitudinal Data	Ananda Sen, PhD, University of Michigan		in person*	
EPID 777	Geographic Information Systems for Epidemiology	Shannon Brines, MEng, University of Michigan		online	
EPID 780	Applied Epidemiologic Analysis for Causal Inference	Catherine Lesko, PhD, Johns Hopkins University	online		
EPID 793	Introduction to Complex Systems Modeling for Public Health Research (full-day course)	Morisa Eisenberg, PhD, University of Michigan Michael Hayashi, PhD, University of Michigan	online		
Afternoon C	classes (1:30–5:00 pm, Monday–Friday)				
EPID 709	Fundamentals of Epidemiology (3-week course)	Alison Mondul, PhD, MSPH, University of Michigan	in person*	in person*	in perse
EPID 702	Analysis with Missing Data in Epidemiology	Lu Wang, PhD, University of Michigan	online		
EPID 706	Mixed Methods in Epidemiologic Research	Timothy Guetterman, PhD, University of Michigan			onlin
EPID 708	Machine Learning for Epidemiologic Analysis in the Era of Big Data	Alan Hubbard, PhD, University of California, Berkeley			in pers
EPID 719	Methods in Genetic and Epigenetic Epidemiology	Edward Ruiz-Narvaez, ScD, University of Michigan	in person*		
EPID 721	Applied Sensitivity Analyses in Epidemiology	Onyebuchi Arah, MD, MSc, DSc, MPH, PhD, University of California, LA			onlin
EPID 724	Leadership and Strategic Planning for Public Health	Laura Power, MD, MPH, University of Michigan			onlin
EPID 730	Simulation Modeling of Tobacco Use, Health Effects and Policy Impacts (full-day course)	Rafael Maza, PhD, University of Michigan Jilyoun Jeon, PhD, MS, University of Michigan			onlin
EPID 742	Generalized Linear Models	Kevin He, PhD, University of Michigan		in person*	
EPID 747	Successful Scientific Writing	John Iskander, MD, MPH, Centers for Disease Control and Prevention Paul Z. Siegel, MD, MPH, Centers for Diseasea Control and Prevention		in person*	
EPID 757	Systematic Reviews and Meta-Analysis	Joel Gagnier, PhD, ND, MSc, BA, University of Michigan	online		
EPID 778	Spatial Statistics for Epidemiologic Data	Veronica Berrocal, PhD, MSc, University of California, Irvine		in person*	
EPID 787	Introduction to Multilevel Analysis in Public Health	Jay Kaufman, PhD, McGill University		in person*	
EPID 793	Complex Systems Modeling for Public Health Research (full-day course)	Merisa Eisenberg, PhD, University of Michigan Michael Hayashi, PhD, University of Michigan	online		

https://sph.umich.edu/umsse/index.html/





#### **ID Core Didactic Curriculum**

#### 2021 ID Fellows Summer Conference Schedule Thursday from 8:00am to 9:00am Room F4175 UH South

Quality Improvement Projects
Rishi Chanderraj, M.D.
Common Adverse Reactions to Antibiotics and how to
Manage Them
Lindsay Petty, M.D.
Fellow Mental Health Awareness
Daniel Kaul, M.D.
Basic Wound Care
Shiwei Zhou, M.D.
Intravascular Catheter Management
Shara Scheys, RN (UM Vascular Access Service Team)
Reflective Practice
Emily Abdoler, M.D.
Emily Abdoler, M.D. PK/PD
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PK/PD
PK/PD Jerod Nagel, Pharm.D. (ID Pharmacy)
PK/PD  Jerod Nagel, Pharm.D. (ID Pharmacy)  Vanco-AG Dosing and Monitoring
PK/PD Jerod Nagel, Pharm.D. (ID Pharmacy) Vanco-AG Dosing and Monitoring Sam Aitken, Pharm.D. (ID Pharmacy)
PK/PD Jerod Nagel, Pharm.D. (ID Pharmacy)  Vanco-AG Dosing and Monitoring Sam Aitken, Pharm.D. (ID Pharmacy) (Zoom)
PK/PD Jerod Nagel, Pharm.D. (ID Pharmacy)  Vanco-AG Dosing and Monitoring Sam Aitken, Pharm.D. (ID Pharmacy) (Zoom)  Fundamentals of Fungus: What Every ID Fellow Needs to

Thursday 8:00 – 9:00am
Room F4175 UH South
Carol Chenoweth, M.D.
International Careers/Careers in Public Health
Natasha Bagdasarian, M.D., M.P.H. (Chief Medical
Executive MDHHS)
Antimicrobial Resistance (gram +)
Jerod Nagel, Pharm.D. (ID Pharmacy)
Cancelled
Outbreak Investigation
Carol Chenoweth, M.D.
Non-CMV viral infections: adeno, BK, JC, Parvo, EB
limited-, HHV-6, HSV
Kevin Gregg, M.D.
Prevention of Infection in Cancer Patients
Daniel Kaul, M.D.
Introduction to Public Health
Laura Power, M.D., M.P.H.
Fellow Journal Club
Preeti Malani, M.D., and Zoe Raglow, M.D.
Immunosuppression and Risk of Infection
Kevin Gregg, M.D.
Hepatitis C
Bob Fontana, M.D.
Meningitis/Encephalitis
Daniel Kaul, M.D.
Orthopedic Device Infections/Joint Infections
Kathleen Linder, M.D.
Parasitology I
Powel Kazanjian, M.D., Ph.D.
Parasitology II
Powel Kazanjian, M.D., Ph.D.
Practice Management: Introduction to Practice
Settings
Anu Malani, M.D.
Fellow Journal Club
Preeti Malani, M.D. and Stephen Maurer, M.D.
ID Pathology
Laura Lamps, M.D.





#### Case Management Conference

#### Biweekly Fellows Case Management Conference

*Purpose*: to explore commonly encountered management issues and allow fellows to discuss cases/management issues in a small group setting.

#### Selection of cases/topics:

- Any case where management uncertain is reasonable to consider
- · Does not (and perhaps should not) be anything highly obscure
- · Focused clinical question (typically regarding management) some examples might include:
  - Should integrase inhibitors be avoided in patients at high risk for diabetes?
  - Are short courses of antibiotics appropriate for immunosuppressed patients with pneumonia?
  - How should this case of HIV be treated in a patient with some resistance and unable to swallow pills?
  - Are there any antibiotics that are not risk factors for developing C-dif in a patient with a recent history of C-dif?
- Presentations should not take more than 1-2 hours to prepare
  - Present case
  - Frame the question and query colleagues
  - Provide the evidence/guidelines succinctly and your impression of the best management decision (this can be done with the help of the faculty content expert appropriate for that topic).
- Plan for 20-30 minutes





### Preventive Medicine Residency



PMR Home ▼	Purpose and Mission	1000
Overview >	The University of Michigan School of Public Health houses one of the oldest Preventive Medicine Residency programs in the country, dating back to 1969.	Year the U-M SPH Preventive
Academics >	The central mission of the School of Public Health's residency in General Preventive Medicine and	Medicine Residency Program
Practicum ▶	Public Health is to train highly-qualified physicians for careers in clinical preventive medicine and public health.	began
Apply ▶	The mission is accomplished through the provision of rigorous academic course work resulting in a	Master of Public Health degree in on-
Faculty •	of the following core areas of public health:	
Residents >	General Epidemiology     Environmental Health Sciences	
Alumni Testimonials ▶	Health Behavior and Health Education     Health Management and Policy	
Alumni	This mission is also accomplished by the provision of broad practicum experiences with	#1
News ▶	concentrations in applied epidemiology, public health practice, and clinical preventive medicine, which are typically provided for populations with high levels of unmet health care needs.	Public Research University in the U.S.





# Post-Fellowship Positions

#### University based faculty

- University of Michigan
- Emory University
- University of Kentucky
- Medical College of Wisconsin
- University of Illinois Chicago
- Michigan State University
- OHSU
- University of Minnesota (TID)
- University of Arizona
- University of Pittsburgh

#### Hospital Employed

- St. John's Health system
- St. Joseph's Hospital
- Queen's Health Care (Honolulu)
- Cleveland Clinic
- Oakwood Hospital
- Henry Ford Health System

#### Private Practice

- Pittsburgh, PA
- Carolinas Hospital (Charlotte NC)
- Toledo, OH
- Petosky, MI
- Duluth, MN
- Seattle, WA
- Traverse City, MI

#### Additional training

- London School of Tropical Medicine
- Doctors Without Borders
- CDC EIS Officer
- Mayo Clinic Transplant ID fellowship
- UM preventive medicine residency





### House Officer Benefits

#### Salary Schedule + lump sum

HOIV \$74,205 (FY23)
 \$7420 lump sum

Meal Allowance

Medical/Dental/Disability Insurance

Maternity/Paternity leave

**Parking** 

**Exercise Facility** 

Travel Allowance





#### About Ann Arbor

MAY 8, 2017

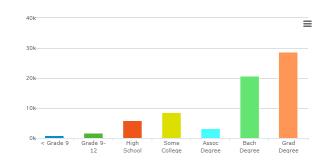
# Ann Arbor Named 'Best City to Live' in America

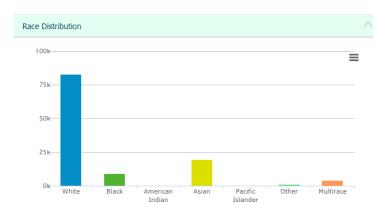




If you live in Ann Arbor, you already know this city is a great place to call home. But a new list confirms what you may have suspected: Ann Arbor is the best city to live in America.

#### Population: 119,280









# Sleeping Bear Dunes







# **Contact Information**

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