HEALTH CARE COST & UTILIZATION

2018 REPORT

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MN Community MEASUREMENT
Measure Up To Better Health

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ONLINE APPENDICES

Who is MN Community Measurement?

MN Community Measurement (MNCM) is a non-profit organization that empowers the community with data and information to drive improvement in health care cost and quality. MNCM was formed as a community resource where all health care stakeholders – whether they buy, manage, provide, deliver, oversee, or consume health care – come together and mutually invest in improvement for a better tomorrow.

MNCM specializes in developing, collecting, analyzing, and publicly reporting information on health care quality, cost, and patient experience. Founded in 2005, our multi-stakeholder collaborative includes physicians, hospitals and health systems, health plans, employers, consumers, and state government.

MNCM strives to deliver data and information that is timely, actionable, and relevant for each stakeholder in the community to fulfill their role in advancing improvement and affordability.

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INTRODUCTION AND EXECUTIVE SUMMARY

As an independent nonprofit dedicated to empowering health care decision makers with meaningful data, MN Community Measurement (MNCM) is a statewide resource for timely, comparable information on health care costs and quality. Compared to other parts of the nation, MNCM has one of the most robust public transparency efforts related to health care costs, which provides perspective on total cost of care, resource use and price as drivers of total cost, and prices for individual services – as well as important information about quality of care that must be considered in context with cost. Each of these concepts related to cost of care is important in its own right and combining them into an overall picture helps to shed light on important trends and variation in Minnesota's health care marketplace.

This report, which MNCM publishes annually, includes data from our analysis of 2017 health care costs for Minnesotans who have private health insurance.

The report is divided into four sections:

- Total Cost of Care
- Resource Use and Relative Price
- Utilization
- Average Cost Per Procedure

These four separate components work in unison, drilling into the drivers of health care costs. As illustrated below, total cost is a function of resource use times price. Resource use includes utilization and the price includes average cost per procedure.

Key report findings:

- **Cost trends:** For people with private health insurance, the total cost of care increased by 2.0 percent per person in 2017, a slower rate of growth than seen in the previous two years (6.1 percent and 5.6 percent in 2015 and 2016, respectively).
    - In 2017, professional services and inpatient hospital services grew at the fastest rates (3.3 percent and 3.2 percent, respectively).
    - Retail pharmacy cost grew by 2.0 percent in 2017, continuing a trend of slowing growth since 2014 when drug spending increased by 11.7 percent.
    - Spending per patient for outpatient hospital services declined by 1.0 percent in 2017, in contrast to recent trends of growth above 5 percent per year in this category.
- **Variation:** Across medical groups, there continues to be considerable variation in total cost of care, resource use and overall pricing, and prices for specific procedures.
    - Total Cost ranges from $398 to $1,093 per patient per month on a risk adjusted basis. Relative resource use has a variation of 95 percent and relative pricing also has variation of 95 percent.
    - In Minnesota, a medical group's price index has more influence on its total cost of care than its resource use.
    - While the range from lowest to highest has increased, the overall distribution in cost and resource use between medical groups in the region has remained stable over time.
    - The prices of imaging services in an outpatient hospital setting are, on average, 45 percent higher than the same services performed at a clinic or standalone radiology center.

New This Year

- Comparative price data for imaging procedures now includes hospital outpatient settings in addition to clinic (medical group) settings.
- Statewide total cost of care includes all costs incurred by patients who are attributed to a primary care provider, without adjustments for high-cost outliers.[1] As in previous years, for analysis at the medical group level the costs are risk adjusted and outlier expenses are removed.

[1] In previous years' analysis, the statewide totals excluded high-cost outliers. MNCM has made this change in order to provide a more complete picture of overall spending, and for consistency across years as the threshold for what is considered an outlier changed in 2017.

TOTAL COST OF CARE

Total cost of care (TCOC) is a measure of a medical group's risk-adjusted cost of managing the patient population that it cares for. TCOC is a combination of two factors: resource use (the amount and intensity of care) and prices. The methodology used for measuring total cost, resource use and price in this report is the Total Cost Index (TCI). More details on the methodology are included in the appendix to this report.

The analysis in this report is based on claims data for 2017 from the four health plans with the largest commercially-insured patient populations in Minnesota: Blue Cross and Blue Shield of Minnesota, HealthPartners, Medica Health Plans, and PreferredOne. The analysis includes the actual costs of 1.5 million patients and total spending of more than $8.6 billion in 2017.

Patients are attributed to medical groups based on their number of office-based primary care visits during the year. The medical group that the patient visited most frequently for Family Practice, Pediatric, Obstetrics and Gynecology or Internal Medicine services is considered the patient's primary care medical group. All patient costs incurred during the year are assigned to that primary care group. To ensure that results consider differences in patients' health status and the impact of high-cost cases, the methodology includes risk adjustment and caps spending at $125,000 per patient.

The statewide average total cost of care includes all costs incurred by patients who are attributed to a primary care provider, without adjustments for high-cost outliers. For analysis by medical group, the costs are risk adjusted and limited to the first $125,000 per patient per year.

In 2017, the average total cost of care for commercially insured patients in Minnesota was $563 per month, an increase of 2.0 percent from the previous year ***(Figures 1 and 2)***. Growth in 2017 was slower than the previous two years, when the total cost of care increased by 6.1 percent and 5.6 percent in 2015 and 2016, respectively.

- In 2017, professional services and inpatient hospital services grew at the fastest rates (3.3 percent and 3.2 percent, respectively).
- Retail pharmacy cost grew by 2.0 percent in 2017, continuing a trend of slowing growth since 2014, when drug spending increased by 11.7 percent.
- Spending per patient for outpatient hospital services declined by 1.0 percent in 2017, in contrast to recent trends of growth above 5 percent per year in this category.

FIGURE 1: Cost trend by type of service, per patient per month

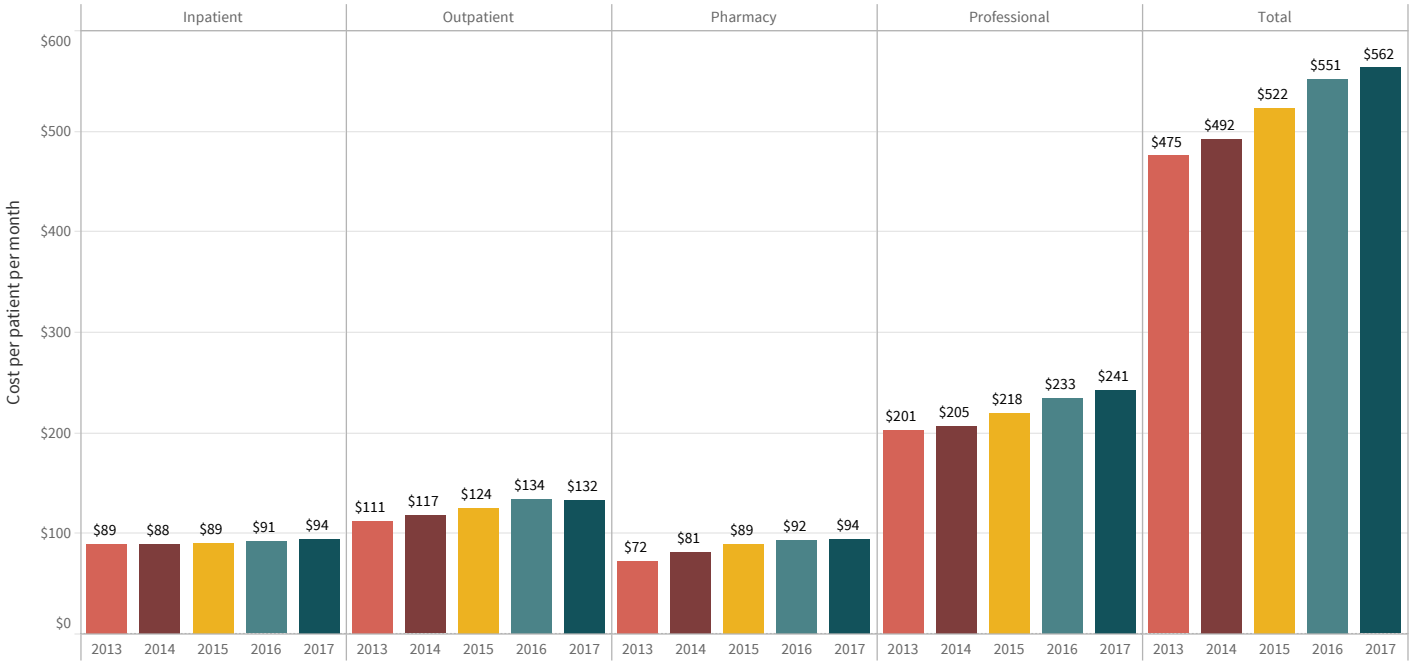
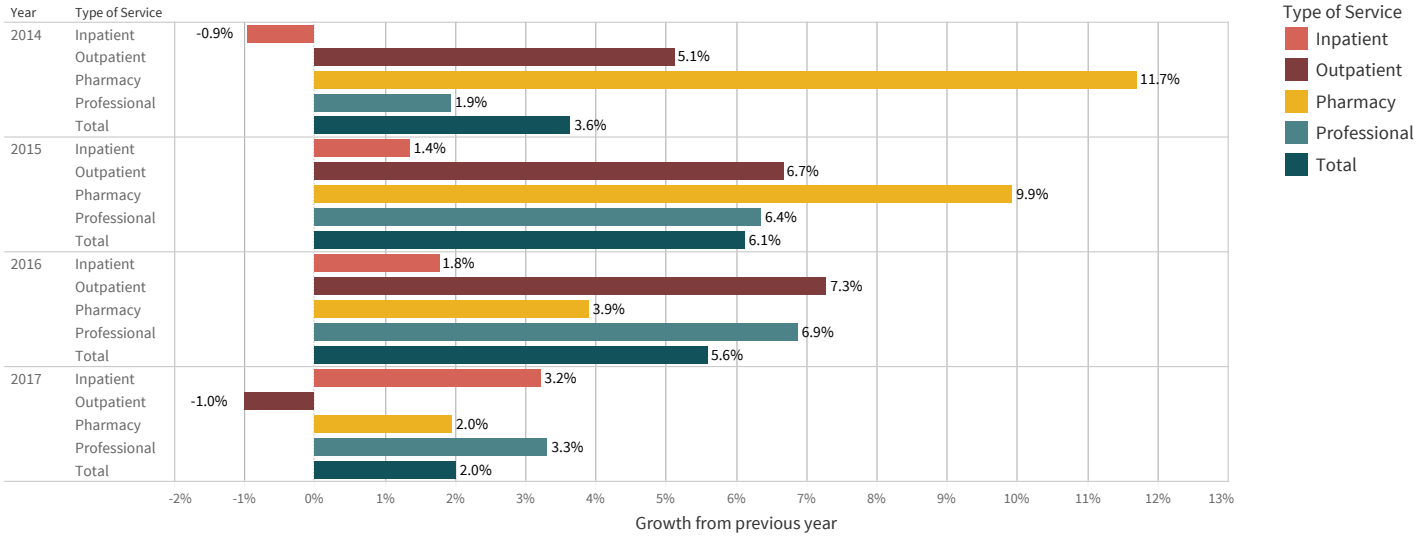


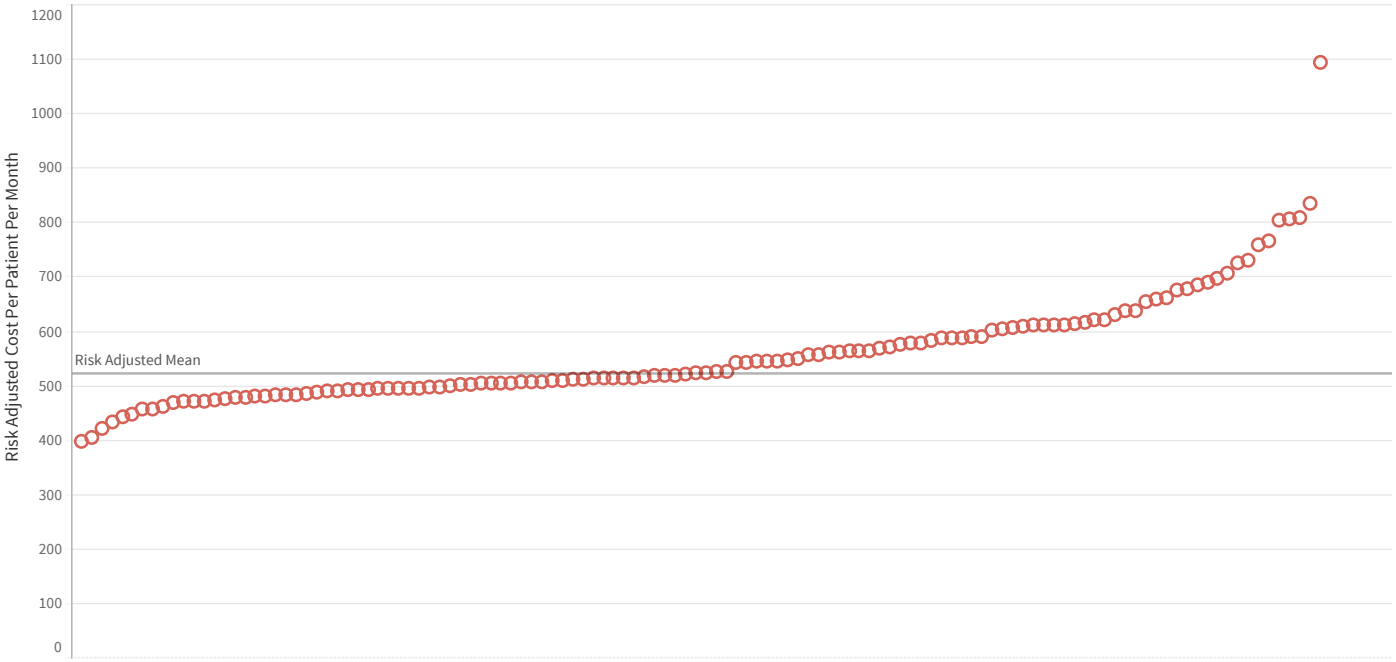
FIGURE 2: Cost growth by type of service



Consistent with previous years, there continues to be substantial difference in costs between medical groups.

Since MNCM began publishing its TCOC analysis, the variation in total cost of care among medical groups in the region has remained stable. There is no statistical evidence that the variation between medical groups is widening or narrowing. In addition, there has been little change in the relative positions of medical groups within the overall cost distribution. Detailed results of the TCOC analysis by medical group are included in the online appendix to this report and are also available at *MNHealthscores.org*.

FIGURE 3: Total cost of care by medical group, 2017



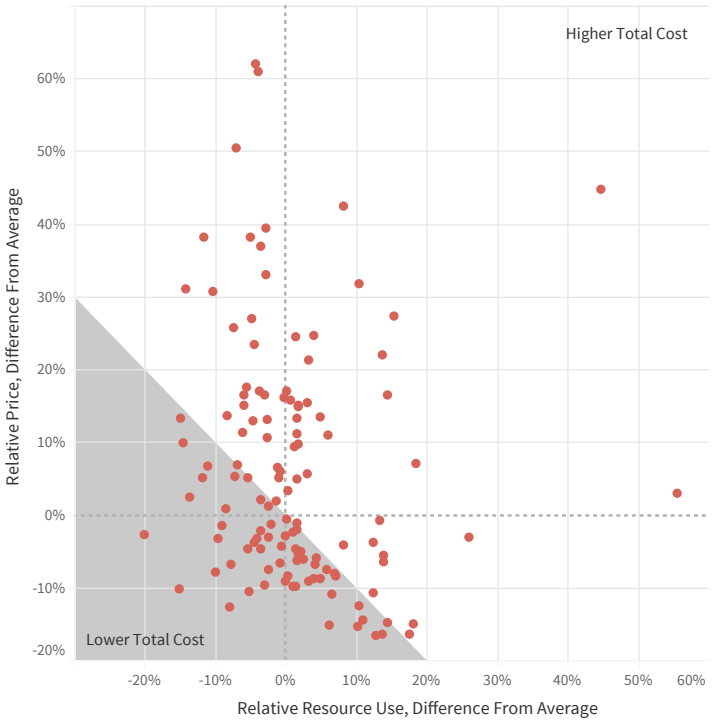
RESOURCE USE AND RELATIVE PRICE

Total cost is driven by both the amount of resources used and the price of each resource. To better understand the reasons for cost variation, MNCM's analysis separates prices and resources used. This method uses the same input data as TCOC and produces an indicator of relative resource use (RRU) and a price index at the medical group level. Each of these indicators has a value of 1.0 for the statewide average, with values above 1.0 signifying that a medical group's resource use or price is above average and values below 1.0 signifying resource use or price that is below the statewide average.

For a medical group to have a total cost of care that is lower than the market average, the combination of relative pricing and relative resource use must fall within certain parameters. It is possible to have higher than average prices and still have low total costs, or to have higher than average resource use and have low total costs. The shaded area in Figure 4 illustrates which medical groups have lower TCOC than the statewide average.

Examining resource use and pricing separately, MNCM's analysis finds a 95 percent variation across medical groups in resource use, and also a 95 percent variation in price *(Figure 4)*. Detailed results for TCOC, relative resource use, and price by medical group are included in the online appendix to this report.

FIGURE 4: Relative price vs. relative resource use by medical group, 2017



UTILIZATION

To further understand variation in resource use, MNCM's analysis also includes variation across medical groups in the utilization of common categories of medical services, such as inpatient hospital admissions or imaging services. Because utilization of services varies by age and gender (see *Table 1*), MNCM's analysis of variation in utilization of services across medical groups adjusts for differences in the age and gender of the patients attributed to each medical group, as well as differences in health status.

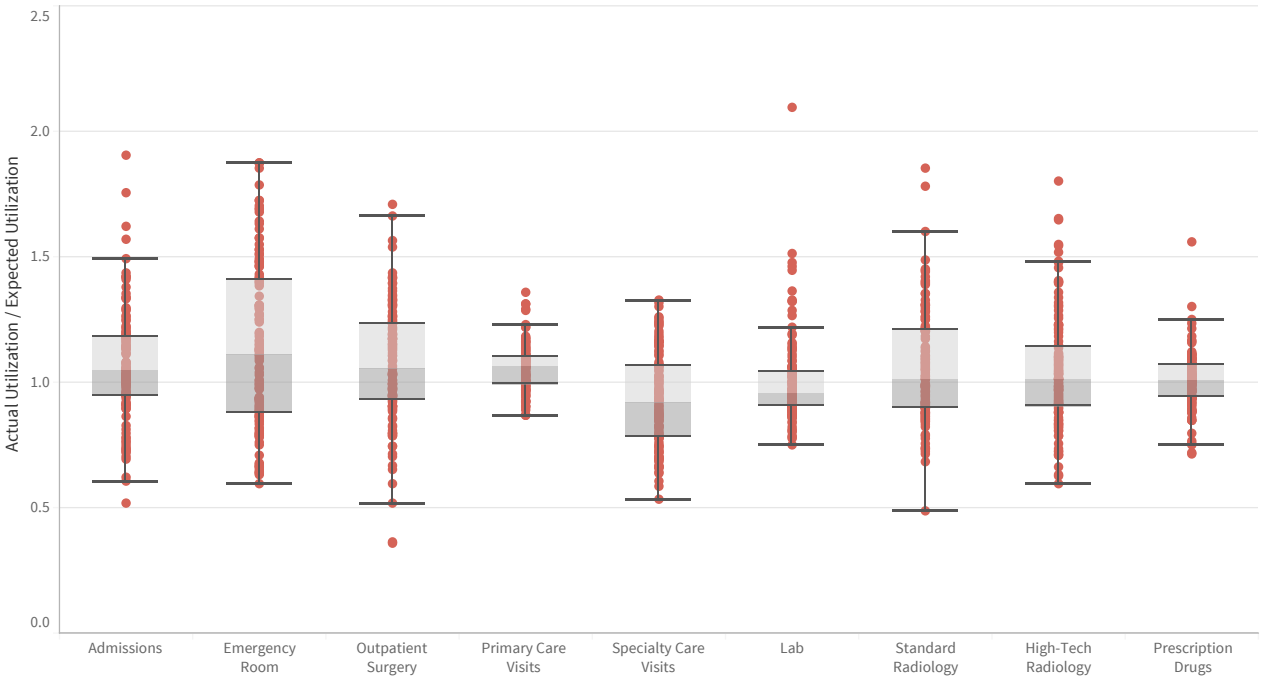
TABLE 1: Utilization rates per 1,000 patients per year, by age and gender, 2017

Commercial Patients	Ages 1-17		Ages 18-39		Ages 40-64		TOTAL
	Female	Male	Female	Male	Female	Male	
Inpatient							
Admissions	19.6	18.1	118.3	29.1	55.2	66.8	56.2
Inpatient Days	96.7	84.4	356.2	135.4	213.8	273.8	209.7
Average Length of Stay	4.9	4.7	3.0	4.7	3.9	4.1	3.7
Surgical Admissions	3.2	3.8	6.9	7.6	26.2	32.1	15.8
Inpatient Surgical Days	17.2	18.2	23.2	32.6	91.2	127.1	60.2
Average Length of Stay Surgical	5.4	4.7	3.4	4.3	3.5	4.0	3.8
Maternity Admissions	0.2		94.3		2.8		17.6
Inpatient Maternity Days	0.9		259.4		9.5		48.8
Average Length of Stay Maternity	4.5		2.8		3.4		2.8
Medical Admissions	16.2	14.3	17.1	21.5	26.1	34.7	22.8
Inpatient Medical Days	78.8	66.3	73.6	102.8	113.0	146.7	100.8
Average Length of Stay Medical	4.9	4.6	4.3	4.8	4.3	4.2	4.4
Emergency Room Visits	146.9	163.5	195.3	161.8	153.5	150.9	161.9
High Tech Imaging In Emergency Room	10.6	13.4	42.8	39.1	55.4	55.9	40.0
Outpatient Surgery	37.3	46.0	81.1	67.4	224.8	213.3	131.0
Diagnostic Testing							
Standard Imaging	462.2	460.4	1328.5	470.3	1466.5	736.4	921.4
High Tech Imaging (MRI,CT)	68.7	64.6	206.0	207.2	426.9	422.7	267.2
Lab and Pathology Services	2978.2	2381.0	8894.4	3992.0	8673.4	7408.0	6358.4
Office Visits							
Primary Care	2831.9	2793.7	2794.6	1922.0	2861.4	2438.3	2646.6
Specialty Care	1040.9	1037.2	1512.8	1197.2	2079.9	1821.9	1554.5
Pharmacy							
Prescriptions Filled	4164.6	4145.9	13722.9	7647.2	23823.8	22504.9	14923.4
Use of Generic Equivalents	86.0%	82.2%	89.3%	85.1%	89.0%	88.4%	88.3%

Figure 5 illustrates the variation in utilization rates across medical groups, after adjusting for age, gender, and risk. For example, variation in inpatient admissions ranges from 48 percent below to 90 percent above expected rates, while variation in pharmacy prescriptions filled ranges from 29 percent below to 56 percent above expected rates. Detailed results of this analysis by medical group are included in the online appendix to this report.

Of the utilization measures included in the analysis, emergency room use, after adjustment for patient population mix, is the measure that is most predictive of total cost of care.[2]

FIGURE 5: Variation in utilization: actual/expected ratio by medical group



[2] See the appendix for a full listing of utilization rates.

AVERAGE COST PER PROCEDURE

Average Cost per Procedure (ACP) is a measure of the average amount paid to each medical group by commercial health plans for specific common ambulatory care procedures and services. The measures represent actual amounts paid for services, not list prices, and include amounts paid by insurance and patient out of pocket costs. For hospital outpatient radiology fees, the metric is a combination of the facility fee paid to the hospital and the separate radiology reading fee for the same patient, procedure and date of service.

MNCM's analysis of prices includes 118 services and procedures that were selected because they are common services and patients may have options to select the location and provider (as opposed to services provided in an emergency). *Table 2* shows the minimum, average and maximum prices for commercially insured patients for each of the 118 services in 2017. As a comparison, the Medicare and Medicaid standard fees as of October 1, 2017, are also shown when coding and coverage are comparable.

TABLE 2: Average cost per procedure, 2017

	Commercial Range			Government Fees October 2017; when comparable		Commercial as a Percentage of Medicare
	Minimum	Median	Maximum	Medicare	Medicaid	
Eye Services						
Determination of Refractive State	$5	$34	$56		$14	
Eye Exam and Treatment established patient	$87	$175	$317	$128	$91	137%
Eye Exam established patient	$82	$125	$217	$89	$63	140%
Eye Exam new patient	$112	$205	$363	$153	$108	134%
Visual Acuity Screen	$3	$6	$49		$2	
Gastrointestinal Procedures						
Colonoscopy*	$289	$513	$1,853	$316	$224	162%
Endoscopy with a biopsy*	$219	$372	$1,188	$348	$247	107%
Imaging						
Chest X-ray (2 views)	$24	$65	$297			
Knee X-ray (1 or 2 views)	$29	$72	$378	$32	$22	225%
Lower Extremity CT without Contrast	$402	$446	$578	$183	$121	244%
Lower Extremity MRI without Contrast	$195	$851	$3,050	$242	$172	352%
Lumbar Spine CT without contrast	$358	$453	$767	$183	$121	248%
Lumbar Spine MRI without and with Contrast	$728	$793	$3,676	$387	$274	205%
Lumbar Spine MRI without Contrast	$216	$891	$3,372	$229	$162	389%
Screening Mammography digital	$174	$225	$544			
Spine X-ray (2 views)	$31	$81	$261	$35	$25	231%
Ultrasound Exam Pelvic complete	$125	$250	$606	$113	$80	221%
Ultrasound of Obstetrical Uterus	$159	$297	$784	$146	$113	203%
X-Ray Exam of Ankle	$28	$73	$359	$32	$22	228%
X-Ray Exam of Foot	$25	$69	$291	$30	$21	230%
X-Ray Exam of Shoulder	$33	$68	$299	$30	$21	227%
X-Ray Exam of Wrist	$31	$78	$323	$36	$25	217%

*Physician costs only, not including facilty fee

	Commercial Range			Government Fees October 2017; when comparable		Commercial as a Percentage of Medicare
	Minimum	Median	Maximum	Medicare	Medicaid	
Laboratory						
Alanine Aminotransferase (ALT) test	$8	$11	$60	$7	$7	157%
Aspartate Aminotransferase (AST) test	$7	$11	$59	$7	$6	157%
Assay of Free Thyroxine	$14	$18	$116	$12	$11	150%
Bacterial culture screening only	$9	$12	$81	$8	$8	150%
Basic metabolic panel	$12	$18	$117	$12	$10	150%
Blood hemoglobin (screening for iron deficiency anemia)	$3	$4	$43	$3	$3	133%
Chlamydia, amplified probe technique	$49	$76	$193	$48	$43	158%
Complete Blood Count (CBC)	$6	$14	$74	$9	$8	156%
Complete Blood Count (CBC) with differential White Blood Cell (WBC) count	$12	$17	$119	$11	$10	155%
Comprehensive metabolic panel	$14	$21	$137	$14	$13	150%
Creatinine test	$7	$10	$74	$7	$6	143%
General health panel	$44	$58	$386		$50	
Glucose (blood sugar) test	$6	$8	$50	$5	$5	160%
Glycated hemoglobin test	$14	$20	$108	$13	$12	154%
Gonorrhea test	$48	$71	$192	$48	$43	148%
Human Chorionic Gonadotropin (HCG) test, quantitative	$16	$21	$126	$15	$19	140%
Lipid panel	$8	$28	$179	$18	$17	156%
Microalbumin quantitative	$8	$11	$115	$8	$7	138%
Pap smear	$17	$22	$89	$14	$25	157%
Potassium test	$8	$11	$43	$6	$6	183%
Pregnancy test, urine	$9	$11	$76	$9	$9	122%
Prostate Specific Antigen (PSA) total	$28	$32	$196	$25	$23	128%
Prothrombin time	$6	$8	$62	$5	$5	160%
Strep test, rapid	$8	$22	$96	$16	$17	138%
Thyroid (TSH) test	$24	$35	$166	$23	$21	152%
Urinalysis nonauto without scope	$4	$4	$23	$4	$3	100%
Urinalysis with microscopy	$4	$6	$67	$4	$4	150%
Urinalysis without microscopy	$3	$4	$41	$3	$3	133%
Urine culture/colony count	$10	$16	$121	$11	$10	145%
Vitamin B-12	$22	$30	$157	$21	$19	143%
Vitamin D 25 Hydroxy	$38	$59	$198	$41	$37	144%
Medical Services						
Biopsy of the Uterus	$139	$247	$502	$107	$76	231%
Cardiac Stress test	$145	$204	$384	$72	$51	283%
Colposcopy	$261	$364	$730	$150	$106	243%
Developmental Screening tests	$15	$21	$93		$7	
Diphtheria, Tetanus and Pertussis (DTaP) vaccine for a child younger than 7	$18	$24	$52			
Echocardiogram, routine ECG with interpretation and report	$17	$41	$166	$17	$12	241%
Hemophilius Influenza B	$9	$24	$61		$11	

	Commercial Range			Government Fees October 2017; when comparable		Commercial as a Percentage of Medicare
	Minimum	Median	Maximum	Medicare	Medicaid	
Hepatitis A vaccine for a child or adolescent	$26	$34	$99			
Hepatitis B vaccine for a child or adolescent	$20	$26	$74			
Hepatitis B vaccine for an adult	$45	$64	$156		$63	
Human Papillomavirus (HPV), three doses	$152	$211	$241		$160	
Measles, Mumps and Rubella (MMR) vaccine	$59	$71	$106		$71	
Measles, Mumps, Rubella and Varicella (MMRV) chickenpox vaccine	$148	$199	$301			
Meningitis (meningococcal) vaccine	$113	$130	$272		$116	
Pneumococcal conjugate vaccine, 13 valent	$151	$180	$406		$205	
Pure Tone hearing test air	$15	$27	$51		$9	
Spirometry test	$53	$85	$144	$37	$26	230%
Tetanus and Diphtheria (Td) vaccine	$32	$42	$110		$32	
Tetanus and Diphtheria (Td) vaccine without preservatives	$22	$29	$71		$24	
Varicella Zoster Virus (chichenpox) vaccine	$19	$120	$161		$122	
Mental Health Services						
Group Psychotherapy	$22	$52	$153	$26	$23	200%
Psychiatric diagnostic evaluation	$115	$211	$466	$134	$121	157%
Psychiatric diagnostic evaluation with medical services	$183	$308	$540	$150	$135	205%
Psychotherapy, 30 minutes with patient and/or family member	$59	$82	$230	$65	$58	126%
Psychotherapy, 45 minutes with patient and/or family member	$71	$119	$268	$87	$78	137%
Psychotherapy, 60 minutes with patient and/or family member	$109	$134	$402	$131	$118	102%
Obstetrical and Gynecologcial Services						
Fetal non-stress test	$66	$108	$225	$47	$36	230%
Vaginal delivery with routine care*	$2,420	$3,808	$6,496	$1,990	$1,388	191%
C-section delivery with routine care*	$2,538	$4,539	$5,769	$2,195	$1,388	207%
Office Visits						
Office visit, new patient, 10 minutes	$58	$91	$106	$45	$34	202%
Office visit, new patient, 20 minutes	$63	$163	$186	$75	$58	217%
Office visit, new patient, 30 minutes	$92	$243	$274	$107	$83	227%
Office visit, new patient, 45 minutes	$137	$371	$405	$163	$126	228%
Office visit, new patient, 60 minutes	$261	$464	$519	$205	$159	226%
Office visit, established patient, 5 minutes	$30	$46	$82	$22	$17	209%
Office visit, established patient, 10 minutes	$55	$84	$111	$44	$34	191%
Office visit, established patient, 15 minutes	$62	$150	$202	$73	$56	205%
Office visit, established patient, 25 minutes	$91	$242	$309	$108	$83	224%
Office visit, established patient, 40 minutes	$172	$317	$422	$145	$112	219%
Preventive care visit for an infant under age 1	$92	$203	$243		$77	
Preventive care visit for a child between the ages of 1 to 4	$92	$203	$259		$82	

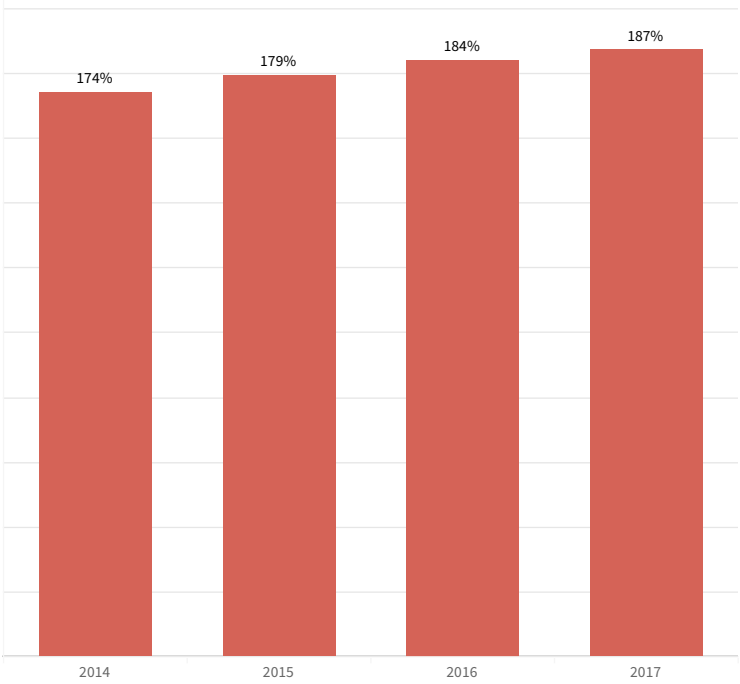
*Physician costs only, not including facilty fee

	Commercial Range			Government Fees October 2017; when comparable		Commercial as a Percentage of Medicare
	Minimum	Median	Maximum	Medicare	Medicaid	
Preventive care visit for a child between the ages of 5 to 11	$95	$193	$259		$82	
Preventive care visit for an adolescent between the ages of 12 to 17	$118	$215	$275		$90	
Preventive care visit for an adult between the ages of 18 to 39	$150	$257	$342		$92	
Preventive care visit for an adult between the ages of 40 to 64	$154	$283	$578		$98	
Preventive care visit for an adult 65 years and over	$197	$311	$608		$106	
Physical Therapy						
Acupuncture without stimuli 15 Min	$35	$88	$100		$26	
Electric stimulation therapy	$17	$29	$62		$11	
Manual therapy, multiple regions	$28	$45	$106	$28	$20	161%
Neuromuscular reeducation	$32	$54	$133	$35	$25	154%
Therapeutic exercises	$30	$49	$122	$31	$22	158%
Ultrasound therapy	$13	$20	$42	$14	$9	143%
Surgery						
Abscess treatment	$169	$263	$398	$120	$85	219%
Aspiration and/or injection of a large joint	$86	$136	$312	$59	$42	231%
Circumcision	$155	$222	$616	$157	$111	141%
Earwax removal	$81	$115	$133	$48	$34	240%
Skin biopsy	$132	$228	$283	$106	$75	215%
Skin lesion (0.5cm or smaller) removal or excision	$243	$270	$299	$127	$90	213%
Skin lesion (0.6cm or larger) removal or excision	$238	$315	$416	$150	$107	210%
Skin lesion, destruction	$61	$135	$242	$66	$47	205%
Skin tag removal	$115	$189	$251	$90	$64	210%
Stitches for a wound	$121	$196	$261	$91	$65	215%
Vasectomy	$606	$917	$1,548	$395	$280	232%

To see full details for all procedures, visit *MNHealthScores.org*.

MNCM has published this pricing data since 2014. For the services that have been included in all four years and have a directly comparable Medicare fee, the average price paid by private insurance for this group of services combined increased from 174 percent of Medicare rates in 2014 to 187 percent of Medicare in 2017, as shown in ***Figure 6***.

FIGURE 6: Commercial prices as percent of Medicare fee schedule; high volume services



Comparison of Commercial median price to the Medicare fee schedule where the Medicare fee schedule is available for the same procedure code. Weighted by commercial service volume. Excludes imaging services.

For the first time, this year's analysis of pricing for imaging includes services provided in a hospital outpatient setting. As illustrated in ***Figure 7***, the cost of imaging services is typically higher (by as much as 240 percent) in an outpatient hospital setting compared to a clinic setting. As an overall market basket, the same set of services cost 45 percent more if performed in a hospital outpatient setting.

As a more detailed example, the price of an ankle X-ray can be as low as $28 or as high as $359, depending on where the service is provided. In 2017, the average price paid for commercially insured patients in a clinic setting was $72 and in an outpatient hospital setting it was $226 (see ***Figure 8***).

Detailed information on average prices by medical group for all 118 services and procedures included in MNCM's analysis is available on ***mnhealthscores.org***. In addition, the online appendix to this report includes detailed information by medical group and hospital for three procedures: Ankle X-ray, MRI of lower extremity and CT of lower extremity. These services were chosen to show variation across care settings (clinic and hospital) and also variation in pricing by intensity of services (standard and high-tech imaging).

Online Appendices

- Methodology
- Detailed Tables by Medical Group

FIGURE 7: Average prices for imaging services, clinic compared to hospital outpatient

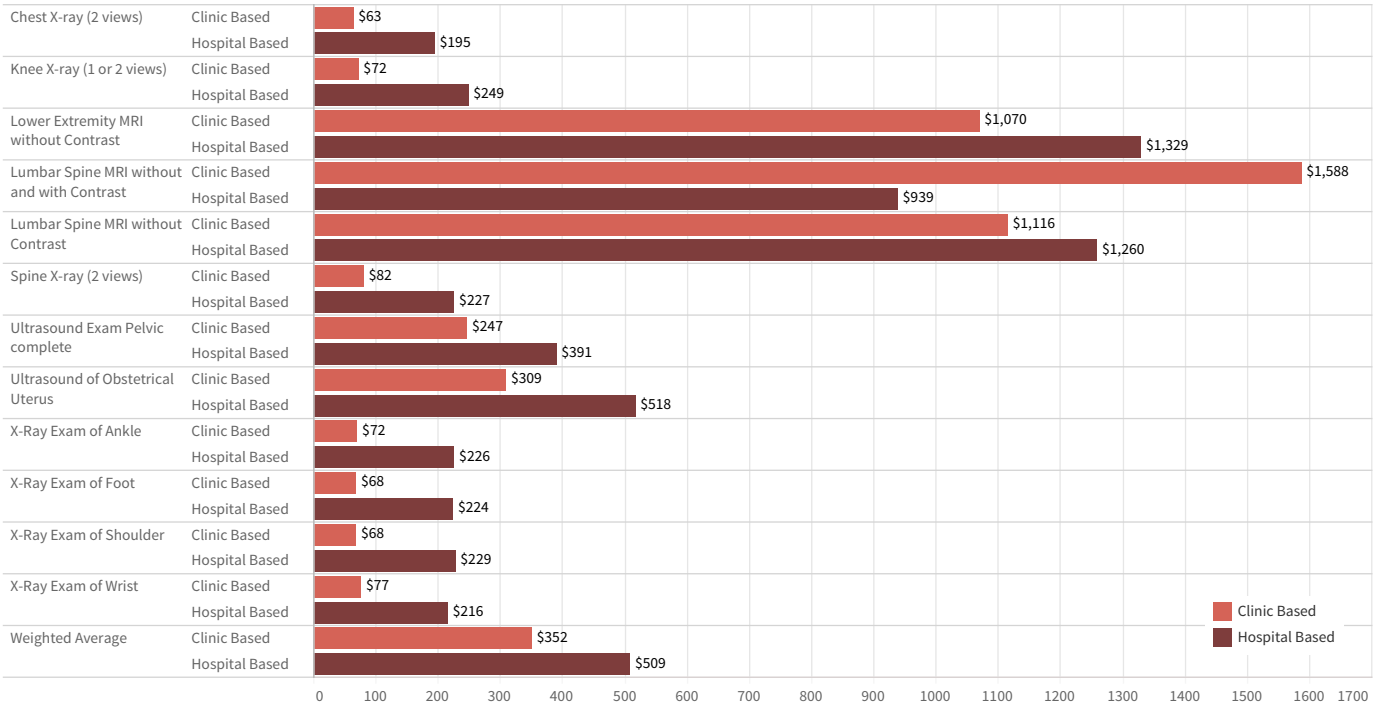


FIGURE 8: Variation in average price of an ankle X-ray