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An Atlas of US Physician Practice Choice and Firm Structure: 2015-2020, for Selected States from the FTC Physician and Facility Merger Study

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Abstract

In this paper, we describe US physician practices using data from the Federal Trade Commission (FTC)'s Physician Practice and Healthcare Facility Merger Study. The data consists of healthcare claims data from six major insurers in 15 states which collectively account for approximately 80 percent of commercial insured patients between 2015 and 2020. We find that the degree of patient choice of provider practices varies substantially by physician specialty. For instance, 18 percent of primary care is provided to patients in highly concentrated ZIP codes while the share of highly concentrated ZIP codes is much higher for other medical specialties. We also find substantial variation in concentration throughout the study states. Finally, we document the extent to which physician practices exhibit scope with the fraction of physicians working in multispecialty practices or as employees of health systems. We find large variation in scope both by physician specialty and region.

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Introduction

Over the past 20 years, the organization and delivery of healthcare have changed significantly. Physician practices and health systems have expanded in both size and scope. While our understanding of specific parts of the healthcare sector has improved, efforts to systematically study healthcare have been limited by data availability and the unique characteristics of certain types of healthcare services.[2]

This study, part of the FTC's Physician Group and Healthcare Facility Merger project[3], offers a systematic analysis of how the organization of healthcare in the U.S. has evolved. We introduce a new Atlas of American healthcare, covering commercially-insured care for 15 states over a six-year period (2015–2020). We present novel measures of the scope and scale of physician practices. We also track how these measures vary across geography and types of care, and how they have changed over time.

Our findings show that patient choice varies widely by specialty and location. For example, 18% of primary care is delivered in ZIP codes classified as "highly concentrated" under the 2023 Merger Guidelines. The share of care delivered in "highly concentrated" Zip codes is much higher for other specialties, such as OB-GYN (42%), cardiology (58%), and orthopedic surgery (51%). The level of concentration also differs by geography: urban ZIP codes are generally less concentrated than rural ones, though variation exists in both. For instance, nearly all OB-GYN care in Florida occurs in highly concentrated ZIP codes whereas most ZIP codes in Texas are not highly concentrated for OB-GYN services.

We also examine the scope of physician practices, focusing on how often physicians work in multispecialty groups (e.g., a primary care doctor in a practice with a cardiologist) or for health systems that own or operate hospitals. Physicians are increasingly practicing in these settings, which may improve care coordination across specialties but can also lead to higher payment rates—even when prices are set administratively.[4]

We find that 66% of primary care is delivered by physicians in multi-specialty practices (MSPs), and 34% by those affiliated with health systems. These shares vary by specialty: for OB-GYN, 54% are provided in MSPs and 27% in systems; for cardiology, 76% and 46%, respectively; and for orthopedic surgery, 64% and 25%. There is also significant geographic variation. In the Midwest—specifically Illinois, Indiana, Missouri, and Ohio—roughly half of primary care is delivered by health system–affiliated doctors. In contrast, much less (often less than 25 percent, depending upon geography) of primary care in Texas is provided through such affiliations.

Our study improves on the existing literature in several main dimensions. The most systematic work on healthcare provision and organization has focused on inpatient care, or primary care for the elderly population. The Federal Trade Commission's (FTC's) Hospital Merger Retrospective Project contributed

[2] Koch, et al. ,2017; Koch, et al. 2021; Curto, et al., 2022; Whaley and Zhao, 2024; Levin et al., 2025; Cooper at al. 2025.

[3] See here for a general description of the overall project: https://www.ftc.gov/enforcement/competition-matters/2021/04/physician-group-healthcare-facility-merger-study.

[4] See Koch, Wendling and Wilson (2018) for spending with administratively set prices. Curto et al (2022) studied commercial prices in Massachusetts.

substantially to our understanding of the economics of hospital services. Hospitals as economic phenomena are better understood now than they were 20 years ago, prior to these studies.[5] The papers that came out of this project demonstrated the harmful effects of hospital mergers on hospital prices, both theoretically and in practice, while also providing evidence that these deals did not increase the quality of care at hospitals involved with the deals.[6] More recent work has reinforced those lessons (Brot Goldberg et al., 2024; Brand et al., 2023; Beaulieu et al. (2020)).

This study focuses primarily on physician services, which warrant analysis independent of prior research on hospitals. Physician office visits play a central role in the healthcare system by providing preventive care, diagnostic evaluations, and treatment for low-acuity medical conditions. Moreover, physicians often serve as the initial point of contact for patients and are instrumental in coordinating subsequent healthcare utilization, including prescription medications, laboratory tests, outpatient procedures, and various inpatient services. Even for the highest acuity care, it is doctors performing the surgeries and making clinical decisions.

There is a growing literature on the structure of physician practices. Much of this has focused on physician employment by hospitals, which has become increasingly common over the past 20 years. Kane and Emmons (2013) documented early growth in physician employment by hospitals, and its effects have been studied in the Medicare context (Koch, Wendling and Wilson (2017) looked at utilization; Koch, Wendling and Wilson (2021) looked at health outcomes) and for the commercially insured (Curto et al (2022) studied commercial prices in Massachusetts; Capps, Dranove and Ody (2018) for an anonymous set of acquisitions).

There are also more traditional studies of "horizontal" mergers and market structure in physician markets: Dunn and Shapiro (2014) and Kleiner, White and Lyons (2015) both looked at physician service markets and found strong evidence that physicians had substantial market power. Koch and Ulrick (2021) studied the price and other effects of a merger of orthopedists in southeastern Pennsylvania and found substantial price increases following the merger. Koch, Wendling and Wilson (2018) documented wide variation in the competition for cardiologists in Medicare; and found evidence that when competition decreased (as measured in increases in HHI), health outcomes worsened. Capps, Dranove and Ody (2017) found many acquisitions of providers, many in areas they found to be highly concentrated. Zhang, et al. (2021) looked specifically at the effects of primary care consolidation on the Medicare population. Along these lines, Meille et al (2023) found substantial growth in the concentration levels for primary care, as well as enormous and wide-spread growth in doctors practicing in very large and/or multi-specialty practices.

We also complement recent work that measures local levels of concentration and how they change over time. The closest study to ours in this regard is Wollmann (2020), which studies mergers in the dialysis industry. He finds many of the mergers and acquisitions in the dialysis industry would violate standard antitrust thresholds. In contrast to that study, we are not studying mergers, or evaluating potential antitrust markets that one might use to evaluate them.

[5] We are focusing on recent work in hospital and physician industrial organization economics. Broader reviews of this and related literatures can be found in Gaynor and Town (2011), Gaynor, et al. (2015), and Liu et al (2023).
[6] See Vol. 18, Issue 1 of the International Journal of the Economics of Business for a special issue devoted to the topic. The papers therein are cited in our Bibliography.

Benkard et al. (2023), which studies consumer choices in broad categories such as apparel and electronics, finds a great deal of heterogeneity in levels of and changes to concentration when consumers are aggregated to the groups-of-states level (e.g., Minnesota/Iowa, or Nebraska/Kansas). Thus, they find that geographic and product aggregation is key to understanding what is (or is not) changing in terms of consumer's choices and who provides them. Smith and Ocampo (2025) found that changes to local measures of concentration for retail are more modest, even though large firms were growing across different areas in the US.

Data and Measuring Firm Boundaries

Our primary dataset is derived from commercial insurance claims, primarily from employer-sponsored insurance (ESI), provided by six major insurers. [7] It includes claims information for approximately 51 to 53 million beneficiaries across 15 states over a six-year period (2015–2020).[8] The study states are Colorado, Florida, Georgia, Illinois, Indiana, Kentucky, Maine, Missouri, Montana, Nevada, New Hampshire, New Mexico, Ohio, Oklahoma, and Texas. These insurers and states were selected to construct a sample that captures more than 80 percent of the commercially insured population within the included states. Based on comparisons with population estimates from the Kaiser Family Foundation, we estimate that our dataset covers approximately 82 percent of the commercial insurance market in these states during the study period. [9] Furthermore, the selected states reflect the diverse contexts in which healthcare is delivered in the United States. They span all four major U.S. Census regions (Midwest, Northeast, South, and West) and include a mix of urban and rural populations.

The claims data report a variety of information required to perform our analyses: a unique identifier for each patient and an indication of where they live (five-digit ZIP code);[10] an identifier of the person or firm providing a medical service (National Provider Identifier, or NPI), a code that identifies the firm that billed the insurer (Tax Identification Number, or TIN), the services provided (CPT codes); the underlying medical diagnoses that led to this course of care (ICD-10 codes); the amount paid separately by the patient and their insurer, and the type of facility where services were rendered (e.g., a medical office, an ambulatory surgical center or an inpatient hospital facility). None of the analyses in this paper or the related variable choices are intended to constitute a formal market definition analysis like would be required in an antitrust investigation.

[7] The included insurers are Aetna, Anthem, Cigna, Florida Blue, Health Care Services Corporation, and UnitedHealthcare.

[8] We have also obtained claims data for individuals with Medicare Advantage and Medicaid in the study states which increases the number of individuals included in the study to between 59-63 million depending on the year. However, we have a much smaller fraction of members with this type of coverage in the study states and primarily rely on data from commercial insurance in this study.

[9] KFF estimate that between 2015-2019 between 62 million and 64 million individuals has commercial (employer and non-group) health insurance in the study states. See https://www.kff.org/other/state-indicator/total-population, last visited 3/18/2024.

[10] While the claims data we have received constitutes sensitive health information (SHI), we required the insurers to provide the FTC with de-identified information. Our data contains a person identifier that is persistent across a person over time at a given insurer. However, we do not observe any person's name, street address, or social security number.

We supplement the claims data with CMS's Medicare Data on Provider Practice and Specialty (MDPPAS).[11] The MDPPAS lists each provider with characterizations of their practice specialty and the firm they primarily work for (i.e., the Tax Identification Number or TIN), as well as their annual billing totals for traditional Medicare. In our study, we primarily use the MDPPAS data to identify a provider's medical specialty and the state they practice in. However, because MDPPAS is drawn from the population of medical providers that bill Medicare, it systematically undercounts the medical providers who exclusively serve the non-Medicare population such as pediatricians and OB-GYNs. To address this shortcoming, we have used information contained on some of the insurer's claims that allows us to identify the medical specialty of doctors not included in the MDPPAS data.[12]

Finally, we use the Agency for Healthcare Research and Quality (AHRQ) Compendia of Health Systems to identify the firms that are affiliated with health systems. AHRQ has identified and enumerated health systems (a firm that has both a physician practice and a hospital) in the US to understand their effect on the provision of healthcare. Publicly available lists of the systems are available.[13] We use non-public versions of the compendia for 2016 and 2018 that include the TINs owned by each system to join system identifiers to the TINs in the claims data.

When characterizing the boundaries of the firm, we start with TINs to identify which firm is responsible for which unit of output (i.e., each claim, or the RVU value of the claim). The literature mentioned above (e.g., Zhang, et al. (2021), Koch, Wendling and Wilson (2018), and Capps, Dranove and Ody (2018)) all use TINs to characterize which providers work with each other in their separate firms. For this reason, for most of our analysis, we start with TINs as the initial assignment of providers into firms.[14] To account for situations where multiple TINs are controlled by the same parent entity, we utilize AHRQ's Health System data to identify TINs that are part of the same legal entity.[15]

It is also important to distinguish between different kinds of providers. Our goal in constructing measures of provider choice is to describe the set of firms and doctors that can treat a given medical condition. Different kinds of providers have experience with different kinds of care or may focus on different body systems or populations. To account for this kind of differentiation, we use a modified version of the schema employed by the MDPPAS. We first combine all providers whose specialties are grouped under "primary care" by the broad-specialty category by the MDPPAS.[16] We use this relatively broad

[11] https://resdac.org/cms-data/files/md-ppas

[12] We describe the method used to identify a doctor's medical specialty in the Technical Appendix.

[13] https://www.ahrq.gov/chsp/data-resources/compendium.html

[14] Other approaches to characterizing firms have substantial limitations It is not feasible to use the names of physician practices to uniquely identify firms: we frequently see different insurers (and sometimes the same insurer) refer to the same physician practice using different names. In our discussions with insurers, we have been told that the entity that negotiates provider prices can typically, but not always, be identified by the TIN that bills the insurer for a medical service.

[15] We have the AHRQ Health System TINs for 2016, 2018, and 2020. For data from 2015, 2016, and 2017, we use the health system TINs from 2016. For 2018 and 2019, we use the health system TINs from 2018. For the 2020 data, we use the health system TINs from 2020.

[16] These are general practice (PECOS code 01), family practice (08), internal medicine (11) osteopathic manipulative medicine (12) hospice and palliative care (17), pediatric medicine (37), geriatric medicine (38), and preventative medicine (84).

categorization because, to some extent, family medicine, and internal medicine doctors can provide primary care services to patients.

By contrast, it is unlikely that a cardiologist and an endocrinologist can offer patients similar care. Put another way, it is unlikely that a health insurer looking to create a network for its beneficiaries could offer in-network endocrinologists in lieu of in-network cardiologists. For this reason, for non-primary care providers, we use the two-digit PECOS code provided in the MDPPAS to distinguish between different specialties. E.g., this allows us to distinguish between OB-GYNs (PECOS code 16) and cardiologists (06).[17] Combined with TIN and AHRQ Health System data, we can also designate providers as working for a multi-specialty practice, if there are multiple specialties that provide care under a TIN/AHRQ system in a quarter.

Measuring Firm Scale and Scope

We first characterize the choices that patients face when they receive care: how many firms are there which offer medical services? Are those firms large or small relative to one another? Further we measure whether the care patients receive is from providers in a firm aligned with other kinds of providers (i.e., a multi-specialty practice). We also measure whether the provider is employed by a health system.

We start with characterizing horizontal firm structure. The individual claims data reports the ZIP code of where the patient resides, as well as, inter alia, key characteristics of the care received: what care was provided (a CPT code) who provided it (an NPI), and who the provider worked for (a TIN). We assign each service the corresponding Relative Value Unit (RVU) per Medicare's RVU rules.[18] RVUs are designed to reflect the total cost to the professional provider (e.g., the doctor) for providing care for the patient. Higher RVUs are assigned to CPT codes for services that are more complex or require more resources. For example, office visits are often coded as one of five different CPT codes, 99211 to 99215, each corresponding to visits that require more of the provider's time. This is reflected in their RVU values; the RVUs for a 99214 are two- to three-times larger than that for a 99212, with a corresponding difference in reimbursement for the service.[19]

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[17]Because the MDPPAS is based in part from Medicare FFS records, there are providers in our claims data that are not in the MD-PPAS. This is a frequent occurrence for pediatricians and OB-GYNs. Most payers reported PECOS codes in their data, though some had their own specific specialty codes that we hand-matched to PECOS codes, to assign a provider a specialty.

[18] With limited exceptions, we use shares based on RVUs. Potential alternatives are revenue-based shares or claim line-based shares. Claim-line based shares would add up the number of claim lines a doctor billed for in a quarter---this would weight each service provided equally. Given the variation of RVU units across different CPT codes, this may underweight providers or firms that provide more intensive services than others. Alternatively, revenue-based shares over-weight firms that, for example, translate their market power into higher reimbursements. ZIP codes with dominant providers that negotiate higher prices relative to their competitors appear to have higher HHIs than an output-based measure, such as RVU, would allow.
There are some medical specialties where a relatively small share of the care provided corresponds to CPTs where Medicare has designated a CPT for the medical service. For example, many anesthesiology CPTs do not have RVUs corresponding to them. For these medical specialties we calculated a firms share using its revenue rather than the RVUs as its output measure. These specialties include Anesthesiology, Neurology, Ophthalmology, Nuclear Medicine, Infectious Disease, Rheumatology, Addiction Medicine, Hematology, Hematology/Oncology, and Gynecological/Oncology.

[19] For discussions of the evaluation-and-management code set and RVUs in the context of family medicine, see: https://www.aafp.org/pubs/fpm/issues/2003/0100/p29.html#fpm20030100p29-bt4 and https://www.aafp.org/pubs/fpm/issues/2023/0300/understanding-rvus.html

We use the RVU as the measure of a firm's (TIN's) output within a specific line of business (medical specialty). For each year separately, we calculate the RVU shares of each provider TIN within each specialty for every patient ZIP code. To measure concentration, we estimate Herfindahl-Hirschman Indices, or HHIs, for each patient ZIP code-specialty-year. Per the 2023 Merger Guidelines, HHIs (the sum of the square of the shares) are a common measure used by the antitrust agencies to measure concentration. HHIs are the standard statistics that antitrust agencies use to measure concentration levels in properly defined antitrust markets. This does not imply that ZIP codes themselves necessarily reflect appropriate geographic markets for antitrust purposes, just as medical specialty may not reflect appropriate product market. Because we are not analyzing mergers or firm conduct in our analysis, we are silent on the implications of our results market definition.

Through this measurement, we are attempting to characterize the following thought experiment: suppose that a patient is seeking care and is considering his or her options. How many options (i.e., firms or medical practices) does that patient have, and how evenly distributed are those choices?[20] HHIs capture this measurement in a meaningful way: a ZIP code with many different firms who provide roughly an equal amount of care will have a low HHI; A ZIP code with few firms or is served predominantly by a few firms will have a high HHI. We apply the Kessler-McClellan (2000)[21] adjustment to the HHIs, so that a ZIP's HHI more accurately reflects the competition faced by the firms that serve it.

When evaluating a proposed merger, the antitrust agencies will use HHIs as one piece of evidence as to the potential for that acquisition to lessen competition.[22] The 2023 Merger Guidelines adopt a threshold of 1,800: markets with HHIs more than 1,800 are considered highly concentrated and are considered not highly concentrated if the HHI is less than 1,800. We adopt this highly concentrated/not highly concentrated dichotomy when looking at the shares within a ZIP code-specialty.[23]

HHIs help us measure the extent of relative firm scale within specialties and ZIP codes. We also provide two measures that evaluate firm scope: that is, do firms in one line of business also practice in another

[20] We make the affirmative decision to characterize choices in terms of number of firms that practice in an area for a specialty, as opposed to the number of individual providers. We do this for two reasons. Different providers that work for the same firm or practice (i.e., under the same TIN), might work together to provide coverage and care to their patients, so there is not a clean choice between those two providers. Second, those two providers are likely to negotiate jointly when contracting with payers (i.e., health insurers). In the context of these negotiations, there is a material difference between, say, 100 primary care providers who each contract separately vs. if those primary care providers all jointly negotiated as a single entity with a payer.

[21] The Kessler-McClellan adjustment starts with the shares for each firm for all ZIP codes. We first calculate the (unadjusted) HHI for each ZIP code (e.g., one quarter each for four firms in ZIP code Z would lead to a county HHI of 2,500). Next, we take the share of each firm's services in each ZIP and calculate the average HHI for the ZIP codes where each firm provides care (e.g., half of firm A's services are in ZIP code X with HHI 5,000 and the other half in ZIP code Y with HHI 3,000 would give a firm HHI of 4,000). A ZIP's adjusted HHI is the average HHI of the firms that provide services within them, weighted by share of services provided by a firm within a ZIP (e.g., take the average firm HHI of the four firms that provide services in ZIP code Z, weighed by their share of services provided in Z). This adjustment reflects the fact that firms are unlikely to price or quality "discriminate" between patients from different geographies, and thus patients are treated as if they are the average of the firms that serve them, as opposed to their specific circumstances.

[22] 2023 Merger Guidelines, pp 5.

[23] We calculate our HHI measure at the ZIP code level for illustrative purposes. As mentioned above, we are not defining markets for antitrust purposes. Our work here should not be interpreted as endorsing the use of any specific individual ZIP code or collection of ZIP codes for any market definition exercise.

line of business? First, we assess the extent to which the care provided for a specialty in a ZIP code is provided by a firm that provides medical care in a different specialty. When a provider of one specialty works at a firm that employs a different kind of specialist, we characterize both providers as working at a multi-specialty practice (e.g., a primary care provider works at a practice that also has a cardiologist). The rapid and geographically broad growth of multi-specialty practices was documented in Meille, et al. (2024).

Determining whether a provider is part of a multi-specialty practice is straightforward. We define a provider as being part of a multi-specialty practice if there are providers of other specialties billing to that provider's TIN or if the provider is employed by a health system that employs providers of multiple specialties.

Second, we consider whether doctors work for a health system. System employment of providers is a subject that has garnered attention in recent years from researchers (see the literature review above) and policymakers.[24]

We use the definition of a health system developed by AHRQ, which "defines a health system as an organization that includes at least one hospital and at least one group of physicians that provides comprehensive care (including primary and specialty care) who are connected with each other and with the hospital through common ownership or joint management."[25] It is not possible to determine if a particular firm (TIN) is a member of a health system solely using claims data. While the claims data identifies the TIN of the firm billing the insurance company, it does not contain sufficient information to determine if the TIN is controlled by some other firm or entity.[26] In our analyses, we assign all TINs corresponding to a health system as being controlled by the same entity. We then create an index that we treat as a virtual TIN in our subsequent analysis corresponding to all the TINs controlled by a system as determined by AHRQ's Compendium of Health Systems.[27]

Note that these designations (part of an MSP; part of a health system) are not mutually exclusive and often overlap: if a health system employs many kinds of specialists, it is both a health system and an MSP. Alternatively, it possible for a health system to not be an MSP (if it employs no doctors or only one

[24] See proposed legislation such as the SITE Act, https://www.congress.gov/bill/118th-congress/senate-bill/1869/text

[25] AHRQ's "Compendium of US Health Systems, 2016, defines a health system as an organization that includes at least one hospital and at least one group of physicians that provides comprehensive care (including primary and specialty care) who are connected with each other and with the hospital through common ownership or joint management. Under this definition, foundation models are considered a form of joint management, while joint participation among providers in an accountable care organization is not, by itself, indicative of joint management. "Group" is not synonymous with a separately organized medical group; hospitals that employ community-based physicians who provide comprehensive care (but are not organized as a medical group) are considered health systems under this definition." See https://www.ahrq.gov/chsp/defining-health-systems/index.html.

[26] For example, it is common for a health system to operate different business units (such as a physician's group) as separate firms and bill the services of providers to the TIN corresponding to the business unit. AHRQ has undertaken a major project to build the correspondence between these individual business units, their TINs, and the health systems that control the underlying business units. We use AHRQ's list of health systems to determine which firms (TINS) are part of a health system.

[27] We have the compendia for 2016 and 2018. We use the 2016 compendium for 2015-2017, and the 2018 compendium for 2018 and later.

specialty) and for an MSP to not be part of a health system (there is no hospital within the legal entity of the firm).

Finally, we repeat the information in Table 1, separately for each state in our sample, in an Appendix. We do not discuss those tables here but note that they are consistent with the maps we provide later in this paper---there is substantial variation across specialties and geography in all the measures we study.

Results

Measures of Concentration

Finding 1: 82 percent of primary care ZIP codes are not highly concentrated (i.e., HHI<1,800); ZIP codes for specialist care are more likely to be highly concentrated (HHI>1,800) than those for primary care physicians.

Table 1 reports the share of ZIP codes found to have an HHI greater than 1,800, separately by specialty for the claims data from 2018.[28] There is meaningful variation across specialties in the fraction of highly concentrated ZIP codes. Overall, we see that concentration is lowest for primary care physicians (18 percent of ZIP codes have an HHI more than 1,800). Medical specialties have more highly concentrated ZIP codes than primary care, however, there is dramatic variation in the proportion of highly concentrated ZIP codes across the specialties. For instance, 42 percent of ZIP codes are highly concentrated for OB-GYN, 49 percent for general surgery, and 58 percent for cardiology.

After Table 1, we illustrate in Figures 1 through 4 the remarkable variation in HHIs across both medical specialties and the states included in the study. These Figures show weighted frequency histograms of ZIP code level HHIs for four medical specialties in 2018 selected to illustrate different possibilities of the spectrum of market structure.[29] In Figure 1 for primary care, we see that most of the distribution of HHIs is on the left side of the graph, indicating that the most patients live in zip codes with non-highly concentrated HHIs. The histogram for OB-GYN, Figure 2, is very different. While there are some ZIP codes with small HHIs, many patients live in ZIP codes with high HHIs, beyond 2,000 or even 3,000. Other specialties, such as cardiology and orthopedic surgery (Figure 3 and Figure 4), have HHI distributions that are shifted further to the right with many more ZIP codes with high levels of concentration.

[28] We provide all the statistics shown in Table 1 for the entire sample separately for each state in the Appendix.
[29] In constructing the frequency histograms, we weight each ZIP code by the relative number of claim lines to account for the fact that many ZIP codes, particularly those in urban areas have much more patient activity than those in less populated areas. We chose primary care and OB-GYN since these are specialties where our data is most novel, since we are measuring the care received by the non-elderly (i.e., non-Medicare population). We study orthopedics and cardiology because it has been the subject of earlier work, e.g., Koch and Ulrick (2021) and Koch, Wendling and Wilson (2018).

Table 1 ZIP code concentration and firm scope, by specialty for 2018

Specialty	Median HHI	HHI>1800	Health System	MSP
Allergy/Immunology	2,394	78	12	43
Anesthesiology	2,477	84	33	65
Cardiovascular Disease (Cardiology)	2,016	58	46	76
Critical Care (Intensivists)	3,811	100	56	96
Dermatology	1,474	29	9	35
Diagnostic Radiology	2,454	87	36	70
Emergency Medicine	2,713	95	47	92
Endocrinology	1,654	45	33	67
Gastroenterology	2,579	84	26	71
General Surgery	1,786	49	43	68
Geriatric Medicine	5,984	100	35	78
Hematology/Oncology	6,856	100	18	86
Hospitalist 1	2,377	80	50	93
Infectious Disease	3,706	99	23	59
Interventional Cardiology	4,188	100	55	97
Nephrology	2,931	86	17	61
Neurology	1,879	52	32	59
Neurosurgery	2,850	97	46	72
Obstetrics/Gynecology	1,623	42	27	54
Ophthalmology	1,392	27	10	21
Orthopedic Surgery	1,819	51	25	64
Otolaryngology	2,224	71	22	48
Pediatric Medicine	1,556	36	25	56
Plastic And Reconstructive Surgery	2,164	69	28	53
Primary Care	1,058	18	34	66
Psychiatry	837	7	15	30
Pulmonary Disease	2,207	78	37	74
Radiation Oncology	3,783	100	35	86
Rheumatology	3,810	100	21	54
Urology	3,016	91	27	75

Figure 1 Primary care HHI distribution 2018

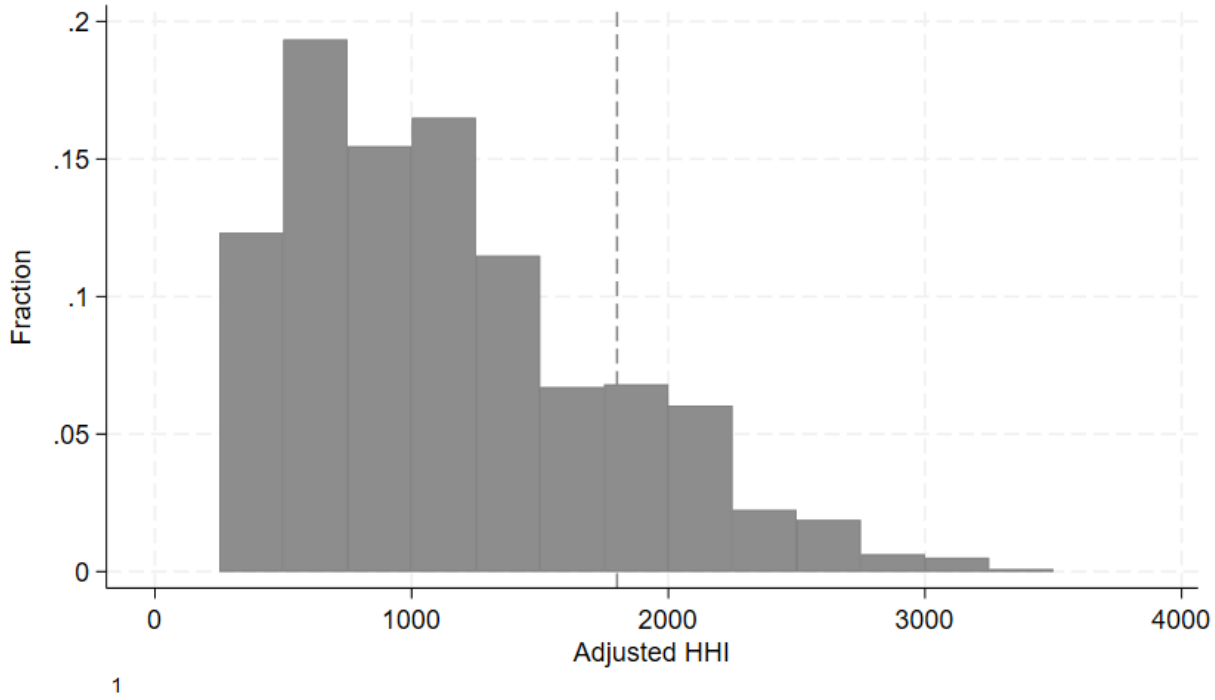

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Figure 2 OB-GYN HHI distribution 2018

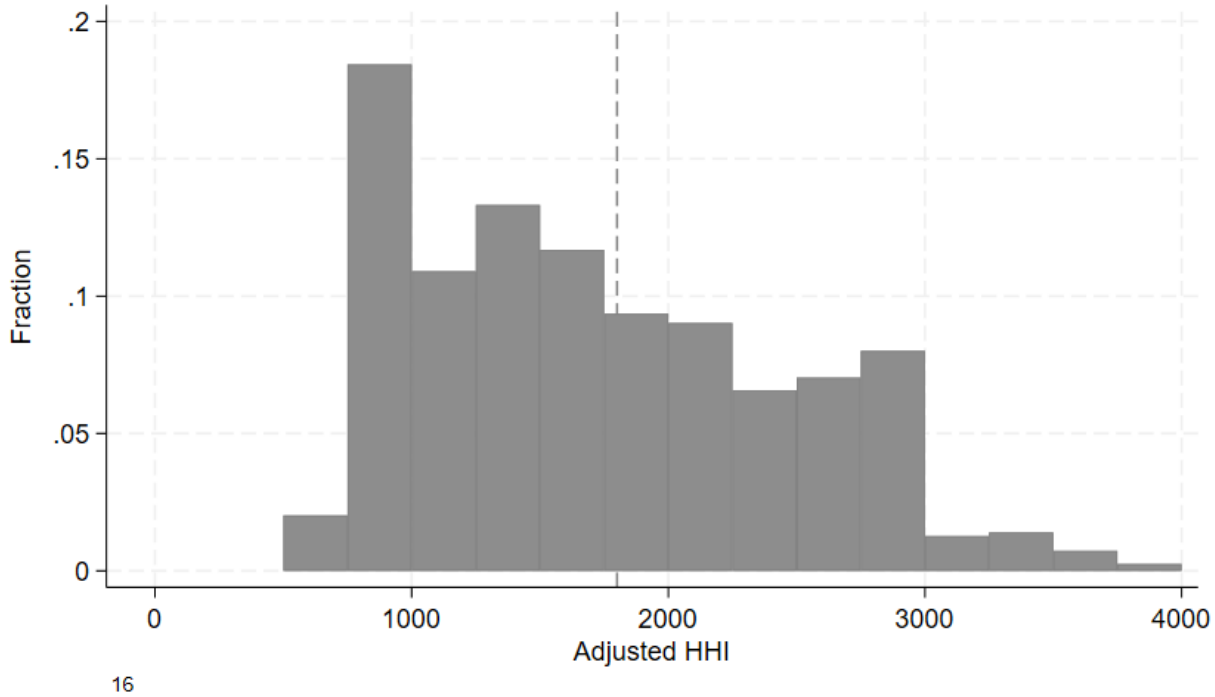


Figure 3 Cardiology HHI distribution 2018

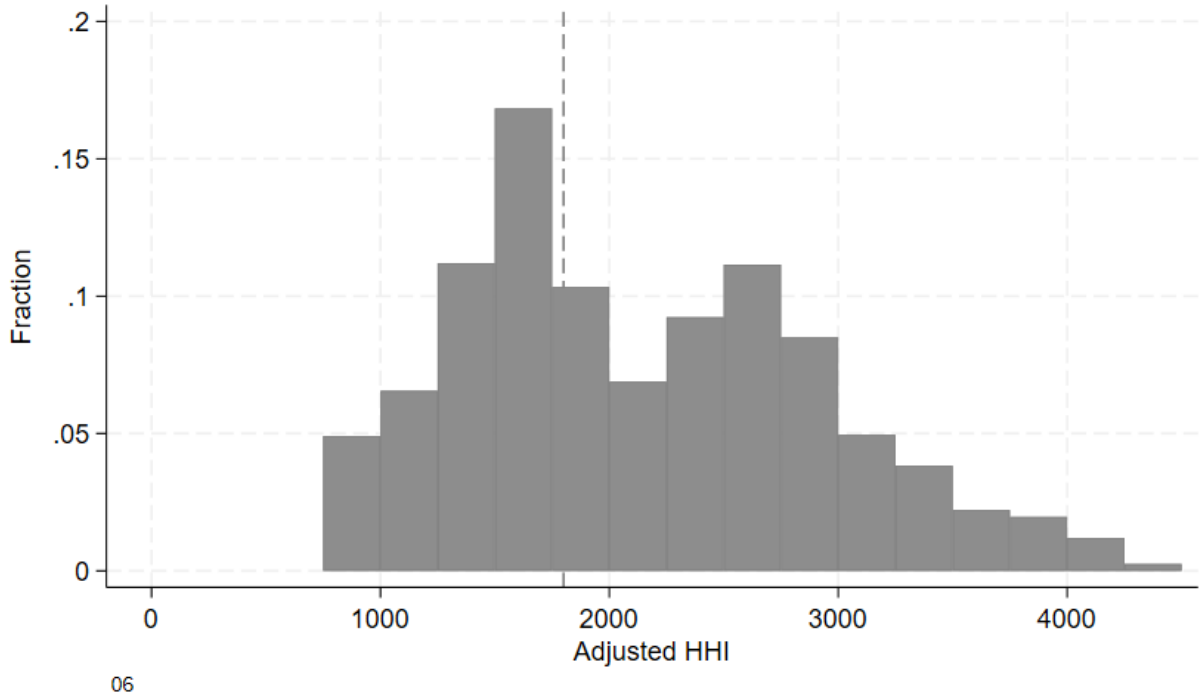
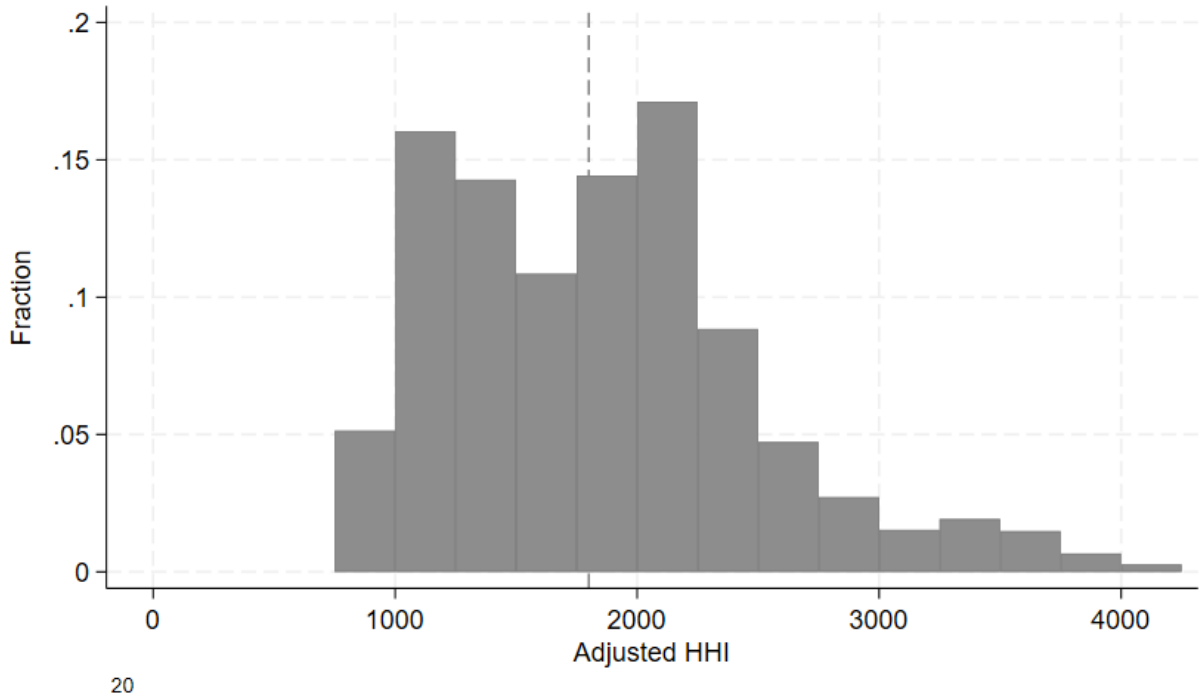


Figure 4 Orthopedic surgery HHI distribution 2018



Finding 2: Specialty concentration within ZIP Codes varies widely. There are many areas around major population centers with highly concentrated ZIP codes.

The histograms of HHIs demonstrated meaningful variation in HHIs within a specialty across ZIP codes at a point in time. We now characterize the geographic variation in HHIs in two ways: first by the rural-urban classification of the ZIP codes, and second, by mapping out the ZIP codes.

Table 2 reports the median weighted ZIP code HHI, separately for three different categories of ZIP codes. We group ZIP codes according to the urban/non-urban coding of its county. The Department of Agriculture creates measures of county urbanicity based upon the county's metro-nonmetro status, as defined by the Office of Management and Budget; as well as, for the nonmetro counties, the county's urban population and adjacency to one or more metro areas.[30] Our three county groupings are: metro county; non-metro but adjacent to a metro area; and non-metro and not adjacent to a metro area. We report the outcomes for four specialties of interest (primary care, OB-GYN, pediatrics and cardiology), though we report the results for more specialties in the Appendix.

For all four specialties, non-urban counties have higher median HHIs and are much more likely (often twice as likely) to be highly concentrated (an HHI more than 1,800). Both results are stronger for non-adjacent nonmetro counties. The earlier results are replicated here: primary care is less highly concentrated and has lower HHIs across counties relative to cardiology. These results warrant one caveat: it should not be surprising that nonmetro areas have higher HHIs than metro areas. HHIs depend upon two main factors: the number of providers and the ownership structure of those providers. Rural areas tend to have fewer providers than urban areas[31], and this could drive a mechanical relationship between urban-vs-rural status and HHI. E.g., if there are only two providers who serve a rural area, the HHI cannot be lower than 5,000 (when the two are separate). That said, this cannot entirely explain the differences here, since many non-adjacent nonmetro areas do in fact have HHIs less than 1,800.

[30] https://www.ers.usda.gov/data-products/rural-urban-continuum-codes/documentation We use the 2013 RUCC codes, mapped via 2010 ZIP code-county mapping information.

[31] For a further discussion of urban-vs-rural divides in terms of provider access, see https://ers.usda.gov/publications/pub-details?pubid=106138

Table 2 ZIP code concentration and firm scope, by specialty and ZIP/county urbanicity, 2018

Specialty	Urbanicity	Median HHI	HHI>1800	Share Health System	Share MSP
Allergy/Immunology	Metro	2,311	76	12	42
Allergy/Immunology	Non-Metro, Adjacent	3,487	97	18	50
Allergy/Immunology	Non-Metro, Non-Adjacent	4,122	99	11	49
Cardiovascular Disease (Cardiology)	Metro	1,854	52	45	75
Cardiovascular Disease (Cardiology)	Non-Metro, Adjacent	2,683	93	53	80
Cardiovascular Disease (Cardiology)	Non-Metro, Non-Adjacent	2,678	95	54	80
Dermatology	Metro	1,420	23	9	35
Dermatology	Non-Metro, Adjacent	2,335	78	9	37
Dermatology	Non-Metro, Non-Adjacent	2,841	91	6	25
Gastroenterology	Metro	2,504	82	25	71
Gastroenterology	Non-Metro, Adjacent	3,074	98	38	70
Gastroenterology	Non-Metro, Non-Adjacent	2,992	100	39	74
General Surgery	Metro	1,664	41	43	67
General Surgery	Non-Metro, Adjacent	2,451	82	47	74
General Surgery	Non-Metro, Non-Adjacent	2,477	87	39	67
Obstetrics/Gynecology	Metro	1,532	38	27	54
Obstetrics/Gynecology	Non-Metro, Adjacent	2,119	68	31	59
Obstetrics/Gynecology	Non-Metro, Non-Adjacent	2,418	81	30	60
Orthopedic Surgery	Metro	1,743	47	24	63
Orthopedic Surgery	Non-Metro, Adjacent	2,363	80	29	71
Orthopedic Surgery	Non-Metro, Non-Adjacent	2,452	83	25	67
Pediatric Medicine	Metro	1,474	33	24	55
Pediatric Medicine	Non-Metro, Adjacent	2,226	69	32	62
Pediatric Medicine	Non-Metro, Non-Adjacent	2,908	90	29	63
Primary Care	Metro	965	14	35	65
Primary Care	Non-Metro, Adjacent	1,541	38	34	70
Primary Care	Non-Metro, Non-Adjacent	1,623	44	27	64

Note: All measurements for each specialty reported separately by three groupings of urbanicity category. ZIP codes are categorized according to the urbanicity of their county. For "Share System" and "Share MSP" we report the mean weighted ZIP code share of system care or MSP care, respectively. Because the weights we use for the ZIP codes may differ from how we might weight the different observations across ZIP codes when calculating , the reported numbers are not

We now turn to maps of our sample states. In an Appendix, Figure 9 through Figure 12 plot maps of ZIP code HHIs separately for the four different illustrative specialties in 2018. Each ZIP code is characterized as highly concentrated (HHI>1800) or not highly concentrated (HHI<1800) and is colored accordingly. By mapping the concentration information on a map, we can visually describe the relationship between where people live and the variety of choices available to them. We present maps for each specialty in two sets: the (nearly) contiguous states (Florida, Georgia, Ohio, Illinois, Kentucky, Missouri, Texas, Oklahoma, New Mexico, and Colorado); and the states located in the Northeast and West (Maine, New Hampshire, Nevada, and Montana).[32]A summary of the maps as follows:

- ZIP codes tend to be not highly concentrated for primary care (Figure 9), more so than the other specialties which tend to be more concentrated. That said, there are many areas (often rural, but also most of Indiana, including the urban areas around Indianapolis) that are highly concentrated for primary care.
- The urban-rural split is much less salient for OB-GYN (Figure 10): nearly all of Florida is highly concentrated, while ZIP codes for OB-GYN patients are not highly concentrated around Chicago, St. Louis (which is highly concentrated for primary care), Columbus and Kansas City
- The cardiology (Figure 11) and orthopedic surgery (Figure 12) specialties are characterized as having highly concentrated ZIP codes in both urban and rural areas throughout the study states. For Cardiology, we only observe not highly concentrated ZIP codes in Nevada (mostly near Las Vegas), and in some urban areas in Texas, Florida, and Illinois. Virtually all the remaining ZIP codes in the Midwest, Northeast, South, and West are highly concentrated.
- Similarly, for orthopedic surgery the major cities in Texas all have not highly concentrated ZIP codes in their vicinity, as do some parts of southern Florida and some ZIP codes near Chicago. However, for the rest of our study states, both urban and rural areas are almost exclusively made up of highly concentrated ZIP codes.

Overall, the maps show that there are many more regions with highly concentrated ZIP codes for specialist services than for primary care, and that urban areas tend to have more not highly concentrated ZIP codes than rural areas. However, there are exceptions to these general patterns. For instance, there are more not highly concentrated OB-GYN ZIP codes near St. Louis than there are not highly concentrated primary care Zip Codes. Moreover, there are many urban areas with highly concentrated ZIP codes (all of Indiana) and rural areas with not highly concentrated ZIP Codes (much of Texas). We interpret these exceptions as highlighting the importance of local conditions in determining the levels of consumer choice available in healthcare.

Finding 3: Though the median change in HHI is positive for each specialty, there is not a uniform upward trend in HHIs over time at the Zip code level; a substantial portion of ZIP codes experienced decreases in HHI over our sample period.

[32] The maps have blank areas that correspond to land where no beneficiaries for our payers live.

Figure 5 through Figure 8 presents the histograms for changes in HHIs within ZIP codes between 2015 and 2019 for four different specialties: primary care, OB-GYN, cardiology and orthopedic surgery[33]. On average, HHIs have increased, but, underneath this result, changes at the ZIP code level give a much less consistent picture, raising doubt as to the existence of a systematic trend. For all the medical specialties, we see that there is a landscape of substantial changes to physician choice over time, where a significant fraction of zip codes experience increases and decreases in concentration during the study period.

A useful way to characterize the Zip-code changes in HHI is to look at the values defining the top and bottom 25% of ZIP codes, though keep in mind that the values at the percentiles of a distribution are changes in HHI. For primary care, the change at the twenty-fifth percentile is -50 (i.e., a decrease of 50); at the 75th percentile, it is an increase of 228.[34] For OB-GYN, the 25th percentile is a decrease of 60 and the 75th percentile is an increase of 292. These interquartile ranges (i.e., the 25th and 75th percentile values) are -16 and 371 for cardiology; and -90 and 170 for orthopedic surgery. These interquartile ranges all span from 250 to 400 HHI points; that is, all four of these specialties saw a diverse set of changes in HHI over time, including large changes

Much as there are broad geographic areas with similar levels of HHI, there are also broad geographic areas experiencing similar changes in HHI.

- For example, in Figure 13 (in the Appendix) we see that ZIP codes around Atlanta saw increases in the HHI for primary care, as did parts of north central Florida and much the Florida panhandle. At the same time, we observe that large parts of central Texas up to the Dallas area saw significant decreases in primary care HHI.

- Figure 14 (changes in HHI for OB-GYN services) also shows similar changes taking place over relatively large areas. For example, most of the ZIP codes around metropolitan Chicago, Denver, Dallas and St. Louis experienced increases in HHI, while most ZIP codes around the major cities in Florida, as well as San Antonio, experienced reductions in HHI.

- The maps showing changes in ZIP code level HHI for cardiology (Figure 15) and orthopedic surgery (Figure 16) generally show similar patterns in the change in HHI across relatively large regions, however, there are more deviations from these large regional patterns for these specialties, especially in rural ZIP codes. For cardiology, most of the ZIP codes near Atlanta, Cleveland, Chicago, and St. Louis experienced significant increases in HHI, while those near Cincinnati experienced decreases in HHI.

- For orthopedic surgery, we observe increases in HHI for most of the ZIP codes near metro Chicago, Denver, and Miami, and saw reductions in HHI for most ZIP codes near metro Houston and Columbus.

[33] We have the data through 2020 but present the differences in HHI through 2019. COVID-19 started to materially impact healthcare provision starting in March 2020, and we want to avoid any measurement issues related to COVID-19.

[34] The specific interquartile ranges are implied in the histogram but not easily discerned from them. We directly calculated the interquartile ranges and report those in the body of the text.

There are many reasons that HHI could change over time, and we should use caution in interpreting what changes in HHI over time imply changes in the choices available to consumers. A provider might improve its quality and attract more patients, resulting in an increase in its share and potentially an increase in HHI. Alternatively, some providers in an area might merge (reducing choice). Further, idiosyncratic factors could lead to some providers attracting more patients. The fact that we observe changes in HHI in one direction or another (positive or negative) over large geographies for a given specialty suggests that these changes we observe reflect meaningful changes to how and where patients receive care (e.g., one of the first two explanations). If the maps of changes in HHI were more geographically mixed, effectively appearing as red-blue-and-grey confetti in the maps, we might worry that the measured changes in HHI reflected more noise than signal.

Figure 5 Primary care distribution of HHI changes

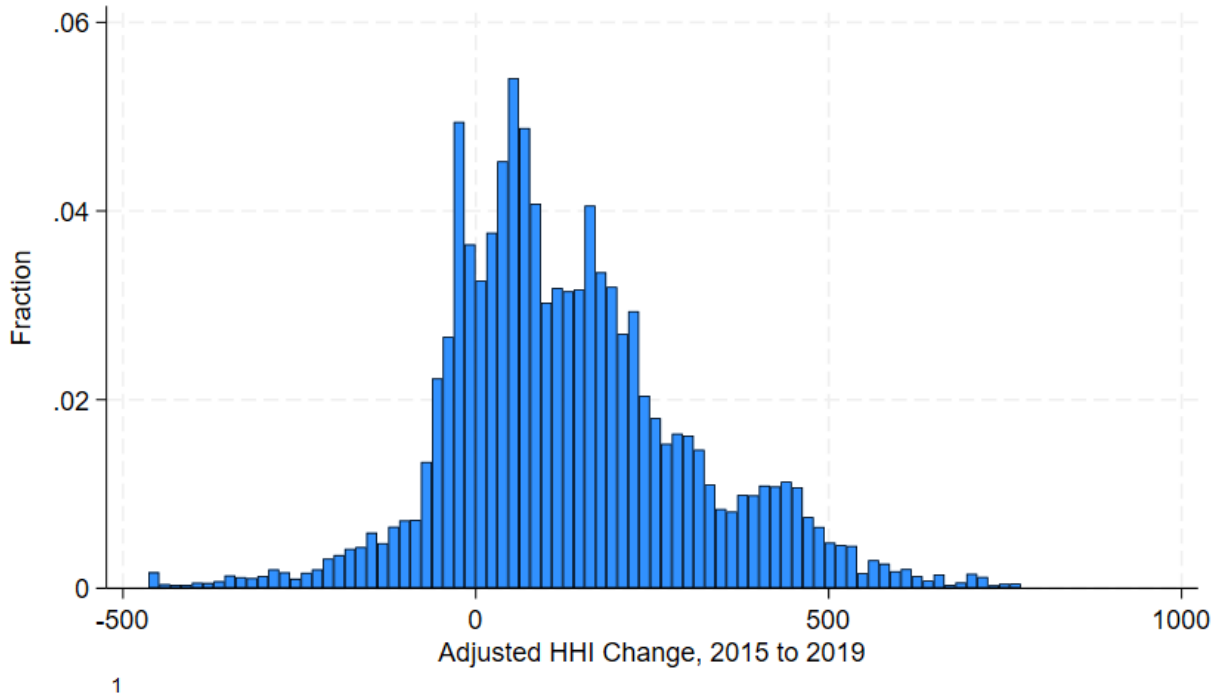


Figure 6 OB-GYN distribution of HHI changes

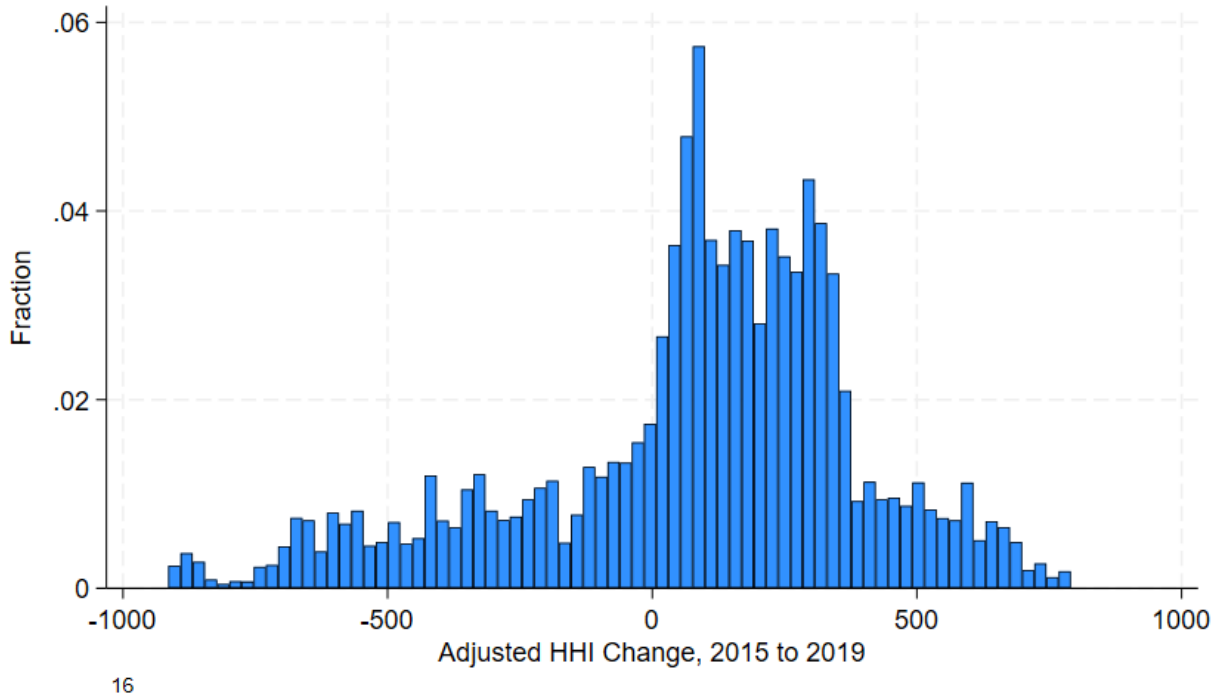


Figure 7 Cardiology distribution of HHI changes

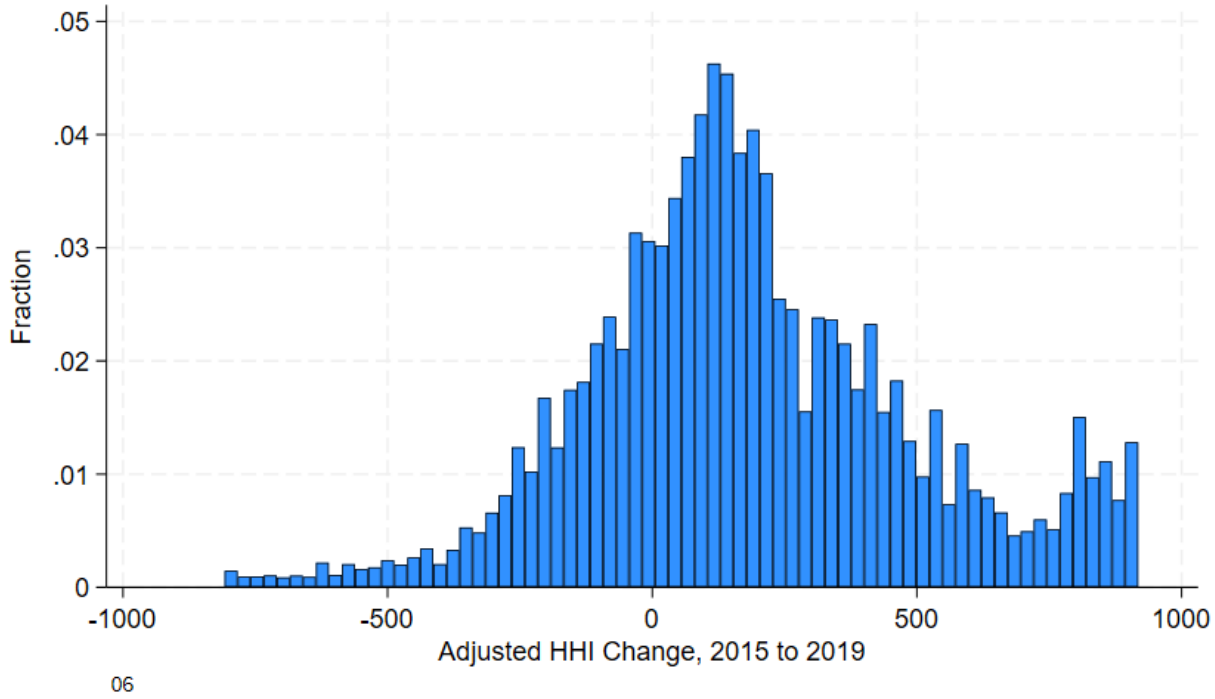
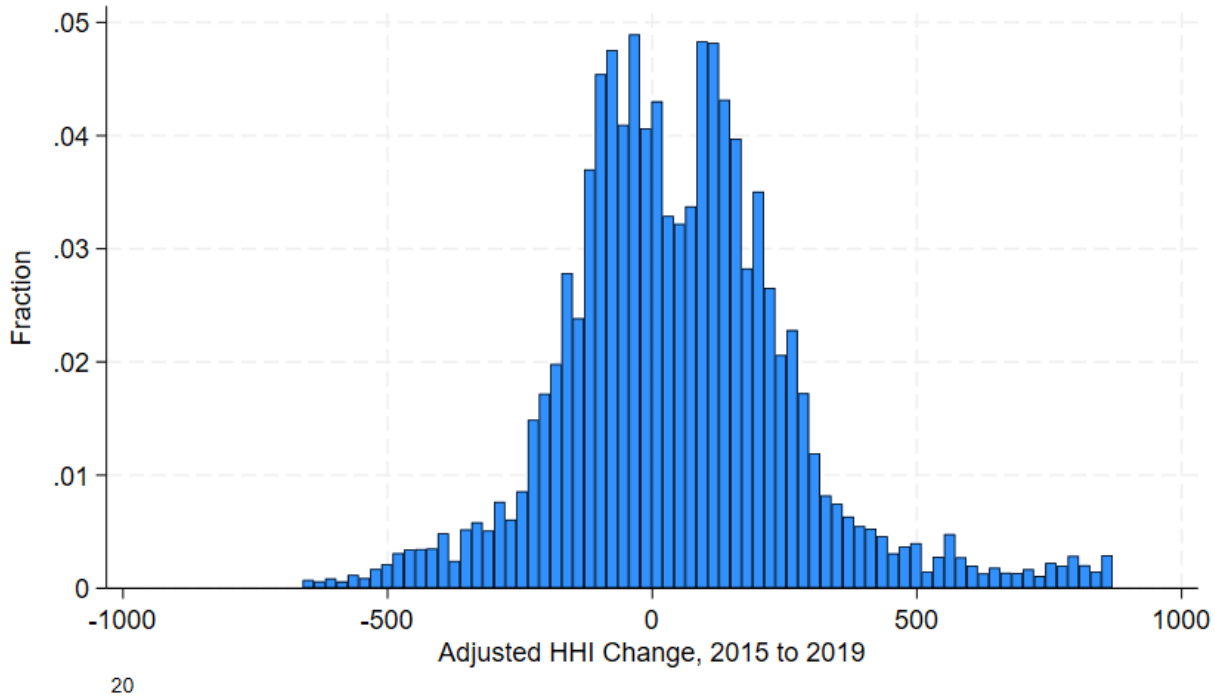


Figure 8 Orthopedic surgery distribution of HHI changes



Measures of Scope of Firms Providing Services

Finding 4: Physician services are typically provided by providers in multi-specialty practice groups, though this share varies substantially by specialty and geography.

Table 1 reports the (approximate) share of care provided by providers in multi-specialty practice, separately by specialty across all the study states. There is substantial variation by specialty in the percentage of care provided by multi-specialty practices across specialties. In the study states, at least 60 percent of care is provided by physicians in a multispecialty group for primary care, general surgery and gastroenterology. Other specialties are much less likely to be provided by multi-specialty practices. For instance, fewer than 40 percent of dermatology, psychiatry and ophthalmology services take place in multispecialty practices.

As with HHI, we also map out the MSP share for each specialty of interest in the Appendix. Figure 17 through Figure 20 are maps for the share of care provided by doctors in a MSP, separately by specialty. These maps demonstrate the variation of MSP shares across geography.

- In Figure 17, within the state of Florida the ZIP codes around Miami and Orlando have relatively low MSP shares for primary care (often less than 50%), while the area around Jacksonville have shares more than 50 percent. The proportion of primary care provided by MSP is very high, often more than 75% of care, in ZIP codes throughout the Midwest (especially Illinois), parts of Texas between Austin and Dallas, and much of New Hampshire and Maine.
- OB-GYN care (Figure 18) is similar to primary care but has some differences. Overall, we see that while OB-GYN care is often provided by doctors employed by MSP, the frequency is lower than for primary care
- Cardiology, on the other hand, is frequently provided in an MSP: the large areas of dark blue throughout Figure 19 make this point clear. There are a handful of areas where MSP share in cardiology is less than 75 percent, such as ZIP codes near Houston, Las Vegas, and Miami.
- Finally, the proportion of orthopedic surgery provided by MSP varies more significantly than the other specialties across the study states and provides an interesting counterpoint to cardiology. In much of Texas and Florida, as well as ZIP codes near Kansas City, the proportion of orthopedic care provided by doctors in MSP is relatively low. Indiana and Ohio have much higher shares, particularly around Indianapolis and Columbus.

Finding 6: Physicians employed by or affiliated with healthcare systems account for a significant fraction of physician services, though the share varies substantially by specialty and region.

Table 1 reports the (approximate) share of care provided by providers affiliated with a health system, separately by specialty for all the study states. It demonstrates substantial variation by specialty: 34 percent of primary care, 43 percent of general surgery and 46 percent of cardiology is provided by a

provider in a health system. Contrast this with 12 percent for allergists and 10 percent for ophthalmologists.[35]

There is dramatic variation in the proportion of care associated with health system affiliated providers throughout the study states. Figure 21 through Figure 24 in the Appendix present maps for the share of care provided by a doctor in a health system in a ZIP code, separately by specialty.

- The primary care map for Florida and Georgia (Figure 21), for example, shows substantial variation within these two states---the ZIP codes around the large metropolitan areas are a deeper red, while the more rural areas are less dark (i.e., showing less care provided by a system provider). In Texas there are many ZIP codes outside of major metropolitan areas (between Austin and Dallas) that have relatively high rates of primary care provided by a system.

- Perhaps the most striking feature of Figure 21 is the extent of health system integration for primary care in the Midwest. Large portions of both rural and urban ZIP codes in Illinois, Indiana, Missouri and Ohio show high shares of health system affiliated primary care physicians, i.e., there are few pink ZIP codes in the Midwest

- Across the study states, we see a similar pattern of health system affiliation of cardiologists (Figure 23) to that of primary care physicians. For example, the share of cardiology services provided by health system affiliated physicians is very high throughout the Midwest in both urban and rural ZIP codes, and in Maine and Nevada (especially near Las Vegas) relatively few cardiology services are provided by health system affiliated physicians. Cardiology services are more likely to be provided by health system affiliated doctors in Colorado, Texas, and New Mexico than was the case for primary care.
- The patterns for OB-GYN (Figure 22) and orthopedic surgery (Figure 24) are like each other but different from primary care and cardiology. While we still observe some regions of the study states with a high fraction of health system provided care, these regions are smaller and include fewer major population centers.

These patterns again reinforce the fact that the organization of healthcare firms is quite specific, and often idiosyncratic, according to how certain firms are organized for certain kinds of care in certain areas.

Conclusion

Economists who have studied the choices available to consumers in healthcare markets (and related ownership structure) have long focused on hospitals. We expand that inquiry into physicians, to generate new insights into how patients receive care and what kinds of firms are providing that care. We develop several new sets of facts: first, the extent to which customers have a great deal of choice in terms of who provides their care (and who owns or employs them) varies greatly by medical specialty and geography. We find that primary care tends to be not highly concentrated, when considered at the ZIP code level, though this is less true for many kinds of specialties. Patients in rural areas are much more likely to face highly concentrated care, irrespective of specialties. That said, there is a great deal of variation within

[35] As noted above, being part of a multi-specialty practice or part of a health system are not mutually exclusive. E.g., a health system might employ both primary care providers and cardiologists. In that case, those providers are both part of a health system and multi-specialty practice. That said, multi-specialty practices need not be part of a health system (i.e., own a hospital), and health systems may not employ providers of certain or many specialties.

specialties across the geographic scope of our study. Moreover, these concentration measures tend to be very dynamic: while the trend is towards increasing concentration, there are areas and specialties that saw decreases in concentration. Further study can help identify the causes and consequences of these changes in concentration.

We also establish new facts about firm structure: to what extent is care provided by multi-specialty firms or health systems. Again, we find that the answers to these questions tend to be very specific to the specialty and geography in question: some specialties, such as primary care and cardiology, are more likely to be provided by multi-specialty clinics and health systems. Others, such as allergy/immunology or dermatology, are much more likely to be provided in a single-specialty practice.

We have set out a series of facts. We hope future research will focus on three additional questions: what are the causes of these differences? What is driving the changes (both increases and decreases) to local area concentrations? And third, what are the consequences in terms of prices, spending and quality of care?

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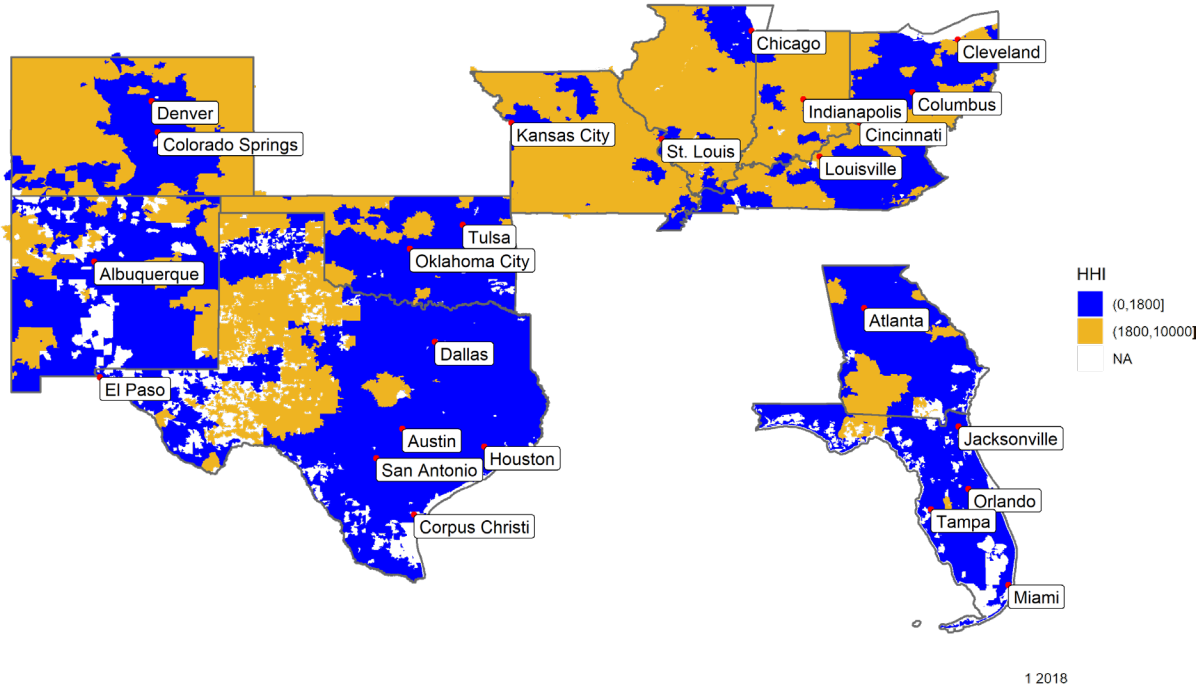
Maps (Note: Areas in white are either uninhabited or lack observations in our sample)

Figure 9 Primary Care concentration Levels



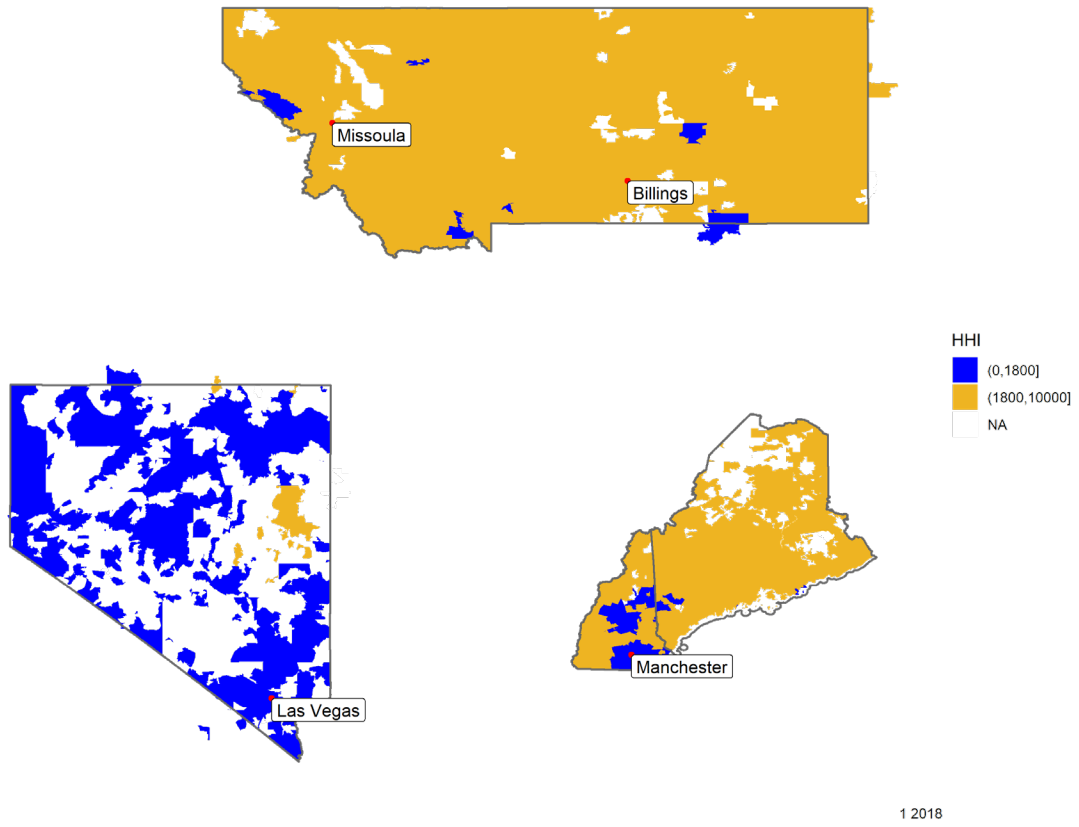

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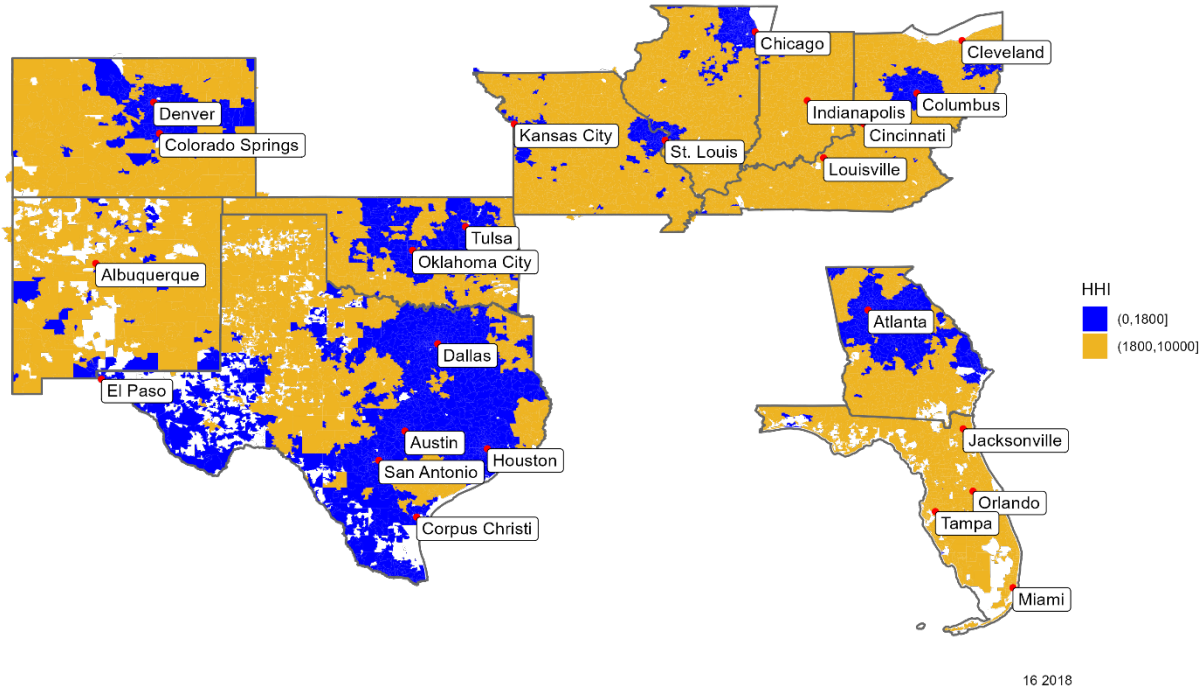
Figure 10 OB-GYN Concentration Measures



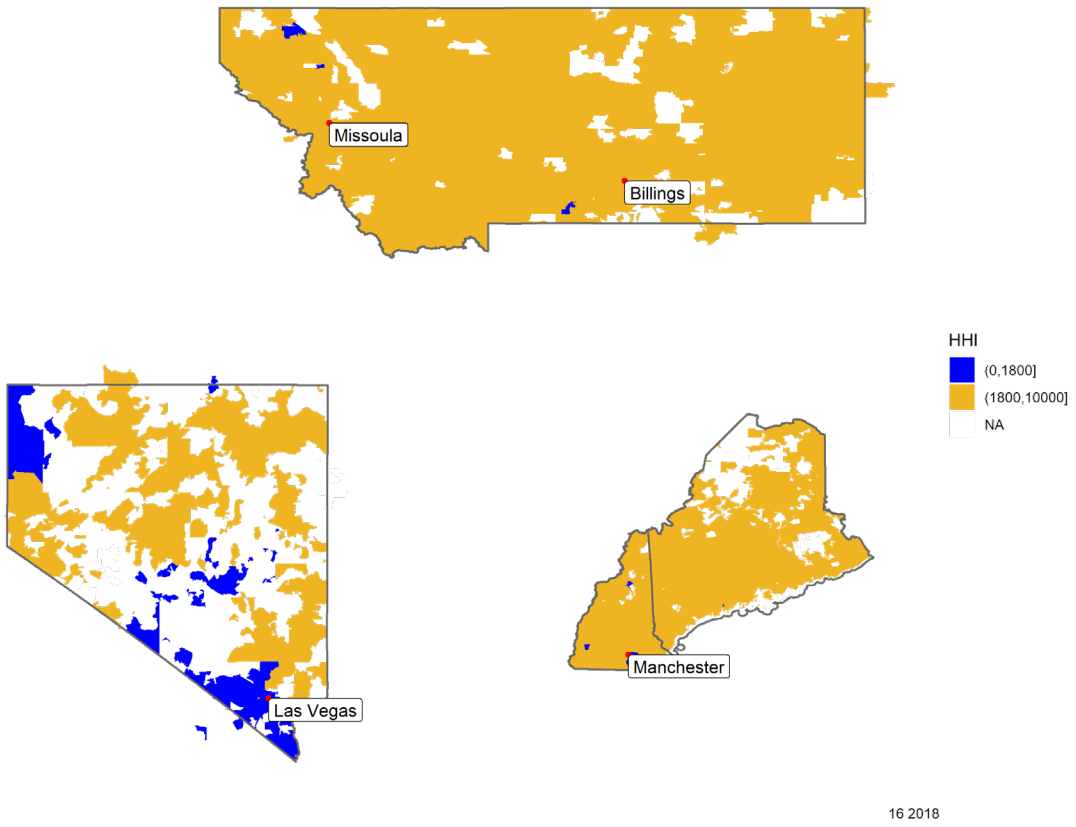

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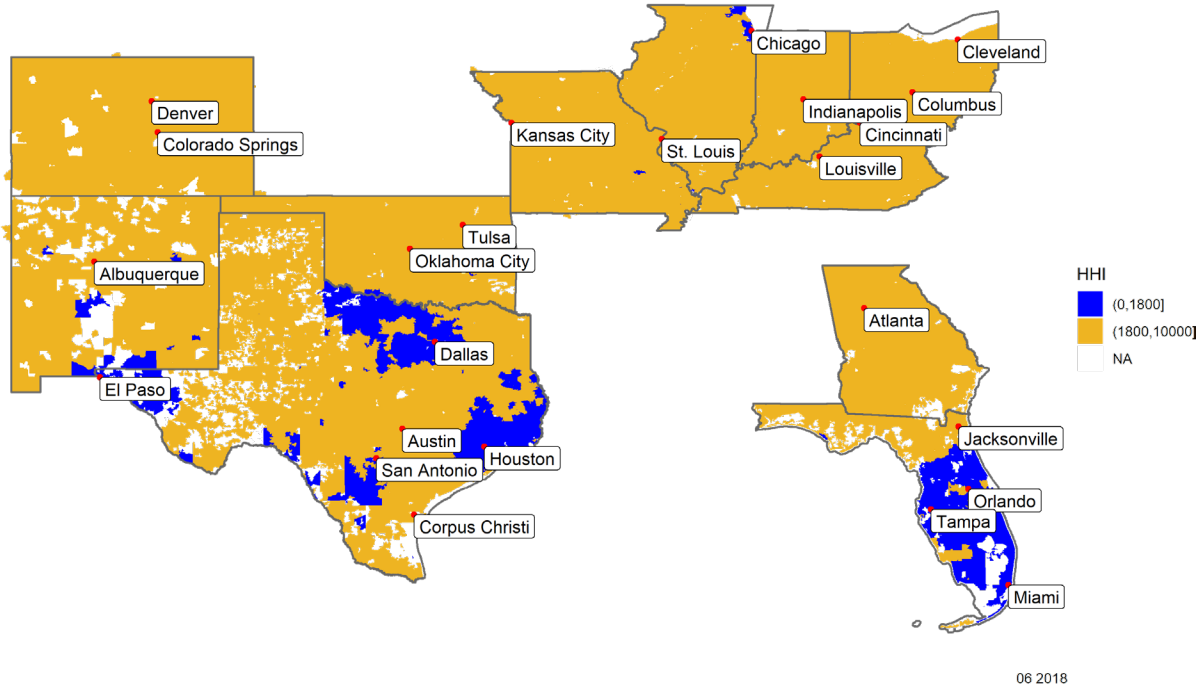
Figure 11 Cardiology concentration measures



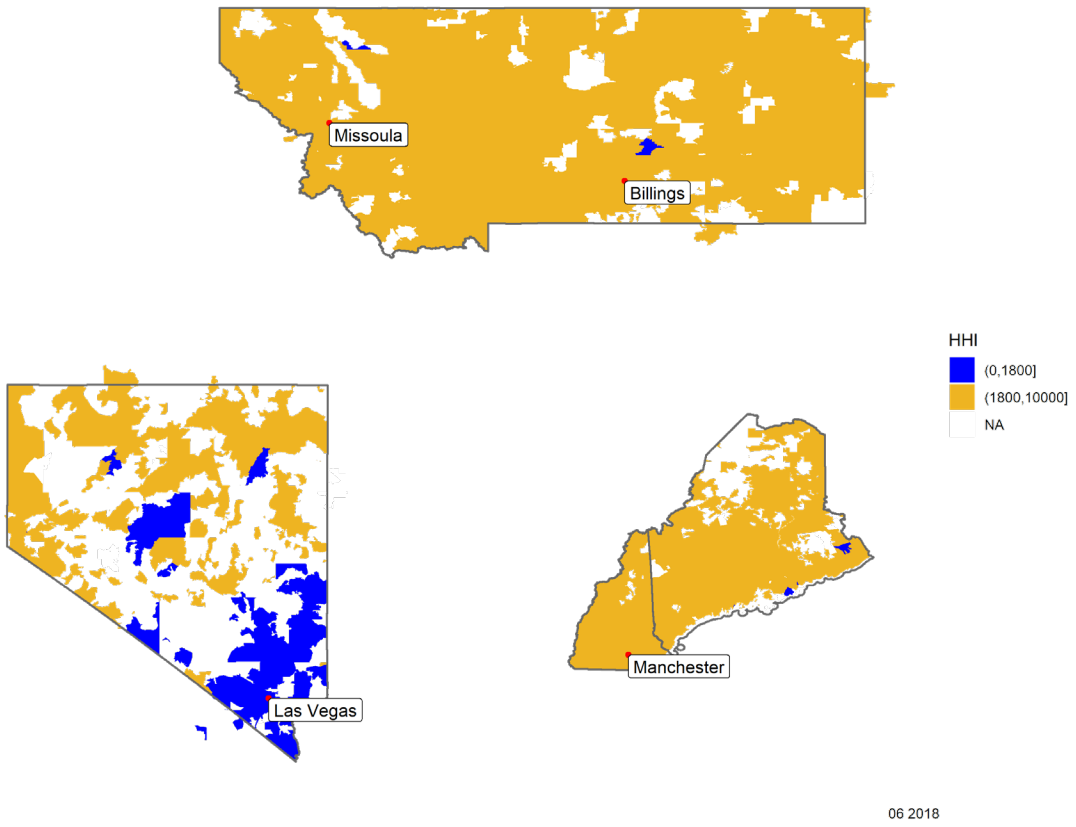
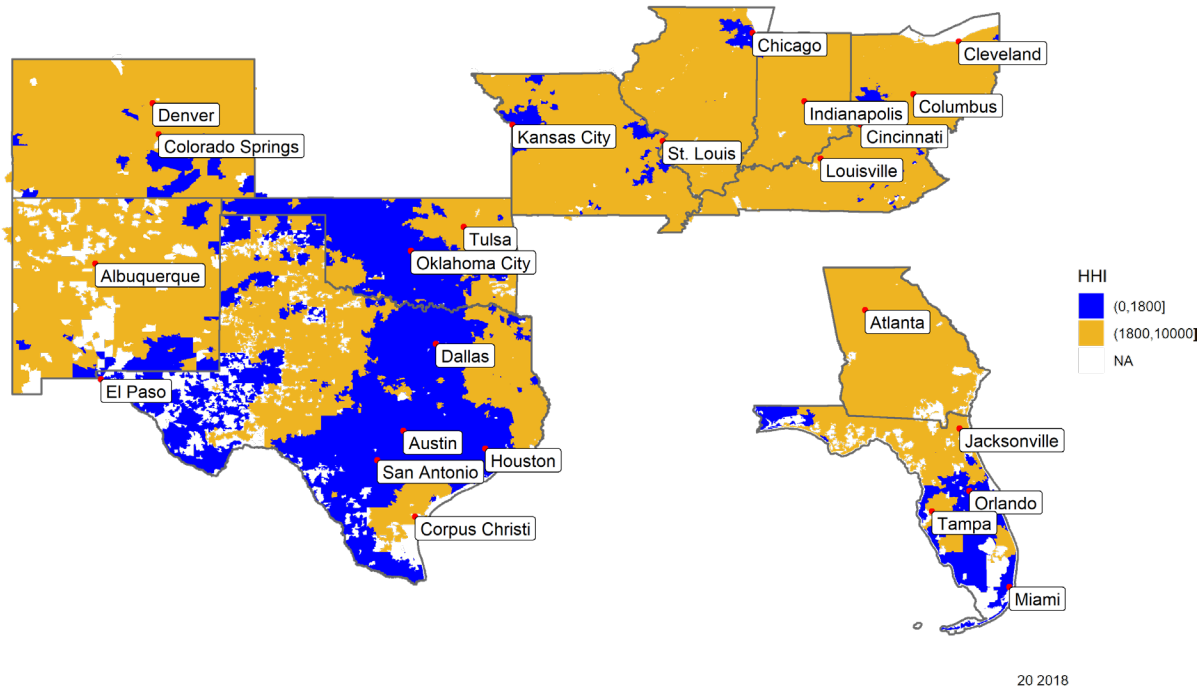


Figure 12 Orthopedic surgery concentration


Chicago
Cleveland
Denver
Indianapolis
Columbus
Colorado Springs
Kansas City
Cincinnati
St. Louis
Louisville
Tulsa
Oklahoma City
Albuquerque
Atlanta
Dallas
El Paso
Austin
Jacksonville
Houston
San Antonio
Orlando
Tampa
Corpus Christi
Miami
HHI
(0,1800]
(1800,10000]
NA
20 2018

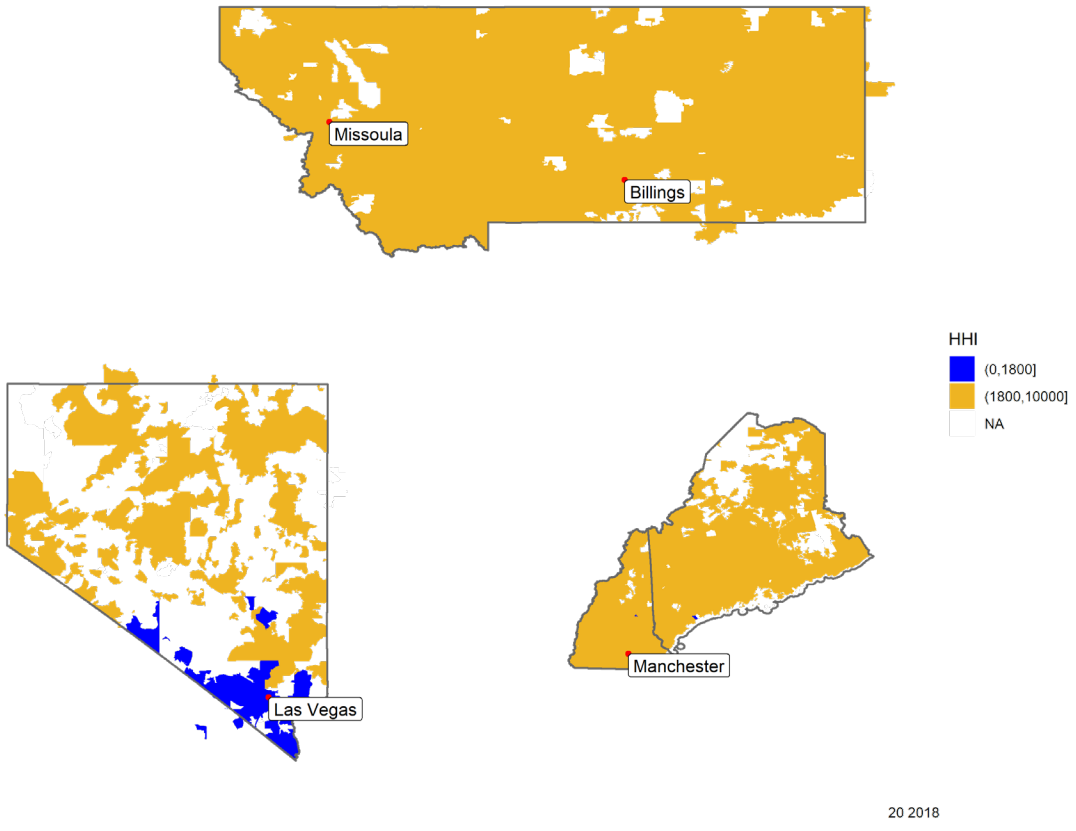
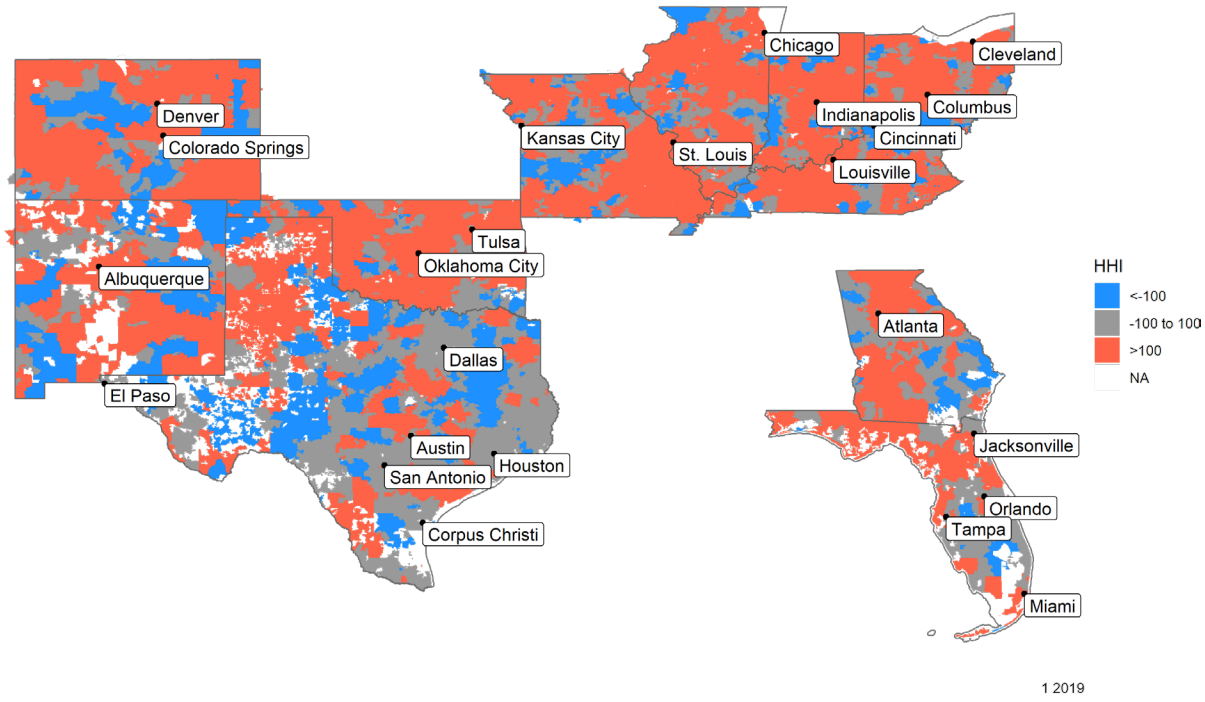
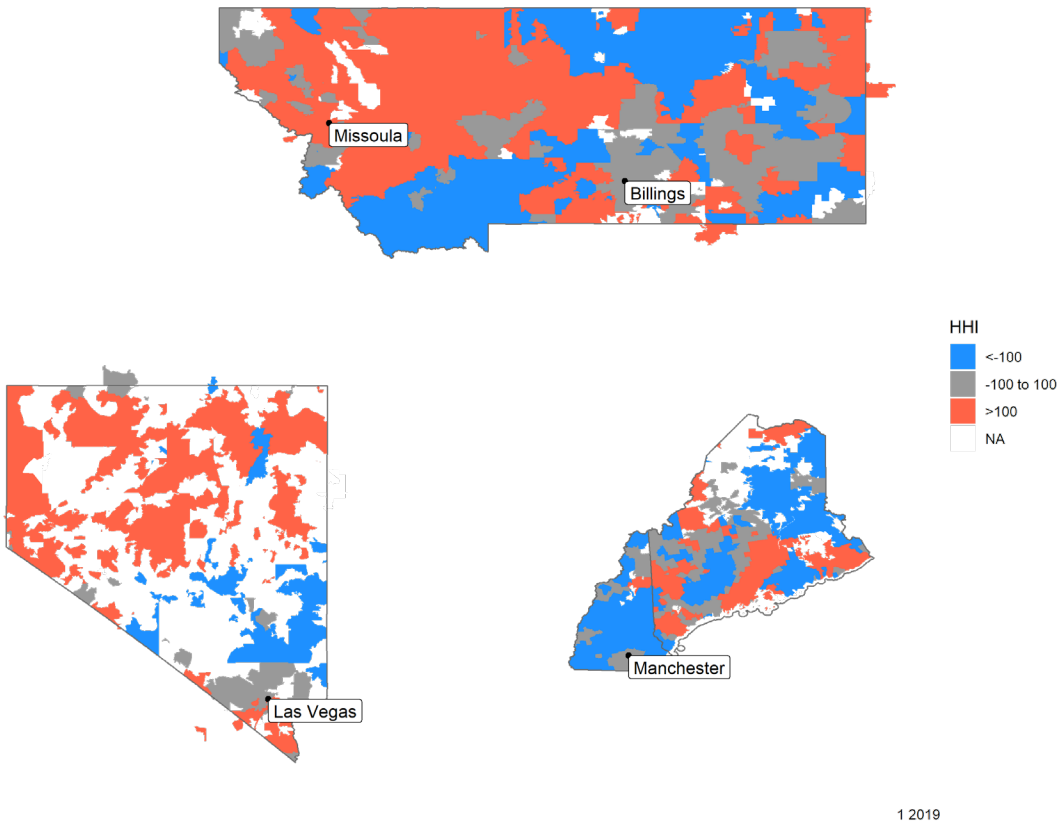

Missoula
Billings
HHI
(0,1800]
(1800,10000]
NA
Las Vegas
Manchester
20 2018

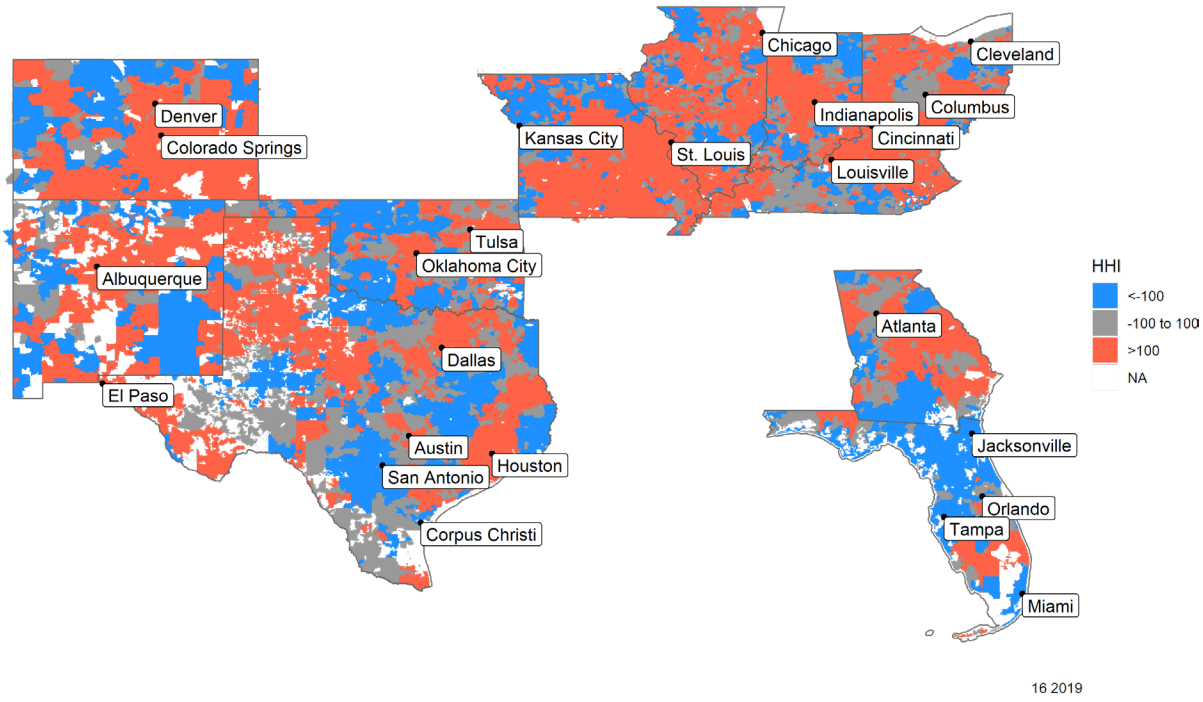
Figure 13 Primary care change in HHI

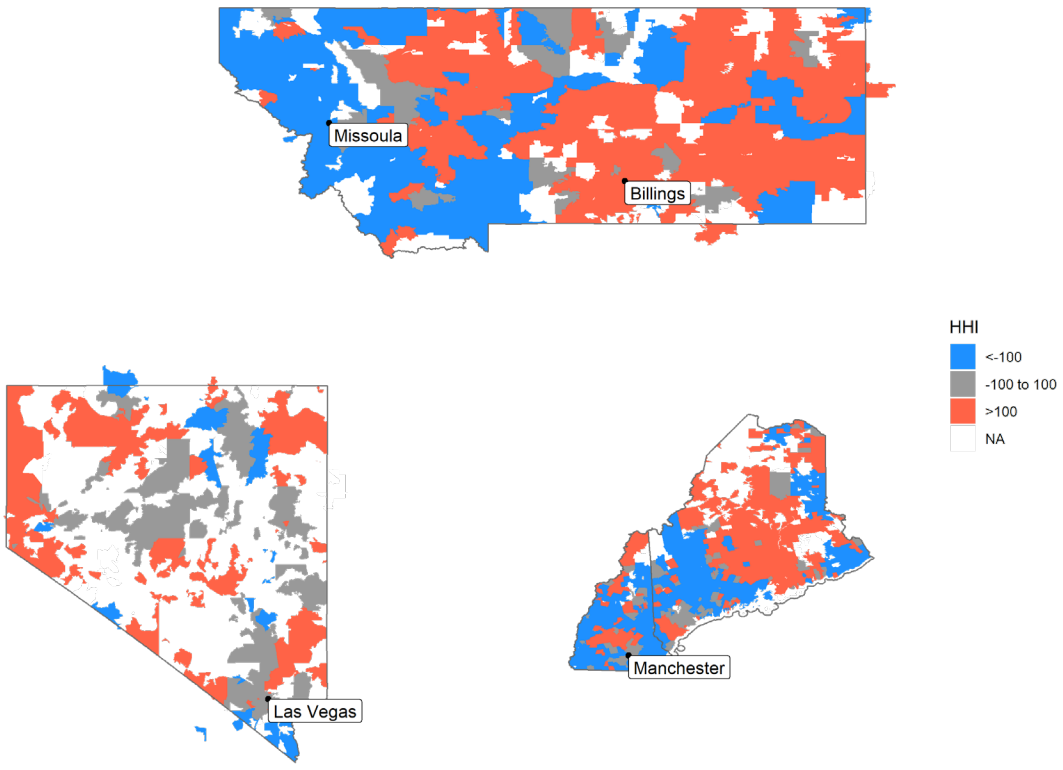



Missoula
Billings
Las Vegas
Manchester
HHI
<-100
-100 to 100
>100
NA

1 2019

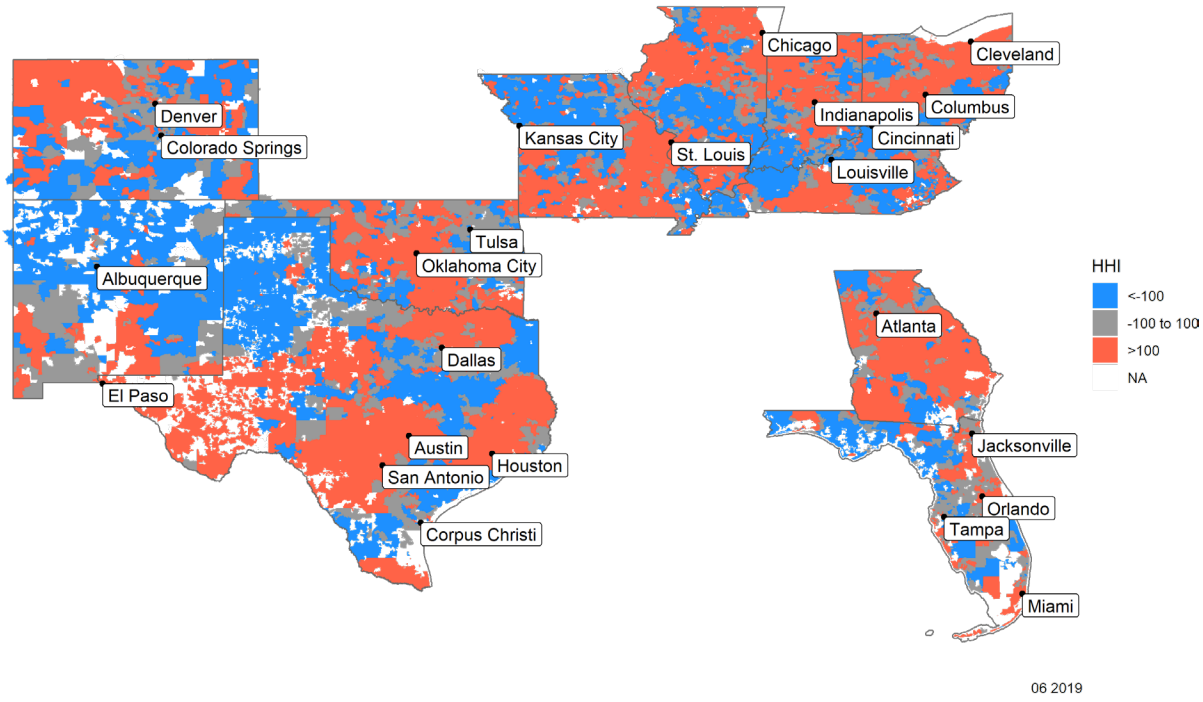
Figure 14 OB-GYN change in HHI

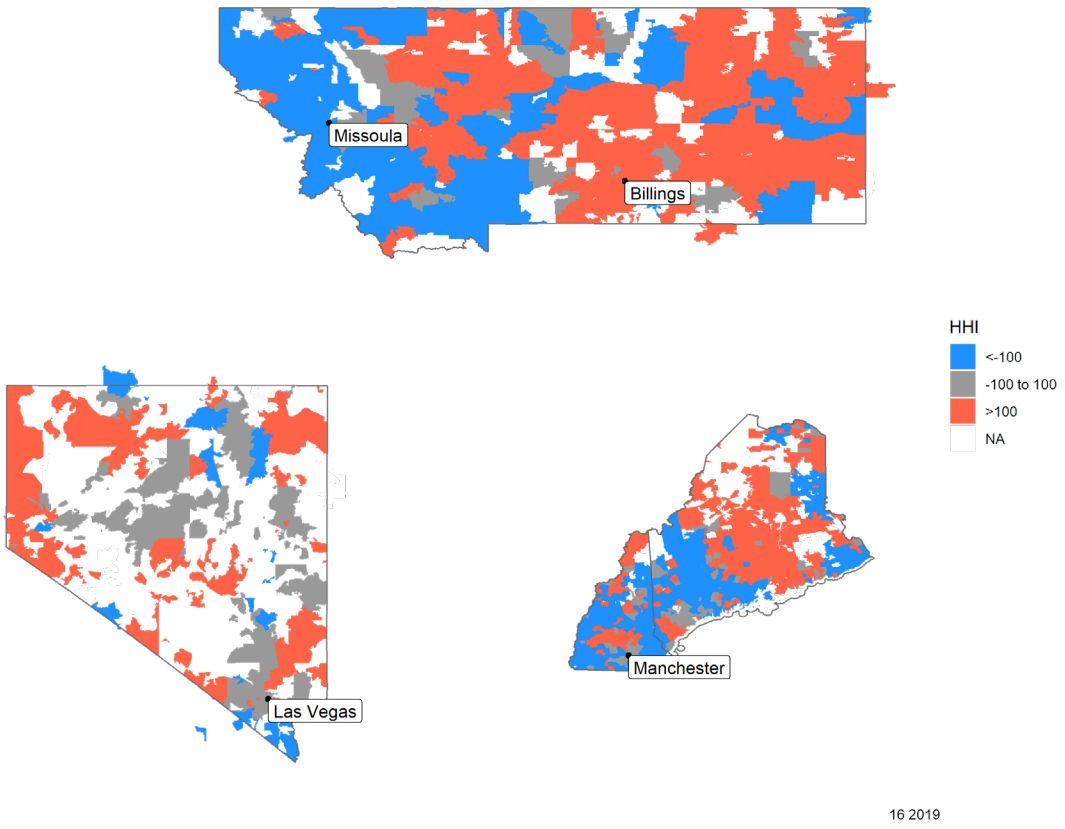



Missoula
Billings
Las Vegas
Manchester
HHI
<-100
-100 to 100
>100
NA

16 2019

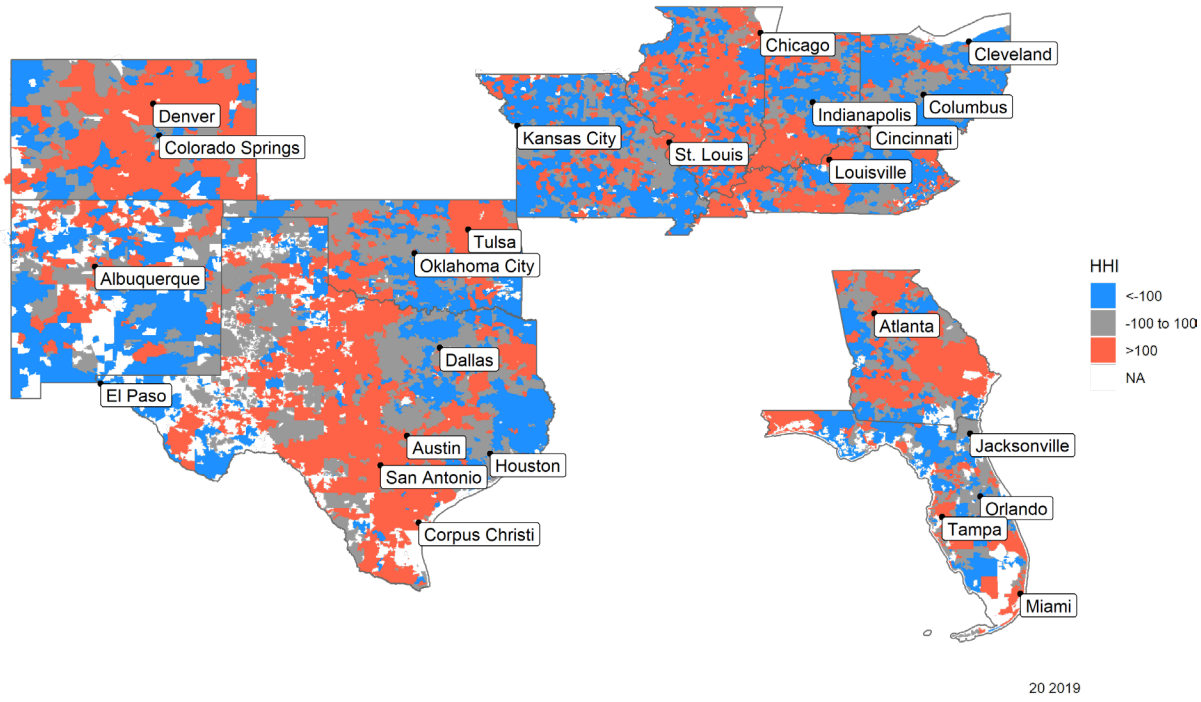
Figure 15 Cardiology change in HHI




Missoula
Billings
Las Vegas
Manchester
HHI
<-100
-100 to 100
>100
NA

16 2019

Figure 16 Orthopedic surgery change in HHI



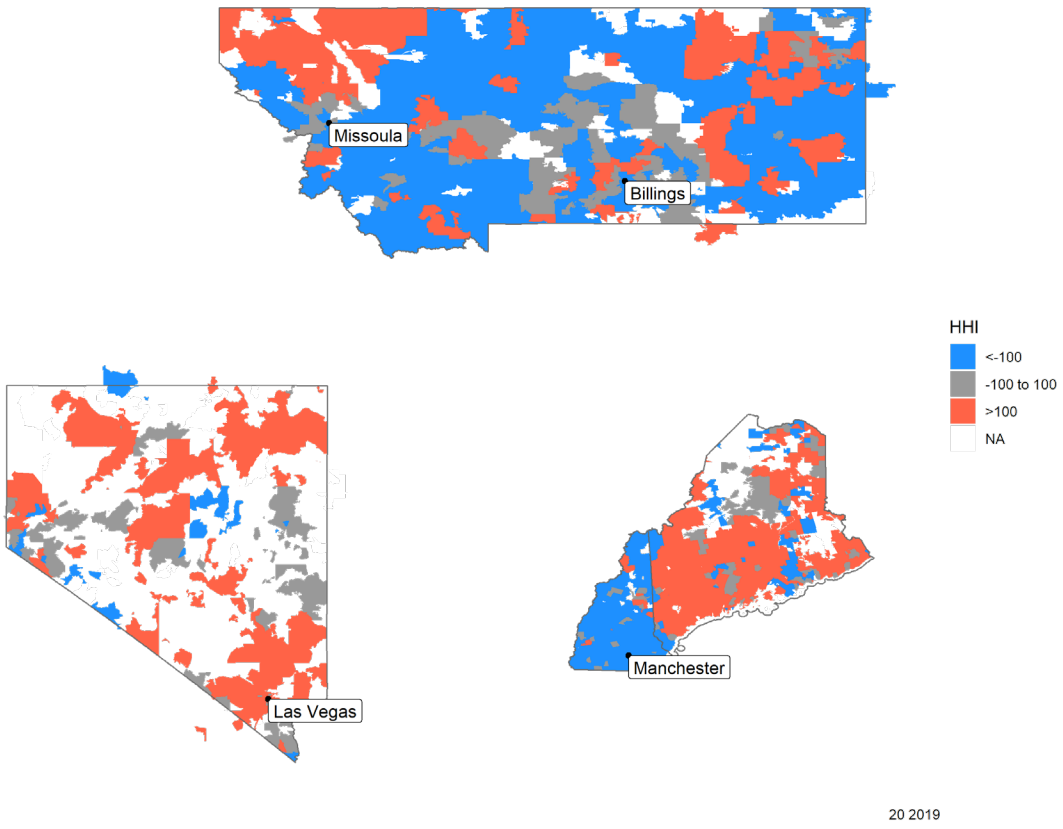
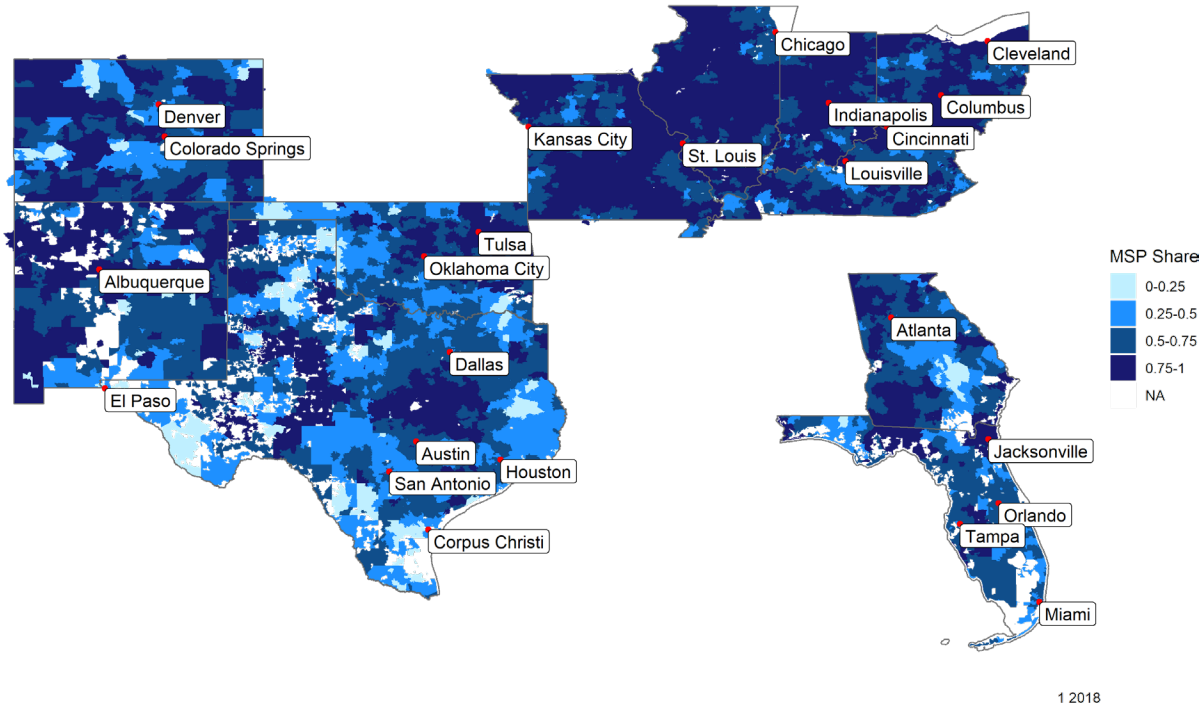

Missoula
Billings
Las Vegas
Manchester
HHI
<-100
-100 to 100
>100
NA
20 2019

Figure 17 Primary care MSP share



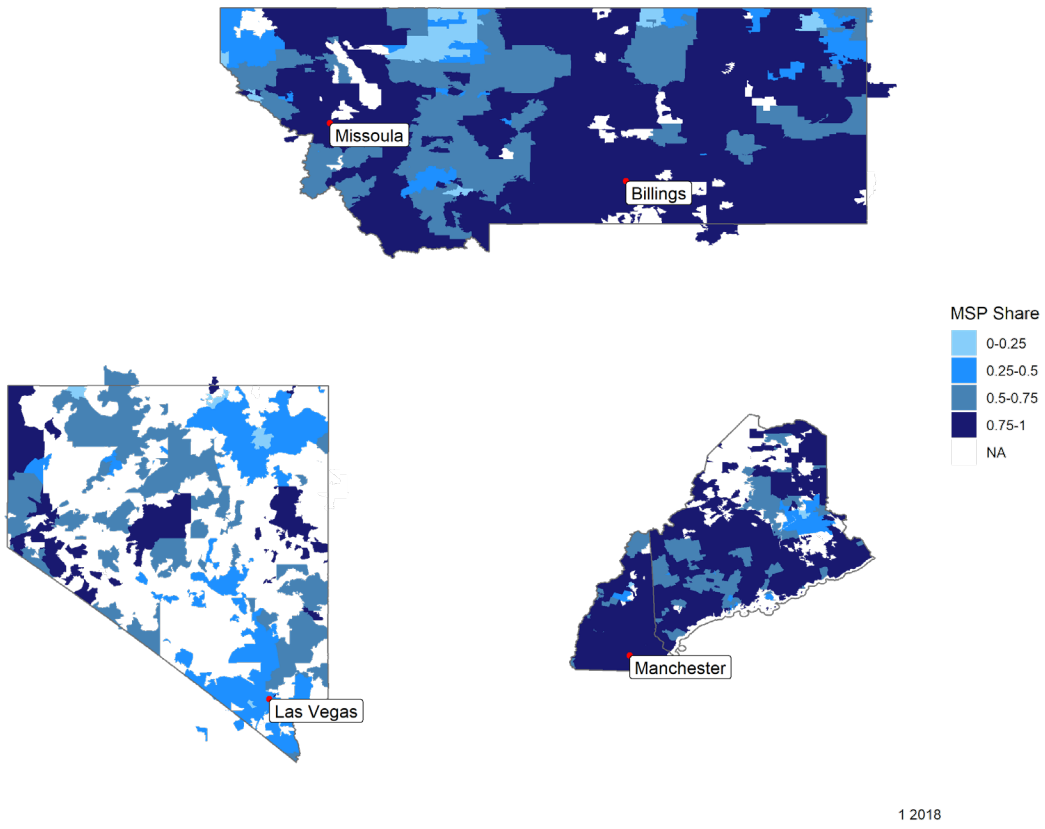
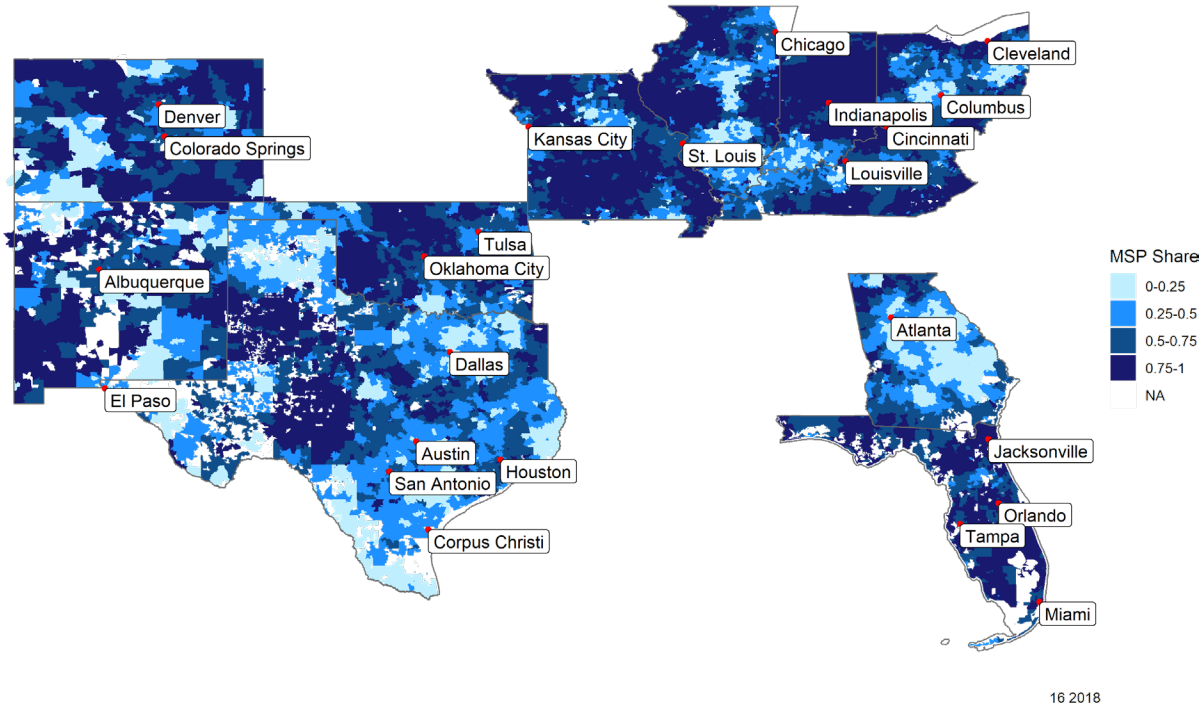
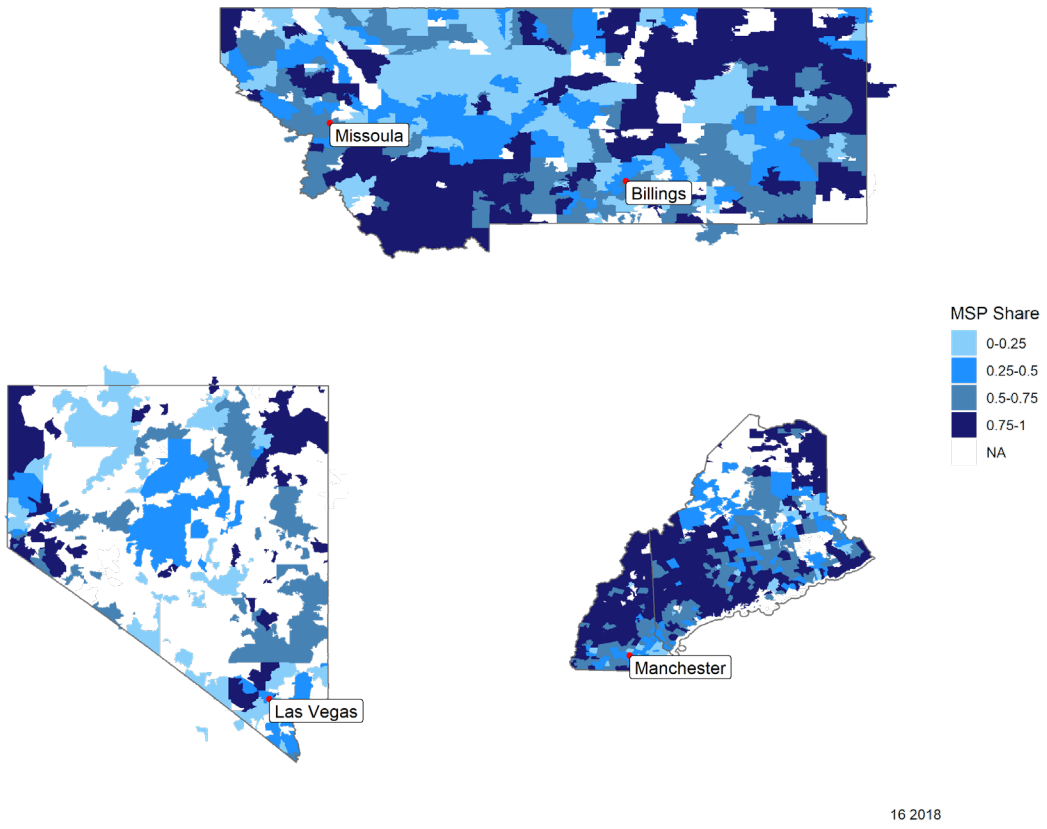

Missoula
Billings
Las Vegas
Manchester
MSP Share
0-0.25
0.25-0.5
0.5-0.75
0.75-1
NA
1 2018

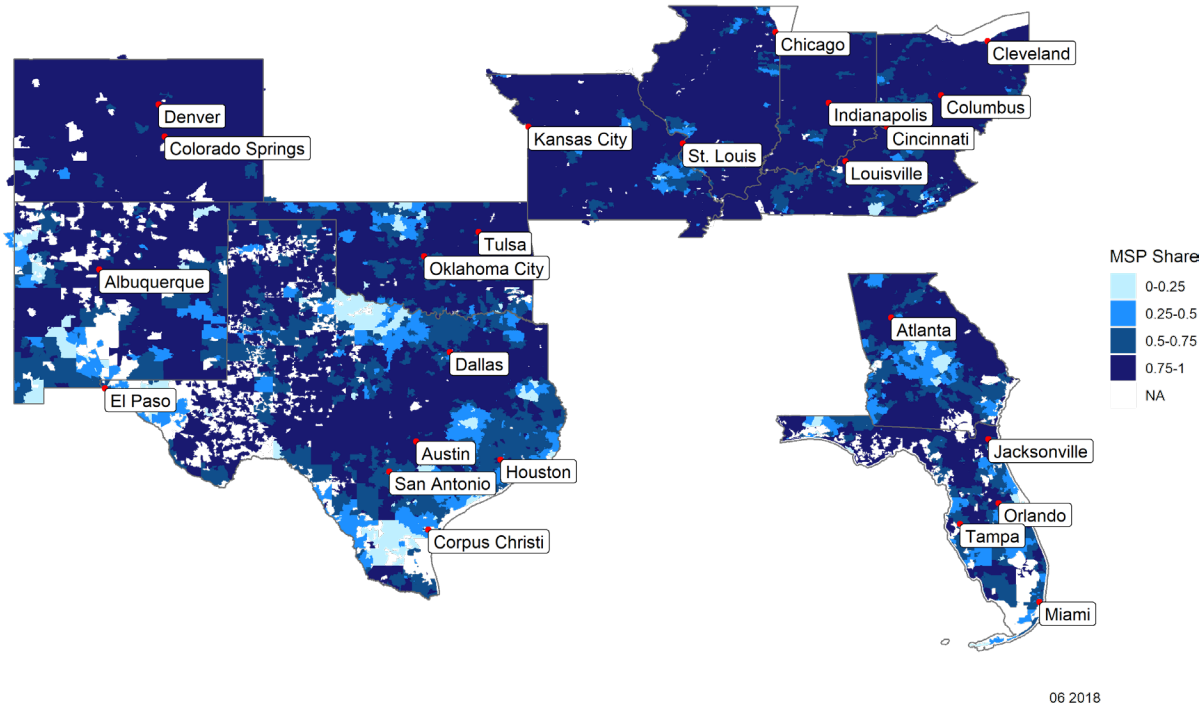
Figure 18 OB-GYN MSP share




Missoula
Billings
Las Vegas
Manchester
MSP Share
0-0.25
0.25-0.5
0.5-0.75
0.75-1
NA

16 2018

Figure 19 Cardiology MSP share



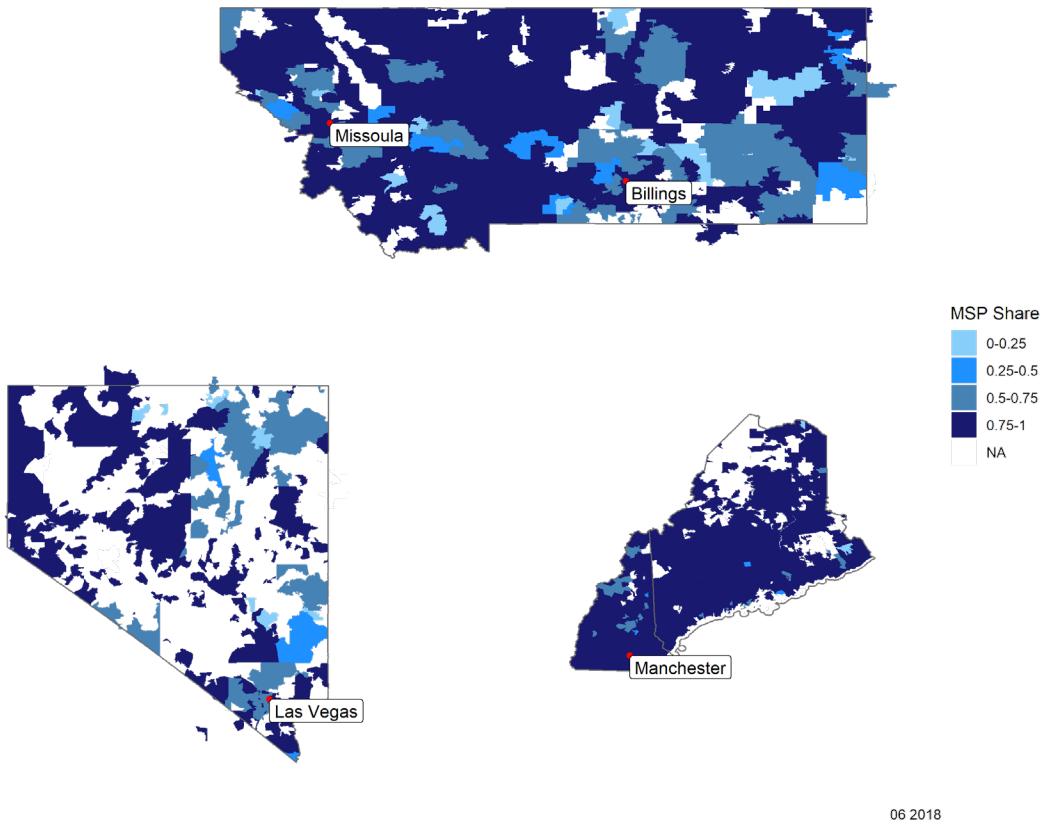

Missoula
Billings
Las Vegas
Manchester
MSP Share
0-0.25
0.25-0.5
0.5-0.75
0.75-1
NA
06 2018

Figure 20 Orthopedic surgery MSP share

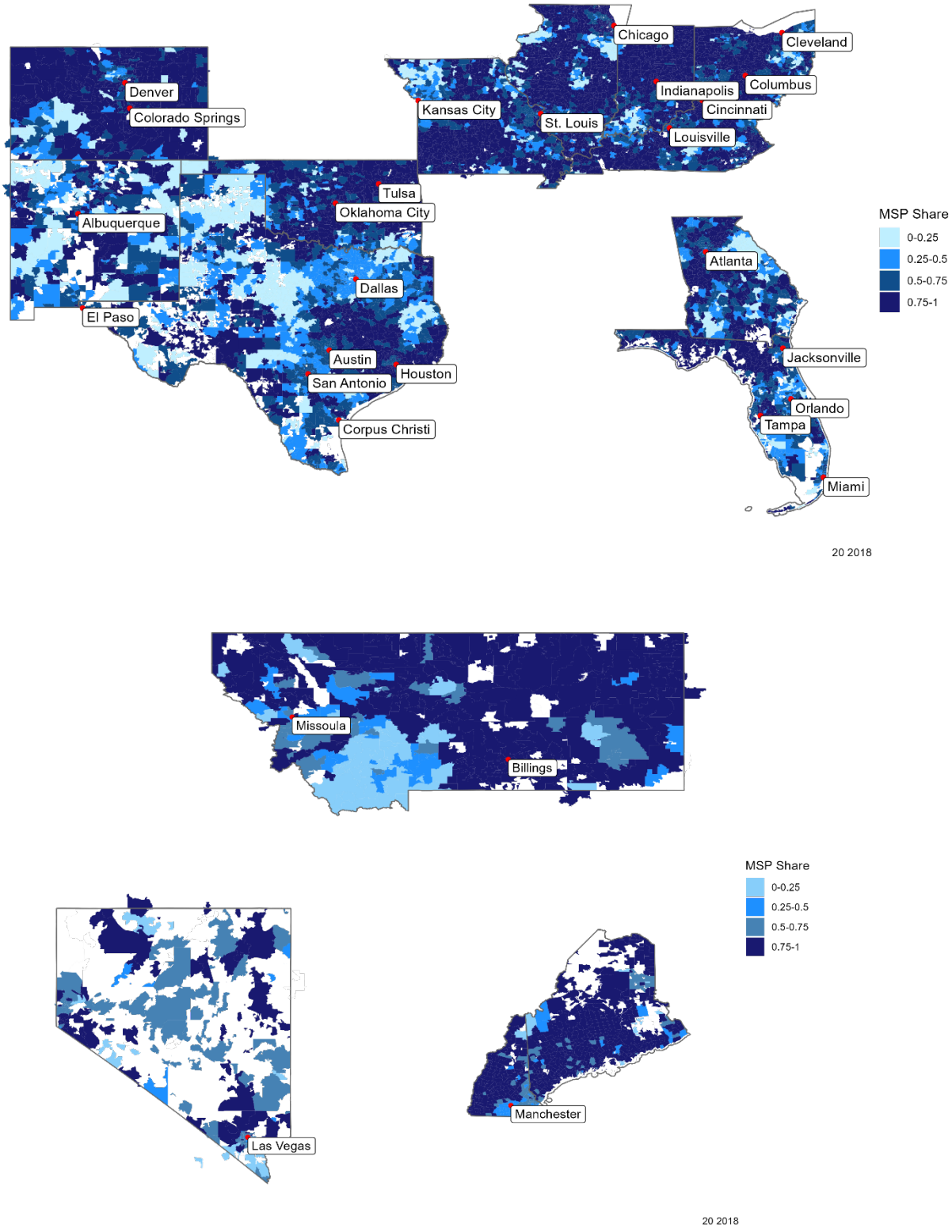
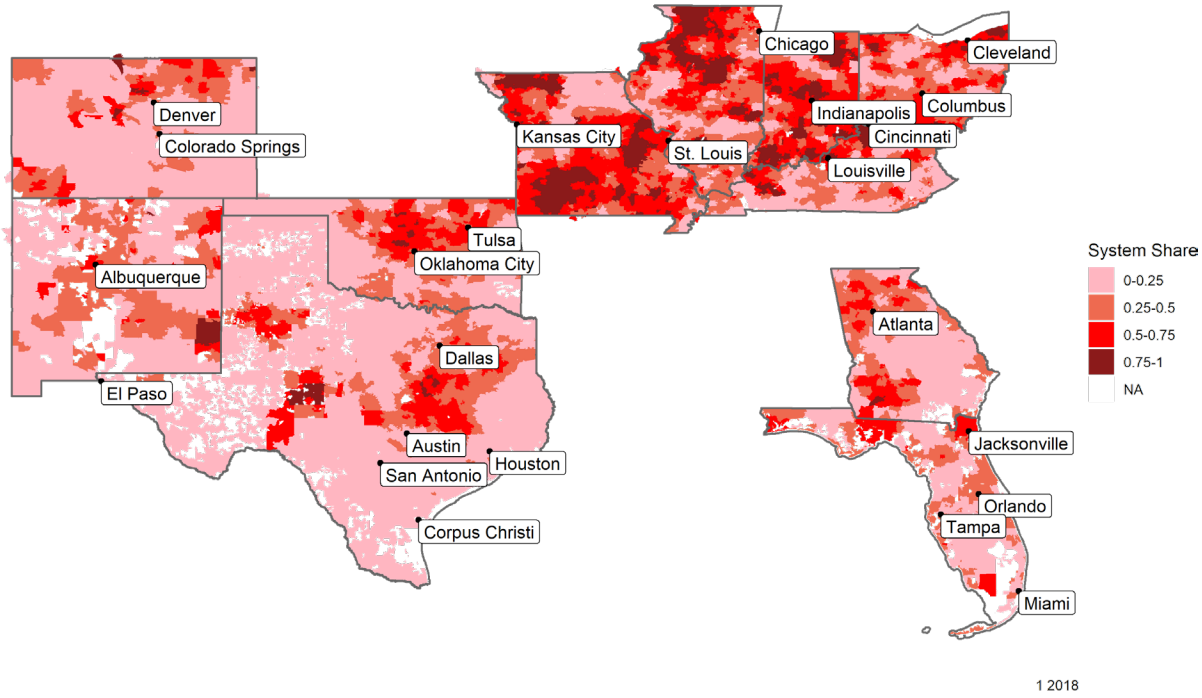


Figure 21 Primary care system share



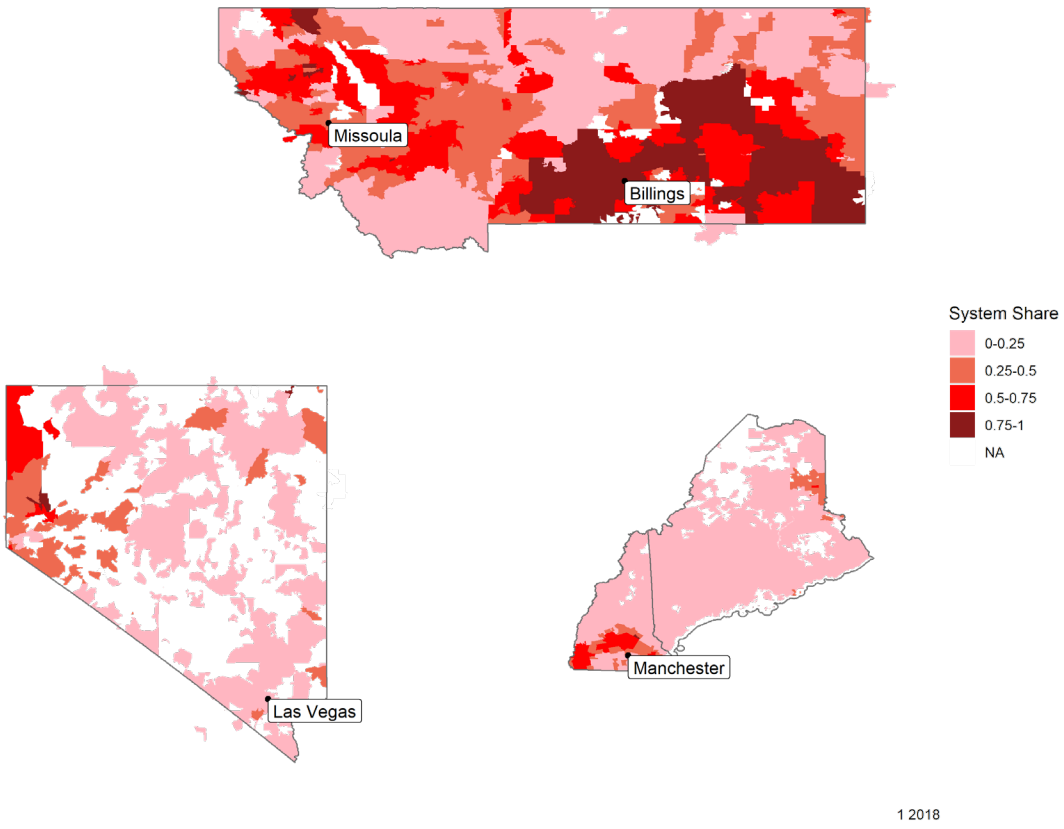
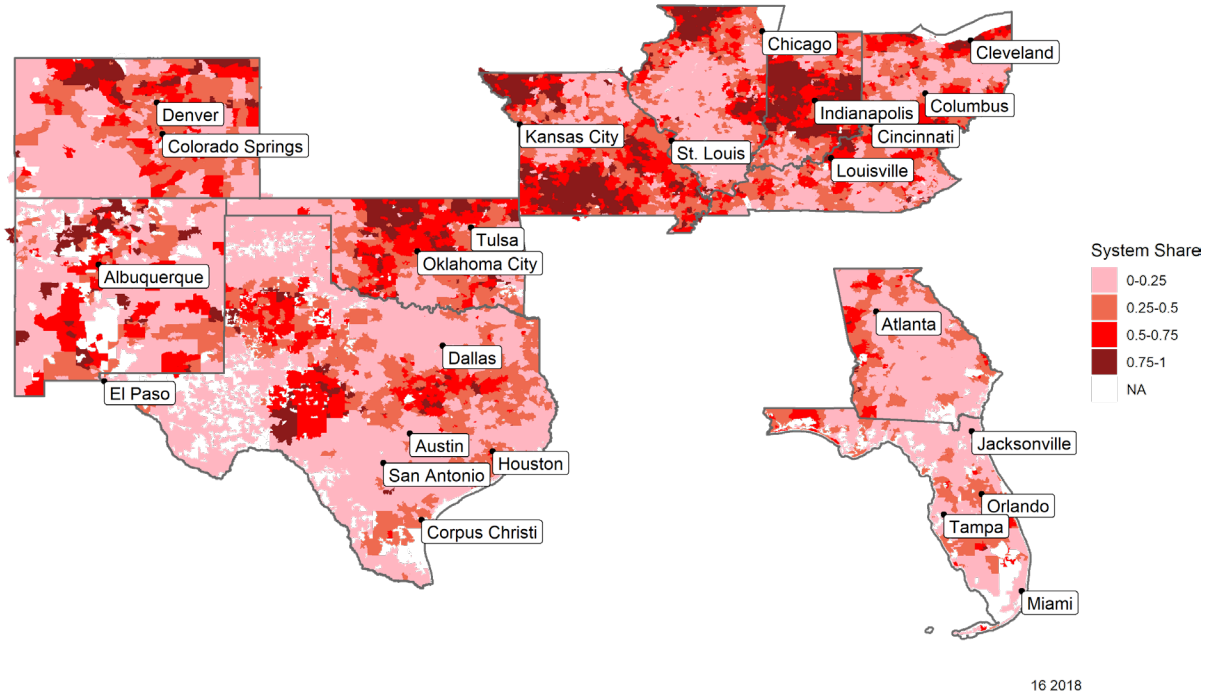
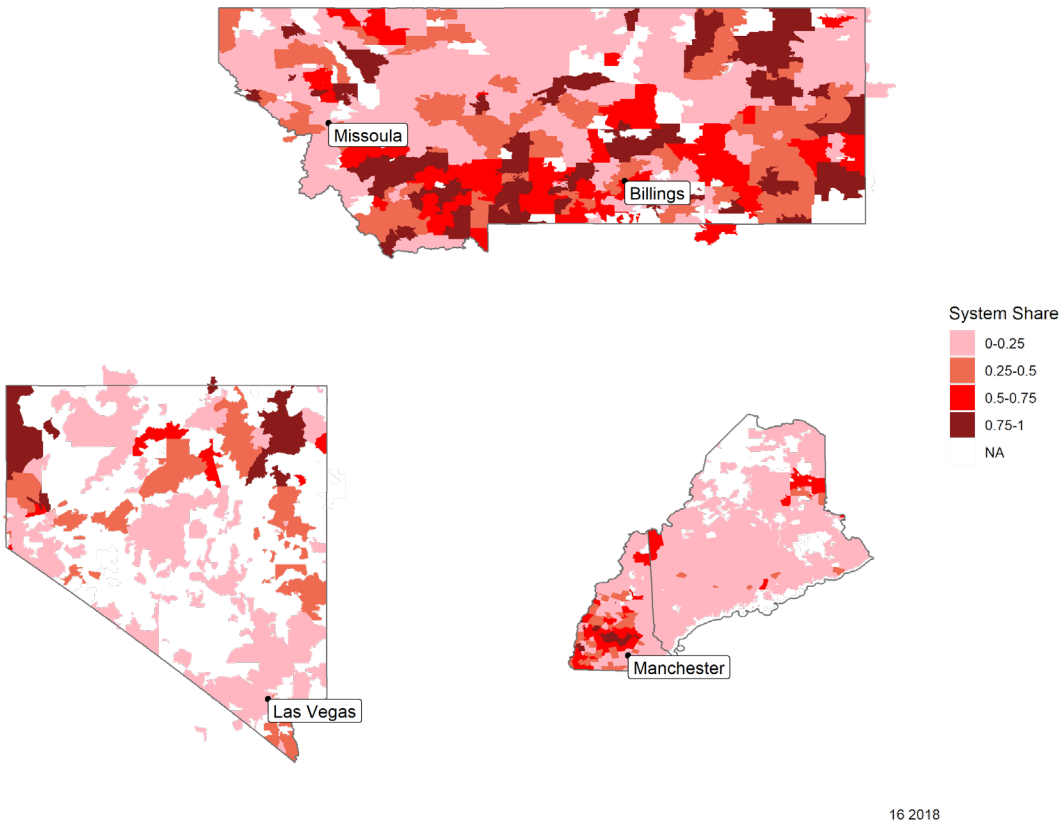

Missoula
Billings
Las Vegas
Manchester
System Share
0-0.25
0.25-0.5
0.5-0.75
0.75-1
NA
1 2018

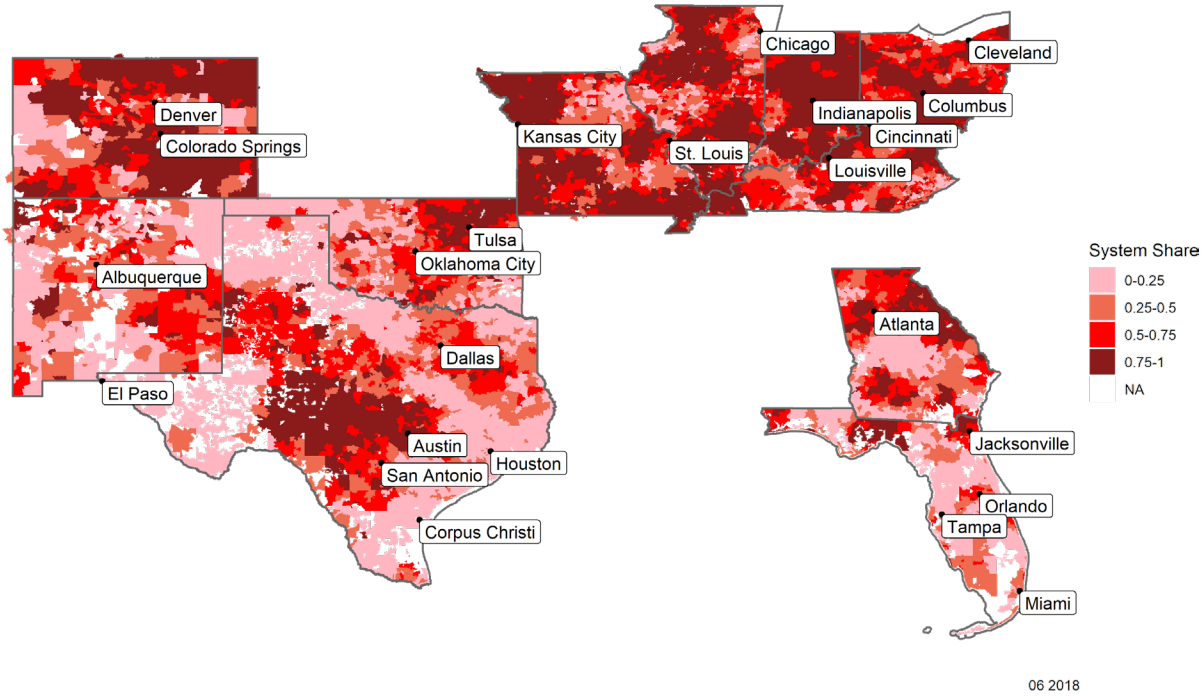
Figure 22 OB-GYN system share




Missoula
Billings
Las Vegas
Manchester
System Share
0-0.25
0.25-0.5
0.5-0.75
0.75-1
NA

16 2018

Figure 23 Cardiology system share



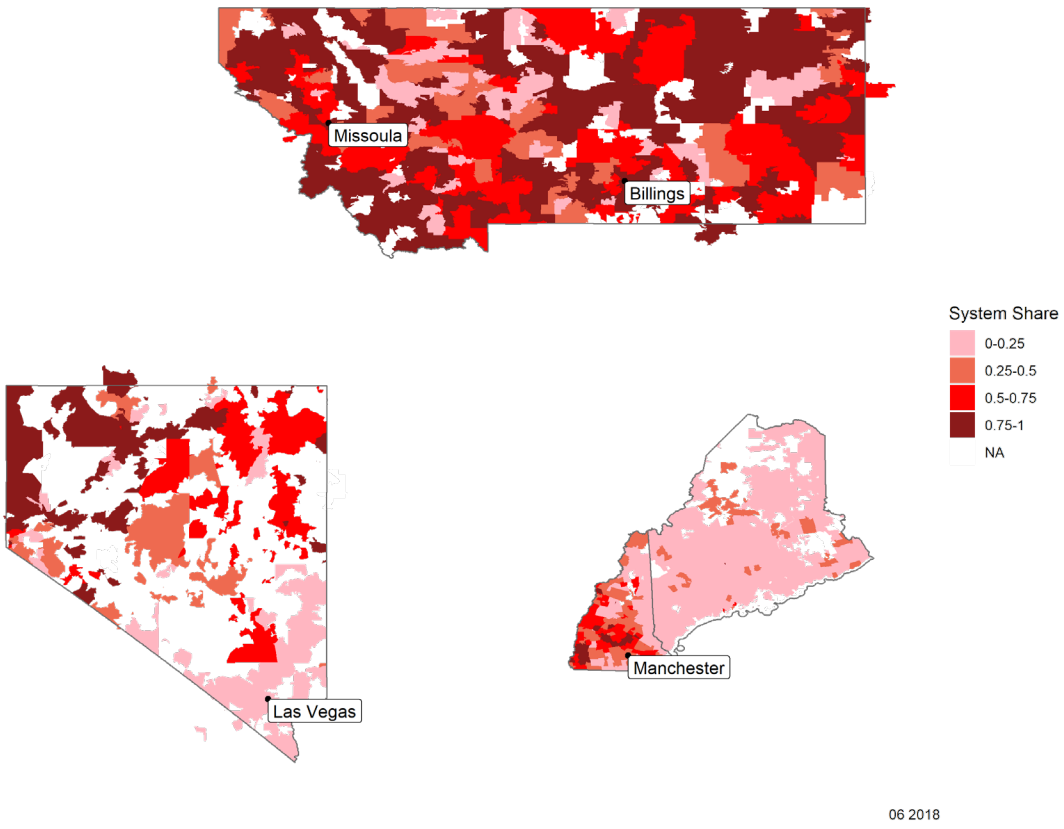
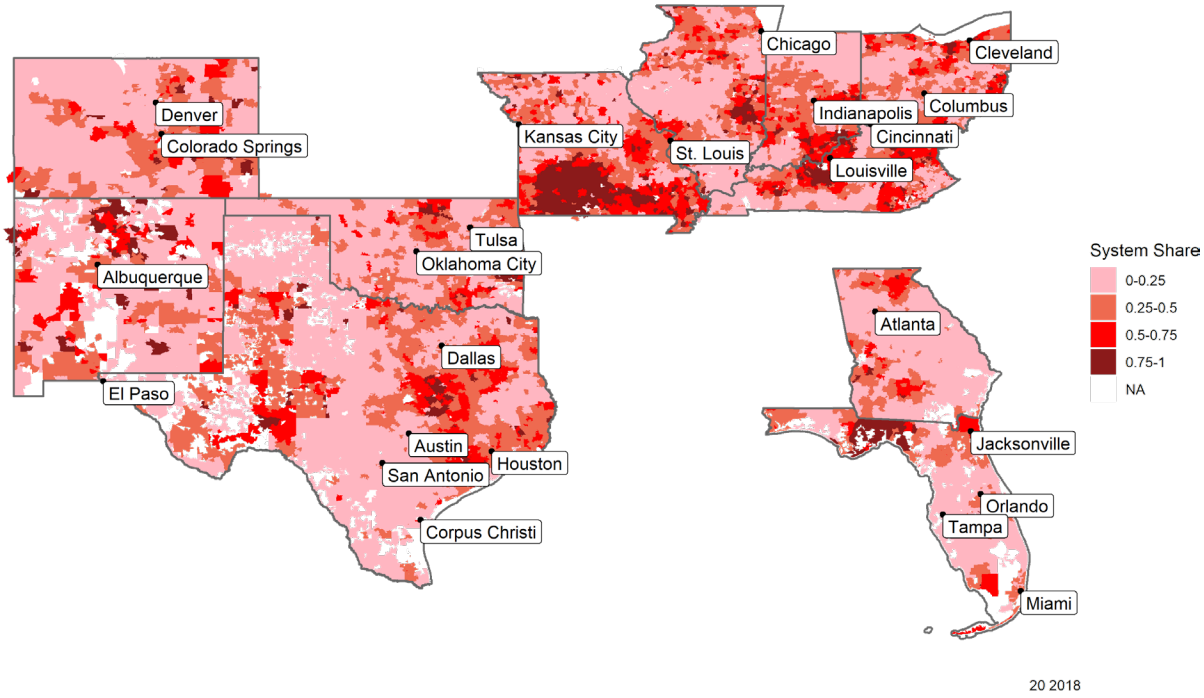
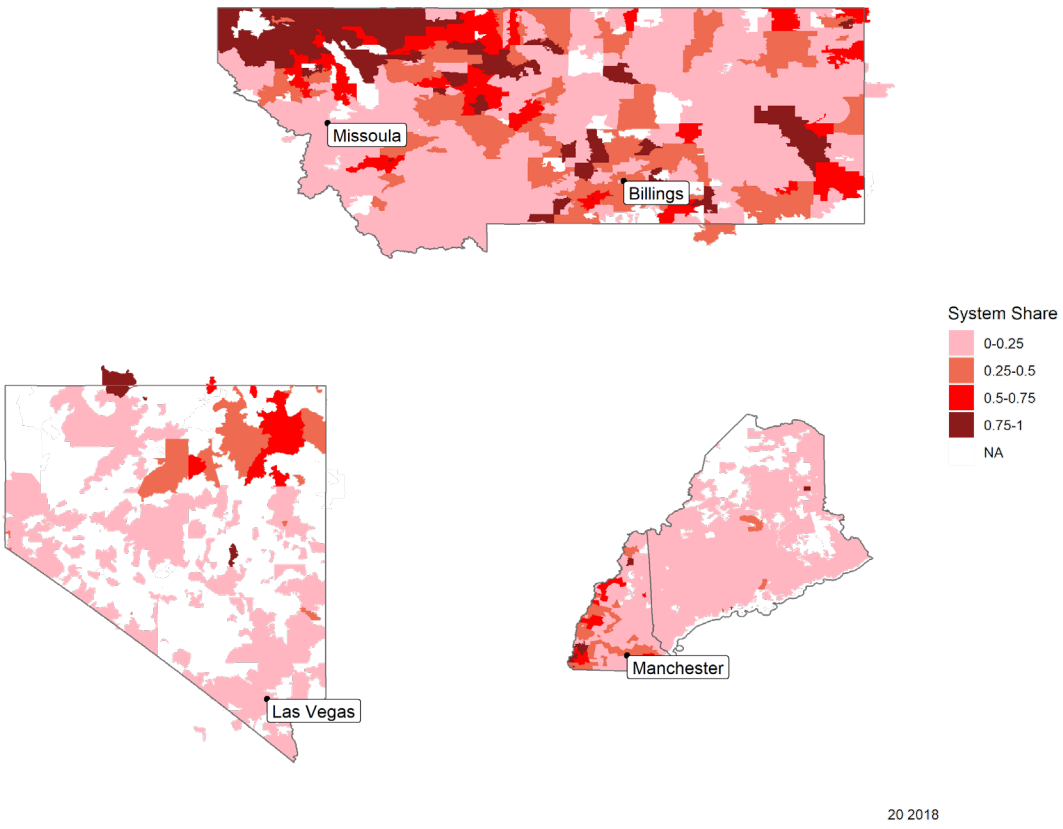

Missoula
Billings
Las Vegas
Manchester
System Share
0-0.25
0.25-0.5
0.5-0.75
0.75-1
NA
06 2018

Figure 24 Orthopedic surgery system share




Missoula
Billings
Las Vegas
Manchester
System Share
0-0.25
0.25-0.5
0.5-0.75
0.75-1
NA
20 2018

Appendix:

Specialty Concentration

Measures for each Study State

CO	Specialty	Median HHI	HHI>1800	Share Health System	MSP
	General Surgery	1,682	47	37	55
	Allergy/Immunology	2,954	100	15	25
	Otolaryngology	1,704	44	22	36
	Anesthesiology	3,062	100	38	84
	Cardiovascular Disease (Cardiology)	3,085	100	66	98
	Dermatology	1,783	49	5	23
	Primary Care	1,097	26	28	61
	Gastroenterology	2,740	100	23	82
	Neurology	1,675	36	20	43
	Neurosurgery	2,525	100	44	59
	Obstetrics/Gynecology	1,572	29	39	58
	Ophthalmology	1,756	49	12	19
	Orthopedic Surgery	2,037	98	18	75
	Plastic And Reconstructive Surgery	2,175	89	19	45
	Psychiatry	748	5	16	30
	Pulmonary Disease	3,144	100	56	91
	Diagnostic Radiology	2,291	100	27	51
	Urology	3,102	100	42	67
	Pediatric Medicine	1,442	27	17	49
	Geriatric Medicine	5,553	100	34	98
	Nephrology	4,492	100	22	84
	Infectious Disease	5,093	100	24	67
	Endocrinology	1,942	60	51	72
	Rheumatology	4,197	100	13	66
	Critical Care (Intensivists)	3,656	100	51	100
	Hematology/Oncology	7,801	100	12	95
	Radiation Oncology	3,875	100	57	88
	Emergency Medicine	2,729	100	57	96
	Interventional Cardiology	5,495	100	88	100
	Hospitalist 1	2,278	100	47	98

FL	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	1,647	29	42	72
	Allergy/Immunology	2,214	96	6	31
	Otolaryngology	2,868	95	16	42
	Anesthesiology	2,020	64	22	68
	Cardiovascular Disease (Cardiology)	1,331	19	31	66
	Dermatology	1,273	14	4	40
	Primary Care	817	4	28	61
	Gastroenterology	2,354	75	18	68
	Neurology	1,591	30	26	62
	Neurosurgery	2,615	100	43	75
	Obstetrics/Gynecology	2,473	100	17	79
	Ophthalmology	1,229	8	9	23
	Orthopedic Surgery	1,628	37	19	56
	Plastic And Reconstructive Surgery	1,863	56	20	52
	Psychiatry	956	7	11	25
	Pulmonary Disease	1,915	57	23	65
	Diagnostic Radiology	2,393	91	34	68
	Urology	2,811	92	25	78
	Pediatric Medicine	1,307	16	19	53
	Geriatric Medicine	6,208	100	25	77
	Nephrology	3,250	82	14	51
	Infectious Disease	3,197	97	21	49
	Endocrinology	1,407	26	26	57
	Rheumatology	3,702	100	16	48
	Critical Care (Intensivists)	3,352	100	53	95
	Hematology/Oncology	7,367	100	14	91
	Radiation Oncology	3,391	100	29	92
	Emergency Medicine	2,977	100	44	96
	Interventional Cardiology	3,191	100	39	97
	Hospitalist 1	2,119	80	44	92

GA	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	1,716	40	38	62
	Allergy/Immunology	3,089	100	11	36
	Otolaryngology	1,722	44	23	30
	Anesthesiology	2,183	100	53	64
	Cardiovascular Disease (Cardiology)	2,503	100	56	79
	Dermatology	1,775	48	6	33
	Primary Care	1,133	8	33	68
	Gastroenterology	2,438	100	13	65
	Neurology	1,443	37	30	46
	Neurosurgery	3,799	100	40	72
	Obstetrics/Gynecology	1,722	39	20	33
	Ophthalmology	1,549	29	9	28
	Orthopedic Surgery	2,134	100	16	65
	Plastic And Reconstructive Surgery	2,214	59	13	33
	Psychiatry	1,007	11	9	32
	Pulmonary Disease	2,654	100	47	73
	Diagnostic Radiology	3,038	100	62	76
	Urology	2,673	100	27	52
	Pediatric Medicine	1,363	16	13	44
	Geriatric Medicine	6,178	100	14	77
	Nephrology	2,296	76	17	57
	Infectious Disease	3,630	100	19	56
	Endocrinology	2,119	100	39	61
	Rheumatology	4,039	100	18	32
	Critical Care (Intensivists)	4,193	100	73	97
	Hematology/Oncology	5,979	100	25	66
	Radiation Oncology	3,989	100	46	67
	Emergency Medicine	3,001	100	55	94
	Interventional Cardiology	4,452	100	77	97
	Hospitalist 1	2,891	100	64	96

IL	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	1,660	38	50	73
	Allergy/Immunology	1,536	24	23	49
	Otolaryngology	1,781	49	33	56
	Anesthesiology	1,923	68	50	57
	Cardiovascular Disease (Cardiology)	1,962	67	54	83
	Dermatology	1,447	16	19	47
	Primary Care	1,082	19	47	72
	Gastroenterology	1,989	84	37	80
	Neurology	2,426	97	53	71
	Neurosurgery	2,452	100	65	78
	Obstetrics/Gynecology	1,032	13	35	54
	Ophthalmology	1,026	21	15	25
	Orthopedic Surgery	1,816	54	30	75
	Plastic And Reconstructive Surgery	1,835	59	35	62
	Psychiatry	593	7	19	29
	Pulmonary Disease	2,361	100	43	90
	Diagnostic Radiology	2,282	99	52	80
	Urology	2,593	100	29	81
	Pediatric Medicine	1,244	16	30	48
	Geriatric Medicine	4,361	100	38	80
	Nephrology	2,307	98	27	81
	Infectious Disease	7,473	100	12	96
	Endocrinology	1,303	14	38	78
	Rheumatology	3,144	100	33	70
	Critical Care (Intensivists)	3,274	100	56	95
	Hematology/Oncology	4,175	100	28	83
	Radiation Oncology	2,602	100	45	79
	Emergency Medicine	2,744	100	60	93
	Interventional Cardiology	3,587	100	59	97
	Hospitalist 1	2,104	91	62	96

IN	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	2,315	94	58	78
	Allergy/Immunology	3,471	97	17	56
	Otolaryngology	2,623	92	27	42
	Anesthesiology	2,469	89	56	77
	Cardiovascular Disease (Cardiology)	3,340	100	84	95
	Dermatology	1,885	65	13	32
	Primary Care	2,055	79	63	83
	Gastroenterology	3,113	100	53	79
	Neurology	3,090	100	40	83
	Neurosurgery	4,952	100	73	88
	Obstetrics/Gynecology	2,621	100	55	77
	Ophthalmology	1,644	45	10	20
	Orthopedic Surgery	2,087	84	31	80
	Plastic And Reconstructive Surgery	2,556	100	51	63
	Psychiatry	1,279	23	34	56
	Pulmonary Disease	3,093	100	65	89
	Diagnostic Radiology	3,332	100	34	48
	Urology	4,699	100	38	84
	Pediatric Medicine	2,154	83	56	69
	Geriatric Medicine	6,565	100	81	97
	Nephrology	3,605	100	32	73
	Infectious Disease	6,626	100	72	97
	Endocrinology	3,048	82	66	83
	Rheumatology	5,012	100	34	56
	Critical Care (Intensivists)	4,652	100	74	97
	Hematology/Oncology	5,899	100	36	63
	Radiation Oncology	4,726	100	53	70
	Emergency Medicine	3,106	100	57	86
	Interventional Cardiology	4,498	100	89	99
	Hospitalist 1	2,928	100	75	98

KY	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	2,330	97	60	78
	Allergy/Immunology	3,534	100	6	77
	Otolaryngology	3,083	100	30	70
	Anesthesiology	2,232	77	38	41
	Cardiovascular Disease (Cardiology)	2,838	100	70	87
	Dermatology	2,179	98	6	23
	Primary Care	1,975	56	51	75
	Gastroenterology	2,973	100	54	89
	Neurology	2,228	100	54	79
	Neurosurgery	3,975	100	69	93
	Obstetrics/Gynecology	2,381	83	44	67
	Ophthalmology	2,492	97	14	21
	Orthopedic Surgery	2,249	100	41	78
	Plastic And Reconstructive Surgery	2,475	100	40	48
	Psychiatry	1,244	19	34	45
	Pulmonary Disease	2,696	100	47	67
	Diagnostic Radiology	2,536	100	35	74
	Urology	4,296	100	34	94
	Pediatric Medicine	2,341	84	29	51
	Geriatric Medicine	9,866	100	9	100
	Nephrology	3,466	100	28	69
	Infectious Disease	5,433	100	39	89
	Endocrinology	2,713	100	52	68
	Rheumatology	5,745	100	15	49
	Critical Care (Intensivists)	5,168	100	64	100
	Hematology/Oncology	6,203	100	40	81
	Radiation Oncology	4,014	100	58	77
	Emergency Medicine	3,104	100	48	97
	Interventional Cardiology	4,815	100	80	98
	Hospitalist 1	2,830	100	74	94

ME	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	3,918	100	2	95
	Allergy/Immunology	4,913	100	2	60
	Otolaryngology	3,163	100	9	79
	Anesthesiology	3,420	99	5	77
	Cardiovascular Disease (Cardiology)	3,529	100	3	98
	Dermatology	3,551	100	1	28
	Primary Care	2,216	99	2	86
	Gastroenterology	4,550	100	2	68
	Neurology	3,379	100	9	95
	Neurosurgery	5,615	100	2	88
	Obstetrics/Gynecology	2,317	100	2	67
	Ophthalmology	3,299	100	3	16
	Orthopedic Surgery	3,301	100	2	90
	Plastic And Reconstructive Surgery	6,251	100	4	33
	Psychiatry	1,739	48	2	38
	Pulmonary Disease	4,362	100	2	97
	Diagnostic Radiology	4,614	100	9	73
	Urology	3,897	100	3	72
	Pediatric Medicine	3,554	100	2	81
	Geriatric Medicine	6,149	100	1	94
	Nephrology	5,653	100	3	42
	Infectious Disease	5,723	100	3	97
	Endocrinology	4,000	100	5	87
	Rheumatology	7,588	100	3	42
	Critical Care (Intensivists)	5,942	100	6	100
	Hematology/Oncology	8,510	100	1	18
	Radiation Oncology	6,868	100	2	64
	Emergency Medicine	3,506	100	7	92
	Interventional Cardiology	6,997	100	6	99
	Hospitalist 1	3,611	100	10	99

MO	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	2,478	100	60	77
	Allergy/Immunology	1,790	46	28	39
	Otolaryngology	3,102	100	37	51
	Anesthesiology	2,505	100	73	79
	Cardiovascular Disease (Cardiology)	2,630	100	69	88
	Dermatology	1,482	40	19	42
	Primary Care	1,965	72	59	82
	Gastroenterology	2,357	100	52	78
	Neurology	2,659	100	74	81
	Neurosurgery	3,394	100	78	85
	Obstetrics/Gynecology	1,535	34	49	68
	Ophthalmology	1,750	47	24	30
	Orthopedic Surgery	1,884	73	41	69
	Plastic And Reconstructive Surgery	3,218	100	63	70
	Psychiatry	771	10	25	41
	Pulmonary Disease	2,542	100	65	91
	Diagnostic Radiology	2,761	100	67	83
	Urology	3,136	100	40	81
	Pediatric Medicine	1,679	34	44	67
	Geriatric Medicine	7,138	100	71	99
	Nephrology	3,664	100	34	67
	Infectious Disease	3,441	100	45	68
	Endocrinology	2,079	80	64	82
	Rheumatology	4,375	100	34	74
	Critical Care (Intensivists)	4,122	100	83	100
	Hematology/Oncology	5,735	100	46	85
	Radiation Oncology	3,985	100	63	85
	Emergency Medicine	2,747	100	59	96
	Interventional Cardiology	4,898	100	61	99
	Hospitalist 1	2,887	100	65	93

MT	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	4,479	100	46	74
	Allergy/Immunology	5,383	100	35	40
	Otolaryngology	4,399	100	21	34
	Anesthesiology	5,432	100	75	78
	Cardiovascular Disease (Cardiology)	3,306	100	67	82
	Dermatology	3,956	100	25	38
	Primary Care	2,534	100	48	79
	Gastroenterology	5,358	100	65	91
	Neurology	4,946	100	76	85
	Neurosurgery	5,340	100	85	90
	Obstetrics/Gynecology	3,869	100	43	59
	Ophthalmology	3,125	100	8	13
	Orthopedic Surgery	4,396	100	27	63
	Plastic And Reconstructive Surgery	4,956	100	36	45
	Psychiatry	2,914	98	37	44
	Pulmonary Disease	5,145	100	61	98
	Diagnostic Radiology	3,992	100	25	42
	Urology	4,713	100	55	73
	Pediatric Medicine	3,367	100	39	64
	Geriatric Medicine	9,802	100	89	98
	Nephrology	5,773	100	67	91
	Infectious Disease	5,853	100	72	92
	Endocrinology	6,707	100	93	98
	Rheumatology	7,164	100	52	96
	Critical Care (Intensivists)	5,656	100	53	97
	Hematology/Oncology	8,941	100	90	97
	Radiation Oncology	5,996	100	71	77
	Emergency Medicine	3,531	100	79	99
	Interventional Cardiology	6,835	100	91	100
	Hospitalist 1	5,798	100	78	97

NH	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	2,440	99	41	86
	Allergy/Immunology	3,551	100	31	53
	Otolaryngology	2,839	100	33	54
	Anesthesiology	1,857	65	17	63
	Cardiovascular Disease (Cardiology)	2,668	100	36	94
	Dermatology	2,359	99	14	32
	Primary Care	1,643	30	24	88
	Gastroenterology	3,221	100	42	85
	Neurology	2,050	95	39	84
	Neurosurgery	3,797	100	13	93
	Obstetrics/Gynecology	1,903	79	21	47
	Ophthalmology	2,605	92	10	18
	Orthopedic Surgery	2,212	100	23	65
	Plastic And Reconstructive Surgery	3,215	100	41	75
	Psychiatry	1,526	26	8	46
	Pulmonary Disease	3,094	100	43	94
	Diagnostic Radiology	2,574	100	21	69
	Urology	3,430	100	29	68
	Pediatric Medicine	2,454	92	30	67
	Geriatric Medicine	7,170	100	25	97
	Nephrology	3,505	100	23	76
	Infectious Disease	3,375	100	20	96
	Endocrinology	2,569	100	36	98
	Rheumatology	4,028	100	33	92
	Critical Care (Intensivists)	5,207	100	43	99
	Hematology/Oncology	5,413	100	11	94
	Radiation Oncology	6,454	100	10	38
	Emergency Medicine	3,225	100	34	81
	Interventional Cardiology	5,660	100	39	97
	Hospitalist 1	2,912	100	46	100

NM	Specialty	Median HHI	Share: HHI>1800	Share: Health System	Share: MSP
	General Surgery	2,423	98	47	73
	Allergy/Immunology	3,421	100	14	83
	Otolaryngology	2,419	100	30	65
	Anesthesiology	2,383	99	28	47
	Cardiovascular Disease (Cardiology)	2,372	98	38	73
	Dermatology	1,760	45	7	16
	Primary Care	1,422	15	36	70
	Gastroenterology	2,908	99	35	47
	Neurology	2,413	99	50	64
	Neurosurgery	3,413	100	64	77
	Obstetrics/Gynecology	1,955	96	42	63
	Ophthalmology	3,764	100	3	14
	Orthopedic Surgery	2,413	94	34	52
	Plastic And Reconstructive Surgery	3,803	100	25	44
	Psychiatry	1,701	27	37	54
	Pulmonary Disease	3,352	99	60	86
	Diagnostic Radiology	1,940	89	24	58
	Urology	3,278	100	39	65
	Pediatric Medicine	1,876	78	31	53
	Geriatric Medicine	8,259	100	78	88
	Nephrology	3,799	100	11	69
	Infectious Disease	5,360	100	20	72
	Endocrinology	2,383	100	35	87
	Rheumatology	5,318	100	8	45
	Critical Care (Intensivists)	4,501	100	61	94
	Hematology/Oncology	5,374	100	37	96
	Radiation Oncology	3,933	100	54	90
	Emergency Medicine	3,136	98	48	95
	Interventional Cardiology	4,772	100	42	95
	Hospitalist 1	2,965	100	70	99

NV	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	981	33	10	42
	Allergy/Immunology	2,568	100	2	44
	Otolaryngology	1,886	94	7	38
	Anesthesiology	2,417	100	7	62
	Cardiovascular Disease (Cardiology)	1,390	16	13	73
	Dermatology	1,173	37	3	27
	Primary Care	402	0	21	47
	Gastroenterology	1,187	26	7	46
	Neurology	1,724	40	23	32
	Neurosurgery	2,925	100	10	31
	Obstetrics/Gynecology	1,739	27	6	25
	Ophthalmology	999	27	4	15
	Orthopedic Surgery	1,402	23	5	62
	Plastic And Reconstructive Surgery	2,863	100	12	31
	Psychiatry	822	0	10	29
	Pulmonary Disease	2,085	90	20	85
	Diagnostic Radiology	1,854	100	23	62
	Urology	2,616	100	7	58
	Pediatric Medicine	995	4	5	42
	Geriatric Medicine	6,473	100	41	56
	Nephrology	3,299	100	6	47
	Infectious Disease	3,225	100	10	44
	Endocrinology	1,564	17	8	45
	Rheumatology	4,588	100	15	32
	Critical Care (Intensivists)	4,002	100	41	96
	Hematology/Oncology	7,343	100	3	95
	Radiation Oncology	3,353	100	19	79
	Emergency Medicine	2,659	100	31	69
	Interventional Cardiology	2,796	100	31	83
	Hospitalist 1	1,312	31	36	84

OH	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	2,563	100	62	81
	Allergy/Immunology	2,964	100	22	48
	Otolaryngology	3,301	100	46	69
	Anesthesiology	2,245	76	62	74
	Cardiovascular Disease (Cardiology)	2,756	100	77	90
	Dermatology	1,733	42	19	42
	Primary Care	1,579	28	50	80
	Gastroenterology	3,049	100	37	71
	Neurology	2,703	100	48	78
	Neurosurgery	3,750	100	59	89
	Obstetrics/Gynecology	1,757	42	38	53
	Ophthalmology	2,032	60	18	25
	Orthopedic Surgery	2,247	89	41	81
	Plastic And Reconstructive Surgery	2,727	100	40	57
	Psychiatry	1,031	6	28	46
	Pulmonary Disease	2,630	100	58	85
	Diagnostic Radiology	3,218	100	49	79
	Urology	3,374	100	41	85
	Pediatric Medicine	1,860	64	36	63
	Geriatric Medicine	6,874	100	46	90
	Nephrology	3,129	100	27	59
	Infectious Disease	3,355	100	53	86
	Endocrinology	2,363	100	53	75
	Rheumatology	4,679	100	42	52
	Critical Care (Intensivists)	4,548	100	69	99
	Hematology/Oncology	6,401	100	34	86
	Radiation Oncology	4,148	100	65	93
	Emergency Medicine	3,089	100	45	82
	Interventional Cardiology	5,272	100	78	100
	Hospitalist 1	2,693	100	59	97

OK	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	2,004	70	53	78
	Allergy/Immunology	3,743	100	7	91
	Otolaryngology	2,293	100	32	63
	Anesthesiology	1,616	14	22	47
	Cardiovascular Disease (Cardiology)	2,439	100	56	82
	Dermatology	1,381	17	23	43
	Primary Care	1,372	9	46	71
	Gastroenterology	2,466	100	37	80
	Neurology	2,555	99	39	72
	Neurosurgery	3,092	100	27	75
	Obstetrics/Gynecology	1,622	17	47	64
	Ophthalmology	1,544	10	1	29
	Orthopedic Surgery	1,594	47	20	82
	Plastic And Reconstructive Surgery	2,763	99	39	54
	Psychiatry	936	1	20	45
	Pulmonary Disease	2,112	88	51	75
	Diagnostic Radiology	2,222	100	31	78
	Urology	3,391	100	33	71
	Pediatric Medicine	1,446	22	28	52
	Geriatric Medicine	6,987	100	42	70
	Nephrology	2,646	99	16	49
	Infectious Disease	3,772	100	23	32
	Endocrinology	2,018	100	63	76
	Rheumatology	5,330	100	7	73
	Critical Care (Intensivists)	4,967	100	68	95
	Hematology/Oncology	6,149	100	39	87
	Radiation Oncology	3,816	100	32	77
	Emergency Medicine	2,728	100	31	96
	Interventional Cardiology	4,922	100	40	100
	Hospitalist 1	2,698	91	50	85

TX	Specialty	Median HHI	HHI>1800	Share: Health System	MSP
	General Surgery	1,142	13	27	54
	Allergy/Immunology	1,994	67	6	32
	Otolaryngology	1,791	48	13	46
	Anesthesiology	3,004	100	10	64
	Cardiovascular Disease (Cardiology)	1,679	35	32	66
	Dermatology	1,292	14	5	27
	Primary Care	626	2	21	57
	Gastroenterology	2,698	73	18	67
	Neurology	1,451	20	18	45
	Neurosurgery	2,258	91	35	57
	Obstetrics/Gynecology	989	10	18	41
	Ophthalmology	1,229	13	7	15
	Orthopedic Surgery	1,217	9	23	53
	Plastic And Reconstructive Surgery	1,841	54	21	50
	Psychiatry	634	2	8	20
	Pulmonary Disease	1,848	56	24	63
	Diagnostic Radiology	1,820	59	16	66
	Urology	2,942	74	19	72
	Pediatric Medicine	1,500	42	19	59
	Geriatric Medicine	5,872	100	23	59
	Nephrology	2,726	76	8	60
	Infectious Disease	3,253	100	11	38
	Endocrinology	1,345	35	20	62
	Rheumatology	2,956	100	16	51
	Critical Care (Intensivists)	3,387	100	39	92
	Hematology/Oncology	6,925	100	5	91
	Radiation Oncology	3,796	100	16	91
	Emergency Medicine	2,142	82	39	91
	Interventional Cardiology	3,640	100	51	94
	Hospitalist 1	1,769	46	31	89