Case 20-0071

SUPREME COURT OF TEXAS

In re
ALLSTATE INDEMNITY CO.
Relators

Original Proceeding from
Cause No. 2017CCV-62347-1
County Court at Law No. 1
Nueces County, Texas

AMICUS CURIAE BRIEF OF RESEARCH AND PLANNING CONSULTANTS

P.M. Schenkkan
State Bar No. 17741500
William Christian
State Bar No. 00793505
Graves Dougherty Hearon & Moody, P.C.
401 Congress Ave., Suite 2700
Austin, Texas 78701
(512) 480-5704 (telephone)
(512) 480-5804 (facsimile)
pschenkkan@gdhm.com
wchristian@gdhm.com

Matthew Baumgartner
State Bar No. 24062605
Armbrust & Brown, PLLC
100 Congress Ave., Suite 1300
Austin, Texas 78701
(512) 435-2308 -- Telephone
(512) 435-2360 – Facsimile
mbaumgartner@abaustin.com

ATTORNEYS FOR AMICUS CURIAE RESEARCH AND PLANNING CONSULTANTS, L.P.

IDENTITY OF AMICUS CURIAE AND COUNSEL

Amicus Curiae:	Research and Planning Consultants, L.P.
Counsel:	P. M. Schenkkan William Christian Graves Dougherty Hearon & Moody, PC Matthew B. Baumgartner Armbrust & Brown, PLLC

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STATEMENT OF INTEREST

Amicus curiae Research and Planning Consultants, L.P. (RPC) will pay for this brief.

RPC is an Austin-based economic and public policy consulting firm in business since 1972. RPC provides economic analysis for plaintiffs and defendants in commercial and personal injury litigation, including payment disputes between health plans and providers, *qui tam* litigation, and past and future medical expenses in personal injury cases. RPC has prepared many Section 18.001 counter affidavits on reasonableness of charges. RPC has also provided reasonableness of charges opinions for providers and for personal injury plaintiffs.

RPC's full-time staff includes two economists, a certified medical coder, and five registered nurses. The counter affidavits RPC prepares are signed by Ronald T. Luke, J.D., Ph.D., RPC's owner, or by Brian Piper, Ph.D. Their *curricula vitae* are attached as *Exhibit A*.

Dr. Luke has been retained as an expert in health economics by, among other entities, the Office of the Attorney General and by Texas Mutual Insurance Company. Dr. Luke has been accepted as an expert by district courts and by the State Office of Administrative Hearings regarding the reasonableness of payments to providers.

Besides his work with RPC, Dr. Luke for 19 years owned Forte Managed Care, which provided medical bill review and other cost containment services for workers' compensation cases in over 30 states. Under his ownership, Forte's clients included the State Office of Risk Management, the Texas Department of Transportation, and major workers' compensation insurers.

Dr. Luke chairs the Texas Association of Business Health Policy Committee. Appointed by Governor George W. Bush to the Texas Healthcare Information Council, Dr. Luke played a major role in developing the Texas hospital discharge data system. Governor Rick Perry appointed him to the Texas Health & Human Services Council, which supervises Texas Medicaid and CHIP, and to the Texas Institute for Healthcare Quality and Efficiency.

INTRODUCTION AND SUMMARY

This case presents the Court with important mandamus and Texas Civil Practice & Remedies Code section 18.001 controverting affidavit issues.

On its face, section 18.001 provides plaintiffs with a "purely procedural" short-cut as parties with the burden of proof on the medical necessity, and the reasonableness of charges of past medical services. Section 18.001(b) allows plaintiffs to attest to those issues by affidavit. Section 18.001 also requires defendants to give notice of a challenge to either the medical necessity or the reasonableness of charges for services covered by section 18.001 affidavit. To challenge, defendants must file a counter affidavit complying with section 18.001(f). *See Gunn v. McCoy*, 554 S.W.3d 645, 672 (Tex. 2018).

In this brief, RPC offers the Court information on medical charges and billing, hoping such information is helpful to the Court's analysis and opinion. Section 18.001 is by its plain language addressed to "the amount charged" and not to the "reasonable value" of medical services that may be the basis for medical damages liability. *See, e.g., In re North Cypress Med. Ctr. Operating Co*., 559 S.W.3d 128 (Tex. 2018); *Gunn v. McCoy*, *supra*, 554 S.W.3d 645 (Tex. 2018); *Haygood v. De Escobedo*, 356 S.W.3d 390 (Tex.

2011); *Daughters of Charity v. Linnstaedter*, 226 S.W.3d 409, 410 (Tex. 2007). Medical payments, are, therefore, not the focus of this brief, but it is always important to distinguish between medical charges and medical payments. Medical charges of one provider that are reasonable compared to the charges of other providers may exceed a reasonable payment under this Court's standards.

At issue in this case are the qualifications of the counter affiant, Christine Dickison, RN, BSN, CPC, CPMA, and the adequacy of the notice of the basis for her opinion the charges were not reasonable. RPC explains in this brief why Ms. Dickison's counter affidavit satisfies the qualifications and notice requirements of section 18.001 and should not have been struck.

As to qualifications, only a counter affidavit challenging the medical necessity of healthcare goods and services requires clinical training or expertise. The reasonableness of charges is an economics question for which clinical training, licensure, or experience is neither necessary nor sufficient.

One generally accepted method for assessing the reasonableness of medical charges is to assess whether charges exceed "usual, customary, and reasonable" ("UCR") charges — a method that a doctor or nurse, by virtue of their education and delivery of professional medical services alone,

would not be qualified to assess. Medical services are typically described on bills using industry-standard codes, e.g., CPT, HCPC, DRG, APC, or ICD-9 codes. Charges are often disputed on grounds of improper coding or lack of adequate documentation. Physicians and other direct patient care professionals seldom have such coding expertise. Ms. Dickison documented in the affidavit and in her testimony her medical coding and billing expertise that qualified her to perform the analysis she described in her counter affidavit and testimony.

A section 18.001(f) counter affidavit provides adequate "notice" under the statute by stating the "basis" for controverting the reasonableness of the charges. If the counter affiant relies on UCR and coding analysis, he or she meets this notice requirement by saying so in the affidavit and by (1) identifying the maximum reasonable charges for the medical services using the UCR method and (2) identifying improper charges based on generally accepted coding standards. Here, Ms. Dickison did both. Indeed, Plaintiff's counsel's cross-examination and argument at the section 18.001 hearing show he had adequate notice.

RPC hopes the Court will provide affirmative guidance on what a counter affiant must do to satisfy both the qualifications and notice requirements of section 18.001 to help courts, counsel, and counter affiants.

The absence of clear standards and criteria has caused an undesirable lack of consistency in trial court orders denying and granting motions to strike.

This Court's guidance is also needed to clarify what section 18.001 does *not* do. The purpose is to save the plaintiff the expense of proving up medical bills the defendant does not contest, and to give the plaintiff notice when the defendant does contest. The statute does not say that striking the counter affidavit makes any other (otherwise competent) expert testimony inadmissible, including expert testimony by the counter affiant as to the reasonable value of past or future medical care. That issue is not addressed by section 18.001's plain language. Rather, the rules of civil procedure (or a docket control order) govern the disclosure of experts and their putative testimony, and the rules of evidence govern the admissibility of expert opinion testimony.

A section 18.001(f) counter affidavit is *not* an expert witness report. Section 18.001(f) is a notice statute. The counter affidavit should not be held to the standards of an expert report. Because section 18.001 does not replace or accelerate expert report deadlines, discovery, or *Daubert-Robinson* challenges, a motion to strike a section 18.001(e) controverting affidavit is an inappropriate vehicle for such arguments. In RPC's experience, plaintiffs encourage judges to incorrectly treat section18.001

motions to strike as *Daubert-Robinson* challenges. This can set a trap for unwary defendants, who have sought to comply with section 18.001's notice requirement but are nonetheless facing exclusion of their controverting witness on the basis of more exacting *Daubert-Robinson* scrutiny.

In this case, the parties and the trial judge conducted the hearing on the motion to strike as if it were a *Daubert-Robinson* hearing. That led to an arbitrary ruling that should be corrected on mandamus. Specifically, and as further explained below, Ms. Dickison took her percentile UCR values from a widely used commercial service with a massive medical claims database that is regularly relied on by experts for both plaintiffs and defendants. Although she disclosed (i.e., provided "reasonable notice" of) her opinion that median (50^{th} percentile) values are the maximum reasonable charges, her counter affidavit was struck. The ruling seems to have been largely on the basis of Ms. Dickison's limited clinical experience, but may have been at least in part on the basis of Plaintiff's counsel's questions and argument about her choice of percentile.

The reasonableness of Ms. Dickison's choice of percentile for the maximum reasonable charge is not a section 18.001(f) notice issue. As the case proceeds through discovery, the plaintiff will be free to question her, and free to offer expert opinion evidence that the threshold should be higher,

or a method other than UCR should be used to determine the reasonable value of the services — which will be the relevant issue at trial.

Mandamus is necessary to correct this mistake. General guidance from the Court is necessary to prevent future mistakes.

ARGUMENT

Section 18.001 was intended to spare plaintiffs the expense of expert testimony for medical bills on which the defendant does not dispute the medical necessity or the reasonableness of charges in personal injury cases. It requires defendants to provide notice if medical charges are disputed for either reason. That provision is now being misused to prevent defendants from offering any competent expert testimony when the defendant disputes alleged medical damages. Section 18.001 should be construed according to its text and purpose — i.e., to provide "notice" that medical damages are disputed, and to ensure that the counter affidavit is made by a person qualified to do so. If a properly qualified counter affiant gives facially adequate notice of the dispute, a motion to strike should be denied. The merits of the dispute over medical expenses should then be handled in the normal course of discovery, expert reports, motions to exclude testimony, motions *in limine*, trial evidentiary rulings, and cross-examination of experts.

I. Qualifications for and adequate notice required for facially adequate section 18.001 counter affidavit.

Section 18.001(f) counter affiants must be qualified "by knowledge, skill, experience, training, education, or other expertise." TEX. CIV. PRAC. & REM. CODE § 18.001(f). Because counter affidavits may give notice of two very different disputes — (i) whether the medical services were "necessary" and (ii) whether "the amount a person charged for a service was reasonable at the time and place that the service was provided" — qualifications will vary based on the type of dispute.

A. Medical necessity disputes.

Medical necessity disputes require clinical expertise. Allstate filed a counter affidavit by a doctor on medical necessity; Alaniz did not move to strike it. Even with no documentation showing that visits actually occurred, Ms. Dickison deferred to Dr. Kennedy's opinion inferring that some visits were necessary and probably occurred. *See* MR 281-86, Tab 9.

B. Reasonable charge disputes.

The trial court struck Ms. Dickison's 36-page counter affidavit based in part on a conclusory finding that she was not qualified to controvert the reasonableness of healthcare provider charges:

> Ms. Dickison is a nurse and a highly-qualified medical coding and auditing expert. However, Ms. Dickison does not have the expertise required by law of this State to controvert the reasonableness of the charges for the hospital, doctors, physical therapists, pharmacies and other healthcare providers at issue in this case.

CR 866. The court did not explain what qualifications are required.

One motivation for RPC to file this brief is that there is no consistent holding on "the expertise required by law of this State." Several other trial courts, including three other county courts at law in Nueces County, found Ms. Dickison qualified as a counter affiant and denied motions to strike her counter affidavits before Judge Vargas's order striking her counter affidavit. *See* MR 640, 748-753, Tab 10.

The statute states a counter affidavit "must be made by a person who is qualified, by knowledge, skill, experience, training, education, or other expertise, to testify in contravention of all or part of any of the matters contained in the initial affidavit." Tex. Civ. Prac. & Rem. Code § 18.001(f).

This standard requires a link between the qualifications and the opinion of which the counter affidavit provides notice of. Thus, in order to understand the qualifications necessary to dispute the reasonableness of charges, it is necessary to understand the generally accepted methods for analyzing the reasonableness of charges. None of the methods requires medical/clinical training or expertise in the delivery of medical services or products of the sort held by "hospitals, doctors, physical therapists, pharmacies and other healthcare providers." CR 866. Instead, a person qualified to opine on the

reasonableness of charges must understand how to compare the charges at issue to some benchmark of reasonableness.

C. The UCR method for determining the reasonableness of charges.

An industry standard for assessing the reasonableness of any provider's charge is the UCR method. At least one Texas statute uses a UCR percentile value as a criterion for assessing provider charges.

The "usual and customary" or "UC" part of UCR refers simply to the charges on a provider's chargemaster. A chargemaster is a comprehensive list of charges unilaterally established by a provider that apply to all patients, without regard to the expected source of payment. While a provider can change its chargemaster at any time, on any day, the provider charges all patients receiving service the same amount for the same service. Put briefly, UC charges are a provider's billed charges for given services, which together make up the provider's chargemaster.

A "usual, customary, **and reasonable**" charge is a provider's charge for a service that is less than or equal to a charge percentile threshold for that service in the geographical medical market in which such services were

delivered. Several states[1] and major commercial insurers[2] use UCR percentiles to define maximum reasonable charges for out-of-network care. Medicare used the term "prevailing charge" for the same approach before it adopted the Resource Based Relative Value Unit model in 1993.

The UCR method calculates the maximum reasonable charge for a specific medical service identified by code (e.g., CPT, HCPCS, DRG, APC) in a medical market by comparing what all providers in that medical market charge for the same service. All UCR charge analyses are performed on *undiscounted* billed charges. The determination whether a charge is reasonable is not based on what payors pay or on any governmental fee guideline. The UCR charge is based on charges set unilaterally by providers with no adjustments.

Here, Ms. Dickison provided clear notice in her counter affidavit that she was basing her opinion on the reasonableness of the charges on the UCR method.

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[1] Connecticut, Idaho, Indiana, Illinois, New Mexico, Pennsylvania, and Rhode Island workers' compensation statutes refer to UCR charges. Other states refer to UCR charges in their personal injury protection statutes: New Jersey, Pennsylvania, Utah. Alaska refers to UCR charges in a statute concerning emergency services. New York refers to UCR charges in a statute concerning out-of-network services.

[2] To RPC's knowledge, United Healthcare (some plans), Aetna (some plans), Blue Cross Blue Shield (some plans), Cigna (some plans), and Liberty Mutual Auto Insurance use UCR to define maximum reasonable charges for at least some covered services.

1. Ms. Dickison's UCR analysis.

Ms. Dickison's counter affidavit expressly stated she used the UCR method and explained it in far greater detail than the "notice" that section 18.001(f) requires. *See generally*, Dickison Counter Affidavit at Appendix C: Methodology (attached to Relator's Brief).

Medical billing by standardized code. Ms. Dickison started her analysis with a "billing code review." *See id*. at Appendix A. She correctly explains that "in order to understand medical billing, one must first understand medical coding system [*sic*]," much of which has become standardized around two sets of codes. Plaintiff's' providers billed for their services and products using these codes, but, according to Ms. Dickison, did not always do so properly. She identified the coding issues in her counter affidavit by line item and gave detailed explanations of the issue with each line item.

For example, to explain how improper coding can render particular charges unreasonable, Ms. Dickison gave an example of "unbundling": CPT code 62310, epidural steroid injection, includes fluoroscopic guidance of the needle. If the provider also bills fluoroscopic guidance with 77003, that is "basically billing for the same service twice …." MR 267, Tab 9. Whether or not Ms. Dickison is correct that the charges on the bill are improper under

generally accepted coding standards is not the point under section 18.001. She clearly explained her coding review and the opinion she presented based on that review.

The trial court apparently agreed she was qualified to perform a coding analysis. The trial court concluded that Ms. Dickison is a "highly-qualified medical coding and auditing expert." In other words, she has the qualifications to know whether Plaintiff's providers billed for the correct codes for the services provided.

UCR based comparison of charges. The trial court concluded that "Ms. Dickison does not have the expertise required by law of this State to controvert the reasonableness of the charges for the hospital, doctors, physical therapists, pharmacies and other healthcare providers at issue in this case." CR 866. There is no factual or legal basis for that ruling.

This Court has recognized that "with national and regional bases on which to compare prices actually paid, insurance agents are generally well-suited to determine the reasonableness of medical expenses." *Gunn v. McCoy*, 554 S.W.3d at 673. Here, Ms. Dickison is an RN rather than an insurance agent, but she did precisely what the insurance agents in *Gunn v. McCoy* did — that is, she looked to a database of provider charges and made a comparison. On the face of her section 18.001(f) counter affidavit, Ms.

Dickison was sufficiently qualified to do so. Specifically, she is qualified to identify and compare medical charges by code (as explained just above), and, beyond that, she knows and is familiar with claims databases that aggregate and report such data.

There are many data sources regularly used for determining UCR percentile thresholds for maximum reasonable charges, including: FAIR Health Benchmarks, Context4Healthcare's UCR Fee Data, and *Physician Fee Reference, and Medical Fee Book.* Each data source uses different claims data and adjustments to calculate percentile values, and different geographic areas.

The Texas Department of Insurance ("TDI") has designated the *FAIR Health* database as its official database for use in mediation and arbitration proceedings required in out-of-network billing disputes under S.B. 1264.

Context4Healthcare (Ms. Dickison's choice) is routinely relied upon by life care planners for plaintiffs, including the firm Physicians Life Care Planning, as stated in its standard reports (an excerpt from one such report is attached here as *Exhibit C*). Another life care plan prepared by Rehabilitation Professional Consultants Inc. for a tort plaintiff states that it utilized "[c]urrent cost data" in the "geographic domain where the majority of care is anticipated. Cost information is procured and routinely updated from

healthcare databases and other cost data sources that I consider to be among the most reliable in the marketplace." Under COST DATA, REFERENCE SOURCES AND VENDOR SURVEYS, it cites Context4Healthcare, Inc. 2020. *Exhibit D* (*see* pages 15-16 and 25, personal identifying information redacted).

All the published sources are proprietary databases. None publish all the underlying data, but this alone is no reason to arbitrarily exclude an expert's analysis that relies on them. Of course, for purposes of section 18.001, the reliability of Context4Healthcare's data is not relevant, since the statute requires only that the counter affiant give notice of the basis on which the charges are controverted. Simply stating that a comparison to Context4Healthcare data for the service and geographic area at issue should comply with section 18.001. Even if Ms. Dickison's selection of Context4Healthcare were subject to *Daubert-Robinson* scrutiny in this hearing, the plaintiff gave Judge Vargas no evidence showing Context4Healthcare*'s* percentile values were not reasonable or reliable.

2. RPC's approach to UCR analysis.

RPC prepared a white paper explaining how UCR charges and maximum reasonable charges are calculated for different types of health

services. That paper is *Exhibit B*. These paragraphs summarize the main points in the white paper.

Use of industry standard medical codes. RPC identifies — just as Ms. Dickison did — specific services based on industry standard medical coding. RPC assumes — again as Ms. Dickison did — that the codes assigned by the provider in the billing and medical records accurately describe the services. When there are missing codes on a bill, RPC works with medical coders and coding software to assign the appropriate codes. When the provider did not assign codes and did not provide medical records sufficient to assign codes, RPC sets the reasonable charge as zero dollars until the provider supplies additional information.

This step — i.e., identifying the services by their industry standard codes — is a necessary first step in any UCR analysis because any database of medical charges will almost certainly aggregate charges data according to these industry standard codes. In other words, the codes ensure that an apples-to-apples comparison is being done.

RPC's data sources: There are several data sources regularly used for determining UCR percentile thresholds for maximum reasonable charges. Other commonly used data sources are FAIR Health Benchmarks and Context4Healthcare's UCR Fee Data. Each data source uses different

claims data and adjustments to calculate percentile values, and different geographic areas. RPC uses several data sources to calculate UCR charge thresholds, depending on the type of provider that delivers the service. All data sources RPC uses to determine UCR charges are publicly available and were primarily created for uses other than litigation.

The data sources include:

- THCIC Inpatient and Outpatient Public Use Data Files from the Texas Department of State Health Services
- CMS Inpatient and Outpatient Public Use Data Files from the Center for Medicare and Medicaid Services, US Department of Health and Human Services
- CMS Carrier SAF 5% Sample (Database).[3]

These public use databases allow RPC to directly calculate percentile threshold values for different percentiles for many services. As explained below, RPC typically selects the 80th percentile as the maximum reasonable threshold for its UCR analysis. For some services by physicians and other practitioners, RPC calculates an 80th percentile charge nationally and adjusts

[3] When no THCIC or CMS dataset is available for a year including the dates of service for a provider charge, RPC calculates the maximum UCR charge for the most recent year of data available and adjusts the charge upward based on the appropriate subcategory inflation rate from the Consumer Price Index, published by the federal Bureau of Labor Statistics ("BLS"). Inpatient charge thresholds are inflated using the Inpatient Hospital subcategory index. Outpatient charge thresholds are inflated using the Outpatient Hospital subcategory index. Practitioner charge thresholds are inflated using the Professional Services subcategory index. These indices are available for download free from the Bureau of Labor Statistics website.

this charge by a charge-based geographic adjustment factor specific to the geographic market where the service was delivered. For some services, RPC uses the published UCR percentile values.

Medical market definitions: A valid UCR analysis requires comparison of charges within a reasonable geographic region. RPC relies on medical market definitions from the Dartmouth Atlas of Health Care.[4] RPC uses the Hospital Referral Regions ("HRRs") defined in the *Dartmouth Atlas of Health Care* to define medical markets. Sometimes where a county is split between two HRRs, RPC includes providers in both HRRs. In an area with few providers of a service, we sometimes combine HRRs to obtain enough observations.

Each HRR is a collection of zip codes. The United States is divided into 306 HRRs. The complete list of zip codes and HRRs for all other states can be found on the Dartmouth Atlas website. HRRs represent regional health care markets that include a major referral center and community hospitals. The regions were defined by determining where patients were referred for major cardiovascular surgical procedures and for neurosurgery. Each HRR has at least one city where both major cardiovascular surgical

[4] The Dartmouth Institute for Health Policy and Clinical Practice, The Dartmouth Atlas of Health Care, http://www.dartmouthatlas.org/, viewed May 6, 2017.

procedures and neurosurgery are performed.[5] Dartmouth Atlas HRR definitions are available to download, free, from their website.[6]

Context4Healthcare's approach to identifying the medical markets is based on "geo-zips." A geo-zip is a three-digit zip code (e.g., 787XX). As Ms. Dickison explained, the data are "assembled in geographical regions, using postal zip codes. The amounts for services listed in the Context4Healthcare database are organized by CPT codes for each procedure, and then are arranged in percentiles, a percentile being the value of a single variable as it relates to all variables tested. The Context UCR database is designed to provide the ability to look up the usual and customary fees by zip code, CPT code, and percentile." Dickison Counter Affidavit, Appendix C: Methodology, at 20. This description of the medical market should suffice to provide the notice required by section 18.001(f).

***Definition of percentiles and how they are determined*:** Percentiles of charges are calculated by the publisher based on billed charges *with no discounts or adjustments*. A percentile value differs from a percentile rank, and neither the value nor the rank is the same thing as a percentage. A

[5] Dartmouth also defines 3,436 Hospital Service Areas ("HSAs"). Most of the HSAs contain only one hospital and some contain no hospital. Thus, many of the HSAs contain too few physicians in many specialties to provide enough observations to determine UCR charges.

[6] The Dartmouth Institute for Health Policy and Clinical Practice, The Dartmouth Atlas of Health Care, http://www.dartmouthatlas.org/, viewed May 6, 2017.

percentile rank represents a “location” within a set of ordered values (as shown in the chart below). A percentile value is the observation (actual or interpolated) which is at this location. A percentage is not a comparison of a set of data points but is a fraction of one value.

A percentile rank is a number between 0 and 100 that indicates the percent of the observations in a group below it, excluding any observation exactly at the percentile rank. To determine the percentile distribution of a set of numbers, one would sort the observations from the lowest number to the highest number and then review the resulting distribution of numbers to determine the percentile rank of each number. If there are 13 numbers, the number ranked 7th highest is the 50th percentile value, or median value, since half of the other 12 numbers are less than the 7th number and half are greater than the 7th number, as shown in the example below.[7] For the number representing the 25th percentile value, 25% of the other numbers should be less than it and 75% should be greater than it. In the example below, this occurs at the 4th number in the ranking.

Number	**Rank (from Lowest to Highest Charge)**	**Percentile Rank**
97	13	100th

[7] Example and explanation adapted from text of PMIC Digital Book Series. *Medical Fees 2015*. Los Angeles: Practice Management Information Corporation, 2015.

83	12	91.6th
81	11	83.3rd
79	10	75th
77	9	66.6th
75	8	58.3rd
73	7	50th
71	6	41.6th
69	5	33.3rd
67	4	25th
65	3	16.6th
63	2	8.3rd
61	1	0th

Interpolation: RPC constructed the example above to ensure that a specific number represented the 50th percentile and that another specific number represented the 25th percentile. However, this does not always occur. Where is the 80th percentile of these numbers? It makes sense that the 80th percentile must lie between 79, which is the 75th percentile, and 81, which is the 83.3rd percentile. However, there is no observation between these two. In cases such as this, we estimate the percentile value by interpolation. Interpolation means estimating new data points between existing data points. The 80th percentile should be between the 75th percentile and the 83.3rd percentile, so we interpolate a value between 79 and 81. Where exactly in this range should the 80th percentile estimate be? As the 80th percentile rank is 60% of the way between the 75th percentile rank and the 83.3rd percentile rank, the 80th percentile value is the value that falls

60% of the way between 79 and 81. This value is 80.20. Interpolating values is a necessary part of a UCR analysis where the underlying data do not contain a specific number representing the threshold — i.e., the 50th, 75th, or 80th percentile — for determining the maximum reasonable fee.

***Selection of the Percentile for Maximum Reasonable Charge*:** Under a UCR approach, a threshold percentile is selected to determine the maximum reasonable charge for that service in that medical market. Charges less than or equal to the threshold percentile value are reasonable; charges more than the threshold value are not reasonable.

The 80th and 75th percentiles are the threshold percentiles most used as the maximum reasonable charge in state and federal laws and by major health plans.[8] For example, Texas's 2019 legislation protection patients from balance billing, S.B. 1264, establishes an arbitration process and requires the arbitrator to consider the 80th percentile of billed charges and the 50th percentile of payments in the market in determining appropriate allowable amounts for certain out-of-network care.

TDI periodically surveys insurance companies it regulates to collect "detailed information on claims for services provided by both in-network and

[8] Texas Insurance Code §1467.083

out-of-network health care providers."[9] Its 2009 survey asked health plans about the methodologies used "to determine reimbursement rates for non-network physician" providers.[10] The responding health plans represented 95% of the enrollment in state-regulated health plans in Texas. TDI reported in 2009 that the 75th percentile was "the most commonly cited percentile level" used in calculating allowable amounts.[11]

TDI updated this survey in 2017,[12] but the 2017 update did not give the same detailed results as the 2009 survey. It did not ask or report which percentile was most frequently used by state-regulated health plans that use the UCR charge method. It only states that "[t]ypical percentiles used by insurers are the 80th and the 50th percentile."[13] The report does not say how many plans use the 50th percentile, or if more than one plan uses this percentile. TDI has declined to make public the responses of each plan to any question in the survey.

Whatever the percentile is selected as the threshold (e.g., 80th or 75th or 50th), use of the resulting percentile value means each particular provider's

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[9] Texas Department of Insurance. 2009. Report of the Health Network Adequacy Advisory Committee: Health Benefit Plan Provider Contracting Survey Results.
[10] *Id.*at 16.
[11] *Id.* at 4.
[12] Texas Department of Insurance. 2017. Usual and Customary Survey, Revised January 2017.
[13] *Id*. at 11.

charges are deemed reasonable if they are less than or equal to that percentile value. Here, Ms. Dickison selected the 50th percentile charge for the geographic area as reported by Context4Healthcare. Her decision to select the 50th percentile as opposed to the 75th or 80th percentile is debatable, but it is a choice TDI found consistent with the practice of health plans. Determining whether the 50th percentile is a reasonable opinion is not the proper subject of section 18.001's qualifications or notice inquiry.

II. This Court's guidance is needed to prevent further abuses of discretion.

A. Ms. Dickison's counter affidavit should not have been struck based on her lack of qualifications.

The discussion above shows the expertise most useful in determining a maximum UCR percentile reasonable charge as the basis for payment. Such expertise includes familiarity with medical claims; standard coding systems; definitions of medical markets; sources and contents of claims data files; calculation of percentile values from claim data files; and statutes, rules, and business practices affecting choices of percentile values by payors, governments, and commercial services such as Context4Health. Persons with degrees in economics, public policy, business, statistics, public health, and similar fields often have this knowledge and these skills, but they are not specific to any academic discipline or degree — and certainly not to the

training provided in medical or nursing school. They are gained through experience.

The trial court abused its discretion in striking Ms. Dickison's counter affidavit despite her expertise in medical coding and experience in assessing the reasonableness of medical charges under a UCR analysis. The statute requires only that the counter affiant be qualified to give and that her affidavit give "reasonable notice of the basis on which the party serving it intends at trial to controvert the claim." Tex. Civ. Prac. & Rem. Code § 18.001(f). Ms. Dickison is qualified by specialized training and experience to opine on improper coding and documentation and by her medical bill review experience to opine on maximum reasonable UCR charges. She did so, identifying the disputed charges and the reasons each was not reasonable.

B. A motion to strike a section 18.001(f) counter affidavit should be required to show a disconnect between the qualifications of the affiant and the matters contained in the affidavit.

A motion to strike for lack of notice should be decided on the face of the counter affidavit. Qualifications can and should be decided as a matter of law where possible. If an evidentiary hearing is held, it should focus on the truth, accuracy or sufficiency of the counter affiant's qualifications to "testify in contravention of all or part of any of the matters contained in the initial affidavit."

Here, there was no finding that Ms. Dickison's qualifications were fabricated or otherwise different than what was stated in her counter affidavit. The trial court held Ms. Dickison unqualified to make the counter affidavit with language suggesting that, as a matter of law, only doctors may testify as to reasonable charges for the services of doctors, pharmacists as to reasonable charges for prescription medications and services, and hospital representatives as to reasonable charges of hospitals. That was Plaintiff's principal argument. Conceding Ms. Dickison was "imminently qualified in medical coding and billing," Plaintiff's counsel asserted: "She is not the character of witness" needed, because an "orthopedic surgeon couldn't talk about an internist or a radiologist's charges." MR 389, Tab 9.

No education, training, or experience specific to a doctor, nurse, or other clinical professional is required to opine whether a charge exceeds the maximum reasonable charge based on the UCR method. Most clinical professionals have not acquired expertise to opine on reasonableness of charges through clinical education or direct patient care experience. They typically do not even know what the charges for their services are, much less how and why they were set at those values, much less why those values are reasonable. They rely on others, like Ms. Dickison or administrative staff or

consultants using commercial services such as Context4Healthcare or FAIR Health, to maintain their chargemasters.

C. Ms. Dickison's Expert Opinions Remain Admissible.

The rest of Plaintiff's arguments at the hearing were arguments that belong in a Texas Rule of Evidence 702 *Daubert-Robinson* hearing.

They attacked Ms. Dickison's UCR methodology and her use of the methodology. A section 18.001 motion to strike hearing is different than a Rule 702 hearing, and even if treated as a Rule 702 hearing, the hearing held here showed no basis for excluding Ms. Dickison's expert report and her testimony at trial.

Section 18.001 does not require defendants to establish the admissibility of counter affiants' opinions under Tex. R. Evid. 702 or the reliability of their methodologies under *E. Du Pont De Nemours & Co. v. Robinson*, 923 S.W.2d 549 (Tex. 1996). It does not even require that the expert testimony at trial come from the counter affiant.

Section 18.001 does not accelerate resolution of expert evidence disputes; it leaves them to the standard processes of designation of experts, *Daubert-Robinson* hearings, motions *in limine*, trial rulings on objections to testimony, and resolution by the finder of fact.

Even if treated as a Rule 702 hearing, the record below affords no basis to exclude Ms. Dickison's expert report and trial testimony or other evidence of maximum UCR charges.

Plaintiff argued that "Ms. Dickison's methodology is fatally flawed." MR 389, Tab 9. The UCR method to determine a maximum reasonable charge remains in use by payors, governments (including the State of Texas), and life care planners, including for personal injury plaintiffs. Other methods that rely on ***costs*** (such as Medicare cost reports by hospitals) or ***payments*** agreed to by providers or made by Medicare typically result in lower, not higher, amounts, and do not adhere to the plain language of section 18.001, which is directed at "the amount a person ***charged*** for a service." Tex. Civ. Prac. & Rem. Code § 180.001(b).

Plaintiff also argued that Ms. Dickison could not rely on commercial services that collect and organize charge data and calculate percentile values. RPC considers direct use by the expert of public data files to be preferable, but such commercial services are widely used by payors, governments, including the Texas Department of Insurance, and life care planners for personal injury plaintiffs.

Finally, the choice of a maximum UCR percentile has no single scientifically or mathematically correct answer. Ms. Dickison should be

permitted to testify to her use of 50th percentile (median) values. Plaintiff will be free to cross-examine and to offer fact and expert opinion testimony for higher percentiles used by others, or other reasons the jury should find specific services from specific providers are more valuable than the data suggest.

CONCLUSION AND PRAYER

Amicus Curiae Research and Planning Consultants, L.P., prays that the Court receive and consider this Brief, order the trial court to vacate the disputed order striking the counter affidavit, and in doing so provide clarifying guidance as to the section 18.001 issues addressed.

Respectfully submitted,

GRAVES DOUGHERTY HEARON & MOODY
A Professional Corporation
401 Congress Avenue, Suite 2700
Austin, Texas 78701-3744
(512) 480-5704 (telephone)
(512) 480-5804 (facsimile)

/s/ *P.M. Schenkkan*
P.M. Schenkkan
State Bar No. 17741500
William Christian
State Bar No. 00793505
pschenkkan@gdhm.com
wchristian@gdhm.com

and

/s/ Matthew Baumgartner
Matthew Baumgartner
Armbrust & Brown, PLLC
100 Congress, Suite 1300
Austin, Texas 78701
State Bar No. 24062605
mbaumgartner@abaustin.com
(512) 435-2309 – telephone
(512) 435-2360 – facsimile

CERTIFICATE OF COMPLIANCE

I certify that, according to my word processor's word-count function, in the sections of the brief covered by Texas Rule of Appellate Procedure 9.4(i)(1), there are 5,859 words.

/s/ *Matthew Baumgartner*
Matthew Baumgartner

CERTIFICATE OF SERVICE

I certify that, on March 24, 2021, I served a copy of this Amicus Curiae Brief *via* the e-filing portal on:

Counsel for Relators:
Cassie J. Dallas (cdallas@thompsoncoe.com)
Gino J. Rossini (grossini@thompsoncoe.com)
Roger D. Higgins (rhiggins@thompsoncoe.com)
Ashley B. Pedigo (apedigo@thompsoncoe.com)
Monte English (monte@monteenglishlaw.com)

Counsel for Real Party in Interest:
Blake Brunkenhoefer (bbrunk@brunklaw.com)
Kirk Pittard (kpittard@dpslawgroup.com)

Respondent:
Hon. Robert Vargas (maryalice.greses@nuecesco.com)

Amicus State Farm Mutual Automobile Insurance Co.:
Melissa A. Lorber (mlorber@enochkever.com)
Sara Berkeley Churchin (schurchin@enochkever.com)

Amicus Texas Association of Defense Counsel:
Mike H. Bassett (efile@thebassettfirm.com)
Sadie A. Horner (efile@thebassettfirm.com)

/s/ *Matthew Baumgartner*
Matthew Baumgartner

Exhibits

Exhibits A1-A2	Curricula vitae of Ronald T. Luke, J.D., Ph.D. and Brian Piper, Ph.D.
Exhibit B	RPC whitepaper: Determining Usual, Customary, and Reasonable Charges for Healthcare Services (October 5, 2020).
Exhibit C	Physicians Life Care Planning (excerpted pages 50-53)
Exhibit D	Life Care plan example using Context4Healthcare data

EXHIBIT A1

Ronald T. Luke, J.D., Ph.D.

EDUCATION

Harvard University, Kennedy School of Government
Doctor of Philosophy in Public Policy, 1975

The University of Texas at Austin, School of Law
Doctor of Jurisprudence, 1974

Harvard University, Kennedy School of Government
Master of Public Policy, 1972
National Science Foundation Fellow in Economics
1970 - 1972

Harvard University
Bachelor of Arts in Social Studies, Magna cum Laude, 1970
Phi Beta Kappa, 1970

PROFESSIONAL EXPERIENCE

RESEARCH & PLANNING CONSULTANTS, L.P. (RPC), Austin, Texas
President (1979 - Present); Vice President of Operations (1976 - 1979)

Dr. Luke has developed RPC as an inter-disciplinary firm providing economic, financial, and public policy studies. As President and owner, he supervises RPC's professional staff and maintains high standards for the firm's work products.

He has been accepted as an expert in economics, socioeconomic impact analysis, and policy analysis by state and federal courts, and state administrative agencies. The types of cases in which he has provided expert testimony include personal injury, contractual disputes, health care payment disputes, construction defects, utility construction permitting, and certificate of need. He has testified on health care matters including market structure, billing fraud and abuse, reasonableness of charges, medical staff credentialing, workers' compensation fee guidelines, utilization review, physician contracts, and managed care contracts.

He was an original member, and later chairman, of the Texas Department of Insurance's Utilization Review Advisory Committee. Governor George W. Bush appointed him as an original member of the Texas Health Care Information Council, where he had a major role in the development of the Texas hospital discharge data system. Governor Rick Perry appointed him to the Texas Health and Human Services Council, which oversees the Medicaid and CHIP programs. He has served as an advisor to committees of the Texas Legislature on health insurance mandates and major revisions to the Workers' Compensation Act. Governor Perry appointed him to the Board of the Texas Institute for Health Care Quality and Efficiency. He is also a Director of the Texas Association of Business where he chairs TAB's Health Policy Committee.

FORTE, INC., Austin, Texas President
(1986 - 2005)

Dr. Luke has almost two decades of experience in medical bill review and utilization review. In 1986, he established Forté to provide health cost management services, with special attention to workers' compensation medical care. In June 2005, Forté was sold to a national insurance broker. Forté provides medical bill review and utilization review services nationwide and case management services in Texas. Forté's clients are insurers and self-insured employers.

GULF COAST REGIONAL MENTAL HEALTH MENTAL RETARDATION CENTER,
Galveston, Texas
Director of Administrative Services (1974 - 1976)

While preparing his dissertation, Dr. Luke was a consultant to the Gulf Coast Regional Mental Health and Mental Retardation Center on the development of alternatives to state institutions. After completing his degrees, he became Director of Administrative Services for the Center with responsibility for planning, financial management, and management information systems.

PAST AND CURRENT AFFILIATIONS

- Texas Institute for Health Care Quality and Efficiency, Board of Directors,
- State Bar of Texas
- American Bar Association
- National Health Lawyers Association
- National Association of Forensic Economists
- Medical Group Management Association
- Texas Health Care Information Council, Member and Committee Chair
- Austin-Travis County Mental Health Mental Retardation Center, Board of Directors
- Samaritan Counseling Center, Board of Directors
- Easter Seals Central Texas, Officer and Director
- Texas Department of Insurance, Utilization Review Advisory Committee, Member and Chair
- Texas Business Group on Health, Board of Directors
- Texas Association of Business, Board of Directors, Chair Health Policy Committee
- Texas Health and Human Services Council, Member
- Texas Health and Human Services Commission, Integrated Care Management Advisory Committee, Vice Chair
- Texas Health Care Services Integrity Partnership, Chair
- American Bar Foundation, Life Fellow
- The College of the State Bar of Texas, Member
- Capitol Area Council, BSA, Board of Directors
- Harvard Club of Austin, Officer and Director

TEACHING IN HIGHER EDUCATION

Dr. Luke taught courses on public finance and policy analysis utilizing health care case studies at University of Texas at Austin Business School (1978) and University of Houston at Clear Lake City (1975).

EXHIBIT A2

Brian Piper, Ph.D.

EDUCATION

University of Oklahoma
Doctor of Philosophy in Economics, 2012

University of Oklahoma
Masters in Economics, 2010

University of Oklahoma
Bachelor of Science in Mathematics, 2007
Bachelor of Arts in Economics, 2007

CERTIFICATIONS AND SOFTWARE PROFICIENCY

- ARC GIS Level I certification
- Matlab Proficient
- STATA Proficient
- Trained in SQL querying
- RATS Proficient
- Gretl Proficient

PROFESSIONAL EXPERIENCE

RESEARCH & PLANNING CONSULTANTS, L.P. (RPC), Austin, Texas
Consultant (July 2015 – Present)

- Provide expert testimony
- Perform statistical analysis on internal and external market data
- Obtain and analyze quantitative data for incorporation into reports and presentations

EmployStats, Economic Consultant, April 2015-July 2015

- Analyze data in wage and hour class action suits

Sam Houston State University, Assistant Professor, Fall 2012-July 2015

- Introductory Macroeconomics
- Intermediate Macroeconomics
- Introduction to Economics for Non-Majors
- Independent Study in Econometrics and Research

University of Oklahoma, Adjunct Professor, Fall 2012

- Introductory Macroeconomics
- Introductory Microeconomics
- Intermediate Macroeconomics
- Intermediate Microeconomics
- Econometrics II (2nd year graduate level course)

Oklahoma City University, Adjunct Professor, Fall 2009
- Graduate Essential Concepts in Statistics

PEER-REVIEWED JOURNAL PUBLICATIONS

- "Strategic Fiscal Interdependence: County and Municipal Adoptions of Local Option Sales Taxes," (2012). National Tax Journal, 65(2). (with Greg Burge)
- "A Production Function Examination of the Aggregate Effects of Nutrition," (2014). Journal of Macroeconomics, 40.
- "Predicting the Total Economic Impacts of Invasive Species: The case of *B. rubostriata* (red streaked leafhopper)," (2016). Ecological Economics, 128. (with Lirong Liu)
- "Identity, Patronage, and Redistribution: Economic Inequality in Bolivia under Evo Morales," (2018). Journal of Economics, Race, and Policy, 1(1). (with Beatriz Maldonado-Bird, Dan Hicks, and Alejandra Goytia-Rios)

HONORS & AWARDS

- SHSU Faculty Summer Research Grant, 2014
- A.J. Kondonassis Fellowship in Growth and Development Economics, 2010
- Barry M. Moriarty Graduate Student Paper Competition Winner, Southern Regional Science Association, 2009

PRESENTATIONS

- "What Causes Changes in the Rates of Local Option Sales Taxes? Models of Initial Implementation and of Subsequent Changes", Southern Regional Science Association annual conference, San Antonio, TX, April 2009
- "A Production Function Examination of the Aggregate Effects of Nutrition", Southern Economic Association annual conference, Atlanta, GA, November 2010
- "Factor-Specific Productivity", Southern Economic Association annual conference, Washington, DC, November 2011
- "Uncertainty is Depressing", Academy of Economics and Finance annual conference, Mobile, Alabama, February 2013
- "The Economic Impacts of Invasive Species", Annual meeting on Aquatic Invasive Species in the Southeast, Raleigh, NC, October 2013
- "Estimating the Economic Impacts of Invasive Species: The case of the Red-Streaked Leafhopper", Texas Invasive Plant & Pest Conference, Port Aransas, Texas, February 2014
- "Uncertainty is Depressing," Public Choice annual conference, Charleston, South Carolina, March 2014
- "Making Undergraduate Research Work in the College of Business", SHSU annual teaching conference, August 2014

EXHIBIT B

Research and Planning Consultants, LP

DETERMINING USUAL, CUSTOMARY, AND REASONABLE CHARGES FOR HEALTHCARE SERVICES

October 5, 2020

EXHIBIT B

Table of Contents

EXECUTIVE SUMMARY

1. Research & Planning Consultants, LP ("RPC") determines the maximum reasonable charges for most medical services based on the industry-standard definition of Usual, Customary, and Reasonable ("UCR") charges. This is the definition adopted by many states and major commercial insurers to define maximum reasonable charges for out-of-network care. Medicare used the term "prevailing charge" for the same approach before it adopted the Resource Based Relative Value Unit model in 1993.

2. The UCR method calculates the maximum reasonable charge for a specific service in a medical market by comparing what all providers in the medical market charge for the service. All UCR charge analysis is performed on undiscounted billed charges. The determination whether a charge is reasonable is not based on what payors pay or on any government fee guideline. The UCR charge is based entirely on charges set unilaterally by providers without any adjustments.

3. A threshold percentile determines the maximum reasonable charge for that service in that medical market. Charges less than or equal to the threshold percentile value are reasonable; charges more than the threshold value are not reasonable. The 80th and 75th percentiles are threshold percentiles most commonly used in state and federal laws and by major health plans. This means the charge for a service of 80% or 75% by providers in a medical market was less than or equal to this threshold value.

4. RPC determines the UCR charge based on the 80th percentile when possible as this is the most frequently used threshold. Some publications do not publish an 80th percentile threshold charge, but they do publish a 75th percentile threshold charge. When an 80th percentile threshold is not available, RPC determines the UCR charge based on a 75th percentile threshold.

5. RPC uses several data sources to calculate UCR charge thresholds depending on the type of provider that delivers the service. All data sources RPC uses to determine UCR charges are publicly available and were primarily created for uses other than litigation. The data sources include public use data files from the federal Center for Medicare and Medicaid Services, and the Texas Department of State Health Services. These public use data bases allow RPC to directly calculate the 80th percentile threshold value for many services. For other services

by physicians and other practitioners, RPC calculates an 80th percentile charge nationally and adjusts this charge by a charge-based geographic adjustment factor specific to location and the category of the code in question. When RPC cannot directly calculate threshold values due to data limitations, RPC relies on a published benchmark generally relied on by providers to set their charges.

6. RPC identifies specific services based on industry standard medical coding. RPC assumes the codes assigned by the provider in the billing and medical records accurately describe the services. When there are missing codes, RPC works with medical coders and coding software to assign the appropriate codes. When the provider did not assign codes and did not provide records sufficient to assign codes, RPC sets the reasonable charge as zero dollars until the provider supplies additional information.

7. RPC applies industry standard coding edits before determining if the provider's charges are reasonable. These edits are applied by consulting medical coders and by using standard industry software, such as Optum 360's EncoderPro software. Not all types of edits apply to all bills. The types of edits include:

a. Multiple Procedure Rule

b. Bilateral Procedure Rule

c. Unbundling of services or of supplies included in the CPT code

d. Mutually inconsistent codes

e. Percentage of surgeon charges for assistant surgeons, co-surgeons, and assistants at surgery

f. Pre- and post-surgery services included in the global surgery charge

g. Medically Unlikely Edits

INTRODUCTION

8. The question of whether a provider's charges are reasonable arises when there is no contract between a provider and a payor setting a negotiated rate for a service (i.e., out-of-network providers), or when there is no fee schedule set by a statute or rule (e.g., Medicaid, Medicare, and workers' compensation). This paper documents ongoing research by RPC on methods of determining the reasonableness of healthcare providers' charges. RPC based the opinions expressed in this paper on information available at the time of writing. Should additional information become available, we may modify the opinions expressed.[1]

9. This paper identifies and discusses industry standards for what charge percentile threshold state laws and private health plans consider reasonable to determine allowable amounts for payment. The term "allowable amount" refers to the total amount a regulation or private health plan determines a provider should be paid. It is the sum of the payment responsibilities of the plan and the patient.

10. The industry standard for the reasonable range of percentiles at which to determine the allowed amount when paying using the UCR method is from the 75th to the 80th percentile. RPC found many state governments and private health plans adopt the 75^{th} or 80^{th} charge percentile as the threshold for the maximum reasonable charge in a medical market. RPC uses the 80^{th} percentile as the threshold when data are available to that percentile value and the 75^{th} percentile when we must rely on publications that do not publish the 80^{th} percentile value.

11. For some services, the data do not permit looking up or calculating reasonable percentile values. For these services RPC uses other data and other methods to determine reasonable charges as exceptions to our usual procedure.

[1] This is the fifth version of this report and replaces all other versions. The changes in the most recent version reflect additional research into the benchmarks used by state and private payors and additional documentation of RPC methods.

DEFINITIONS

12. Although some organizations and publications use the terms "usual and customary" ("UC") and "usual customary and reasonable" ("UCR") interchangeably, these two terms have distinct meanings.

Usual and Customary ("UC") Charges

13. "Usual and customary charges" are the charges on a provider's chargemaster. A chargemaster is a comprehensive list of charges unilaterally established by a provider that apply to all patients, without regard to the expected source of payment. While a provider can change its chargemaster at any time, on any day the provider charges all patients receiving service the same amount.[2] Usual and customary charges are usually more than the amounts providers accept as payment in full from the patient and other payors.[3] Put briefly, UC charges are a provider's standard charges for given services, which together make up the provider's chargemaster.

Billed Charges

14. "Billed Charges" are the charges, determined by a provider, and submitted to the patient or payor for payment. Billed charges are assumed to be UC charges. These charges are not the result of negotiation, discounting, or adjustment by private health plans or by government regulation. These charges are set unilaterally by providers. Patients rarely know what billed charges will be when receiving the service, and the submission of a bill by a provider does not by itself reflect any agreement that the patient or payor will pay full billed charges. Generally, most providers accept as payment-in-full less than full billed charges for most patients.

Usual, Customary, and Reasonable Charges

15. A "Usual, customary and reasonable," charge is a provider's charge for a service less than or equal to a charge percentile threshold for that service in the medical market where

[2] See: *Holland v. Trinity Health Care Corp.*791 NW 2d 724 (2010), 287 Mich. App. 524 and Reinhardt, Uwe. 2009. How Do Hospitals Get Paid? A Primer. Economix. *The New York Times*. Available at: http://economix.blogs.nytimes.com/2009/01/23/how-do-hospitals-get-paid-a-primer/?_r=0&module=ArrowsNav&contentCollection=Business%20Day&action=keypress&region=FixedLeft&pgtype=Blogs

[3] See *Midwest Neurosurgery, PC v. State Farm Ins. Cos*., 268 Neb. 642, 686 N.W.2d 572 (2004) as cited in *Holland v. Trinity Health Care Corp,* Op Cit.

the service was delivered. The threshold may be set by state law. In the absence of state law, a private health plan may set a threshold, which may or may not be accepted by providers.

16. The term "UCR" is sometimes used imprecisely in the healthcare industry. The *Physicians' Fee Reference* software program explains that each private health plan has its own policies on payment limits, and they often refer to these limits as Usual, Customary and Reasonable, or UCR.[4] However, this does not mean those limits were established using the UCR charge method explained in this paper. Similarly, FAIR Health explains on its FAQ page that UCR "is a term often used to describe how insurers determine reimbursement amounts for out-of-network care."[5] In this paper RPC uses the term "UCR charge" only to mean a charge less than or equal to a charge percentile threshold.

17. The acronym "UCR" sometimes stands for "usual and customary rate." The term "rate" refers to the allowed amount paid under a provider contract, a health plan's policies and procedures, or government regulation. In this paper RPC uses "UCR" only to stand for a Usual, Customary, and Reasonable charge.

Allowable Amount

18. "Allowable amount" is the total amount a public or private health plan determines a provider should be paid for a service. It is the sum of the amount the health plan will pay plus the patient's responsibility under the plan. HealthCare.gov defines the term as "the amount paid for a medical service in a geographic area based on what providers in the area usually charge for the same or similar medical service."[6] Subject to any state regulation, each private health plan sets its own UCR allowable amount for a particular area. A private health plan may determine the allowable amount as a percentage of billed charges, as a percentage of the Medicare payment amount, or as a mathematical function of its negotiated rates. Those methods of determining allowable amounts are not determining UCR charges.

[4] PFR Introduction. 2014. Physicians' Fee Reference. Page 2. Wasserman Publishing.
[5] FAIR Health. Consumer Cost Lookup. FAQ. Available at: http://fairhealthconsumer.org/faq.php
[6] HealthCare.gov. Glossary. UCR. Available at: https://www.healthcare.gov/glossary/UCR-usual-customary-and-reasonable/

RPC's UCR Charges

19. RPC determined the percentile thresholds for UCR charges based on a broad review of state laws and private health plans. The industry standard for the reasonable range of percentiles at which to determine the allowed amount when paying using the UCR method is from the 75th to the 80th percentile, The threshold percentile for the upper bound of the UCR charge for a service may be found in state or federal regulations, in an ERISA plan description, in the internal policies of a health plan, or through a dispute resolution process. The 80th percentile of billed charges is most frequently used as the UCR percentile threshold, as described below.

Definitions of Various Medical Code Sets Used in Calculating

Common Procedural Terminology Codes

20. Common Procedural Terminology ("CPT") codes are licensed and maintained by the American Medical Association.[7] CPT codes are five-digit codes assigned to medical services and procedures. Each code has a narrative description. CPT coding is required for all claims filed with the federal government and is accepted or required by all other third-party payors.

Health Care Procedure Coding System Codes

21. Health Care Procedure Coding System ("HCPCS") codes are five-character alphanumeric codes maintained by CMS. CPT codes are a subset of HCPCS codes, called Level I codes. Each code has a narrative description. HCPCS also contains Level II codes which cover supplies, services, materials, and injections not included in the Level I CPT codes. These codes are available on the CMS web site.[8]

DRG Codes

22. Diagnosis Related Group, or DRG codes, are used to identify inpatient hospital admissions. Admissions with the same DRG are for similar diagnoses, include similar

[7] https://www.ama-assn.org/practice-management/cpt/cpt-overview-and-code-approval
[8] https://www.cms.gov/Medicare/Coding/HCPCSReleaseCodeSets/HCPCS-Quarterly-Update

procedures, and generally have the same costs to hospitals. The most commonly used DRG code set is the Medicare Severity Diagnosis Related Group ("MS-DRG"). MS-DRGs are maintained by CMS, and are available on the CMS website.[9]

ICD 10 Procedure and Diagnosis Codes

23. International Classification of Diseases and Health Related Problems Version 10, or ICD 10 Codes, are three- to seven-digit code sets used to identify highly-detailed diagnoses and medical procedures. These codes are used in assigning inpatient DRGs, and ICD 10 procedure codes can be used to identify the primary surgical procedure in an outpatient setting. ICD is a code system maintained by the World Health Organization. CMS, in conjunction with the National Center for Health Statistics, created a modified system called ICD-10 Clinical Modification, which is used in the United States. When RPC methodology uses ICD-10 codes, this refers to the ICD-10 Clinical Modification set. ICD-10 codes are available, free, from the CMS website.[10]

Definition of Percentiles and How They are Determined

24. Percentiles of charges are calculated based on provider charges with no discounts or adjustments. The sources referenced in this paper define the UCR charge for a service as the charge amount that falls at a certain percentile rank in a geographic area. A percentile rank is a number between zero and one hundred that indicates the percent of the observations in a group below it, excluding any observation exactly at the percentile rank. To determine the percentile distribution of a set of numbers, we sort the observations from the lowest number to the highest number. We then review the resulting distribution of numbers to determine the percentile rank of each number. If there are 13 numbers, the number ranked 7th highest is the 50th percentile value, as half of the other 12 numbers are less than the 7th number and half are greater than the 7th number, as shown in the example below.[11] For the number representing the 25th percentile value,

[9] https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/MS-DRG-Classifications-and-Software
[10] https://www.cms.gov/Medicare/Coding/ICD10/2020-ICD-10-CM
[11] Example and explanation adapted from text of PMIC Digital Book Series. *Medical Fees 2015*. Los Angeles: Practice Management Information Corporation, 2015

25% of the other numbers should be less than it and 75% should be greater than it. In the example below, this occurs at the 4th number in the ranking.

Number Ranking and Percentile Example

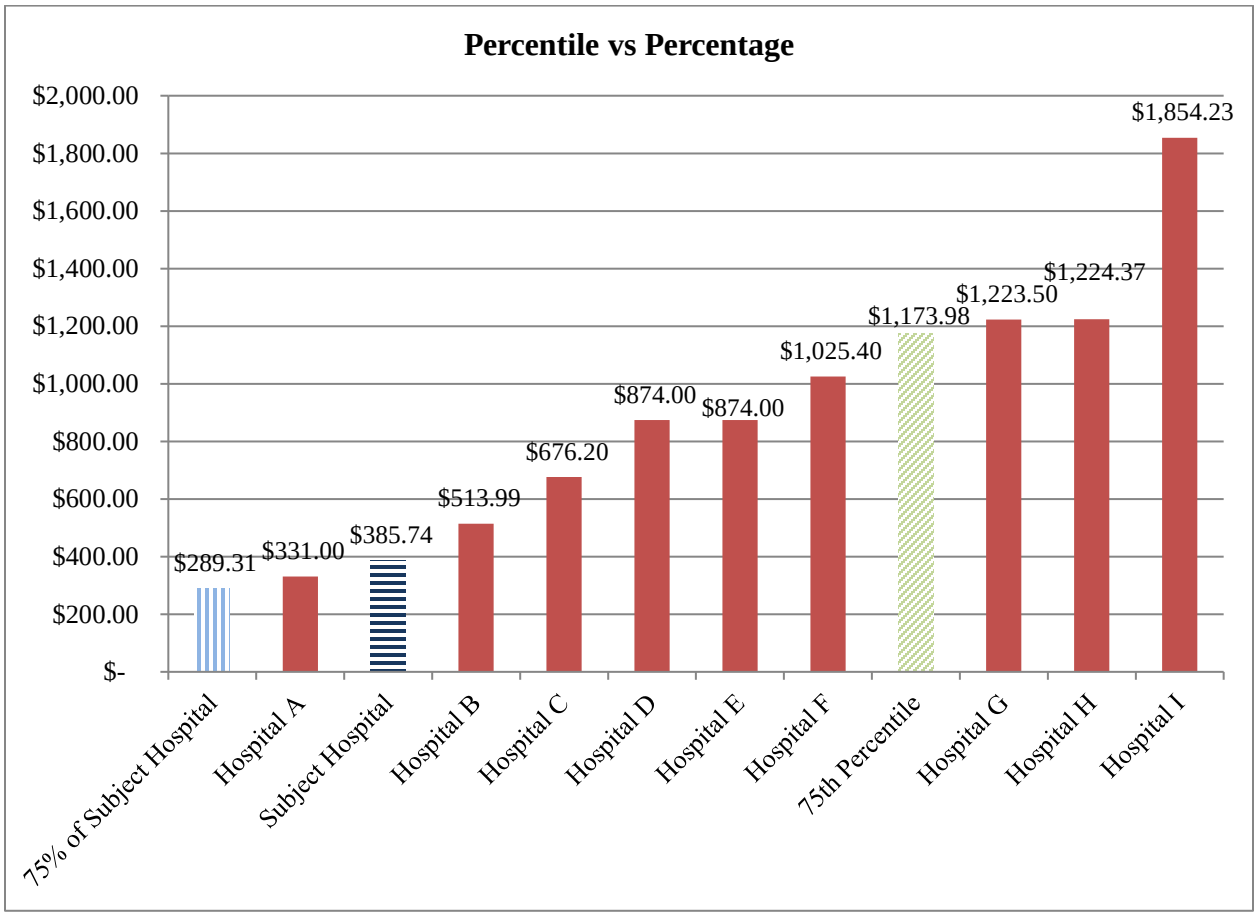
Number	Rank (from Lowest to Highest Charge)	Percentile Rank
97	13	100th
83	12	91.6th
81	11	83.3rd
79	10	75th
77	9	66.6th
75	8	58.3rd
73	7	50th
71	6	41.6th
69	5	33.3rd
67	4	25th
65	3	16.6th
63	2	8.3rd
61	1	0th

25. We constructed the example above to ensure that a specific number represented the 50th percentile and that another specific number represented the 25th percentile. However, this does not always occur. Where is the 80th percentile of these numbers? It makes sense that the 80th percentile must lie between 79, which is the 75th percentile, and 81, which is the 83.3rd percentile. However, there is no observation between these two. In cases such as this, we estimate the percentile value by interpolation. Interpolation means estimating new data points between existing data points. The 80th percentile should be between the 75th percentile and the 83.3rd percentile, so we interpolate a value between 79 and 81. Where exactly in this range should the 80th percentile estimate be? As the 80th percentile rank is 60% of the way between the 75th percentile rank and the 83.3rd percentile rank, the 80th percentile value is the value that falls 60% of the way between 79 and 81. This value is 80.20.

26. There are publications and data services that compile charge data and publish percentile values for various provider services. Providers may look to these publications when they establish their chargemasters. Payors may look to these publications in establishing allowable amounts. For other services there are no publications that calculate percentiles, but there are reliable public data sources with which to calculate charge percentiles.

27. A health plan can specify other methods in the benefit description or insurance policy to define an allowable amount for services by out-of-network providers that do not involve the UCR concept. One is to pay a percentage of a provider's billed charges. Because of the similarities among "percentile," "percentile rank," and "percentage" these methods may be confused.

28. A percentile value differs from a percentile rank, and neither are the same as a percentage. A percentile rank represents a "location" within a set of ordered values (as shown in the chart above). A percentile value is the observation (actual or interpolated) which is at this location. A percentage is not a comparison of a set of data points, but is a fraction of one particular value. This difference is illustrated in the figure below, which provides charges for a service at various hospitals, arranged in ascending order by amount. The chart shows the 75th percentile of those charges in light green—75 percent of all hospitals in the example have charges equal to or less than that amount. Here, 75 is the percentile rank, and $1,173.98 is the 75th percentile value. The light blue bar shows the value of 75% of the charges at the Subject Hospital.



29. States and private health plans that use the UCR charge method to set the allowable amount normally pay the lower of a provider's actual charge or the UCR percentile value. If a provider's charge is less than or equal to the UCR charge the allowable amount will be 100% of the provider's charge. If the provider's charge is higher than the UCR charge the allowable amount will be a percentage of the billed charge less than 100%. Payors that set the allowable amount based on a percentage of the provider's billed charge will pay providers in the same market that set higher charges more than those that set lower charges. At any point in time payors using the UCR method to set the allowable amount will treat all providers in a market equally rather than reward providers that charge the most.

DATA SOURCES FOR UCR CHARGES

30. There are many regularly used data sources for determining UCR percentile thresholds for maximum reasonable charges. The data sources RPC uses to determine UCR percentile thresholds are discussed below. Other commonly used data sources are FAIR Health

Benchmarks and Context4Healthcare's UCR Fee Data. Each data source uses different claims data and adjustments to calculate percentile values, different geographic areas.

31. Whenever possible, RPC uses public use data files so we can define the medical market and directly calculate the 80th percentile charges. When the public use data file does not have sufficient data to calculate an 80th percentile charge for a service in a medical market, RPC relies on published UCR charge thresholds. If RPC has no data source for an appropriate UCR benchmark, RPC assumes the billed charge is reasonable.

Medical Market Definitions

32. Each publication which lists UCR thresholds has its own definition of medical markets. These definitions may be based on Medicare Geographic Practice Cost Indices, zip codes, or geo-zips (three-digit zip codes).

Dartmouth Atlas of Healthcare

33. RPC relies on medical market definitions from the *Dartmouth Atlas of Healthcare*.[12] RPC uses the Hospital Referral Regions (HRRs") defined in the *Dartmouth Atlas of Health Care* to define medical markets. Sometimes where a county is split between two HRRs, we include providers in both HRRs. In an area with few providers of a service, we sometimes combine HRRs to obtain a sufficient number of observations.

34. Each HRR is a collection of zip codes. The United States is divided into 306 HRRs. The complete list of zip codes and HRRs for all other states can be found on the Dartmouth Atlas website. HRRs represent regional health care markets that include a major referral center and community hospitals. The regions were defined by determining where patients were referred for major cardiovascular surgical procedures and for neurosurgery. Each HRR has at least one city where both major cardiovascular surgical procedures and neurosurgery

[12] The Dartmouth Institute for Health Policy and Clinical Practice, The Dartmouth Atlas of Health Care, http://www.dartmouthatlas.org/, viewed May 6, 2017.

are performed.[13] Dartmouth Atlas HRR definitions are available to download, free, from their website.[14]

Inpatient and Outpatient Hospital Services and Ambulatory Surgery Centers

THCIC Inpatient and Outpatient Public Use Data Files

35. These files are released quarterly by the Texas Department of State Health Services and contains discharge level records from Texas hospitals for inpatient stays and visit level records for outpatient and emergency room visits. These files have data for all insured and uninsured patients. The files contain most of the data elements found on a UB-04/CMS 1450 hospital billing form. The outpatient files also include visits to Ambulatory Surgery Centers ("ASCs"). This is RPC's primary data source for facility charges in Texas. These files are available for purchase from the Department.[15]

CMS Inpatient and Outpatient Public Use Data Files

36. The Center for Medicare and Medicaid Services ("CMS") publishes public use data files annually with records of inpatient and outpatient hospital claims submitted to Medicare. The files contain most of the data elements found on a UB-04/CMS 1450 hospital billing form. The Medicare allowed amount for each claim is also shown. While these claims are for Medicare beneficiaries, the billed charges apply to all patients treated at the facilities regardless of payor. RPC determines maximum UCR charges based on the charges, not on the Medicare payment rates or allowable amounts. RPC uses these files to calculate maximum UCR charges for facilities outside Texas. These files are available to those with a data use agreement with CMS for limited data set files.

[13] Dartmouth also defines 3,436 Hospital Service Areas ("HSAs"). Most of the HSAs contain only one hospital and some contain no hospital. Thus, many of the HSAs contain too few physicians in many specialties to provide enough observations to determine UCR charges.
[14] The Dartmouth Institute for Health Policy and Clinical Practice, The Dartmouth Atlas of Health Care, http://www.dartmouthatlas.org/, viewed May 6, 2017.
[15] https://www.dshs.state.tx.us/thcic/

Physician and Other Provider Services

CMS Carrier SAF 5% Sample (Database)

37. CMS publishes the Carrier Standard Analytical File ("CMS Carrier SAF") annually. It reflects all billings to Medicare by physicians, radiologists, anesthesiologists, therapists, labs, and other providers for a semi-random sample of 5% of Medicare beneficiaries. The files contain most of the data elements found on a CMS 1500 billing form. The Medicare allowed amount for each claim is also shown. While these claims are for Medicare beneficiaries, the billed charges apply to all patients treated at the facilities regardless of payor. RPC determines maximum UCR charges based on the charges, not on the Medicare payment rates or allowable amounts. These files are available to those with a data use agreement with CMS for limited data set files.

38. RPC uses a rolling three-year window of claims from the CMS Carrier SAF to create a UCR database for practitioner charges. This database includes directly calculated 80th percentile charges for CPT codes with at least five providers in an HRR. For most CPT codes with fewer than five providers in an HRR, RPC calculates a national 80th percentile threshold value and applies a geographic adjustment factor specific to the HRR and the CPT category. For codes with fewer than five reported providers in an HRR and fewer than 5 codes in a code family, RPC does not include percentile values in its database. Instead, we rely on *Medical Fees in the United States'* published 75th percentile charge.

Medical Fees in the United States

39. *Medical Fees in the United States*, aka *Medical Fees* or the *Medical Fee Book* ("MFB"), is a generally accepted publication that compiles information on physician charges for a wide variety of services from private insurance claims. It includes a table used to adjust national percentile charge values for different areas based on Medicare Geographic Practice Cost Indices. The book is publicly available and is primarily marketed to physicians to assist them in developing their chargemasters. RPC uses percentile values from the MFB for codes which are not covered by Medicare and for code families with fewer than five codes with at least five providers in an HRR.

Charge Adjustments for Inflation

40. When no THCIC or CMS dataset is available for a year including the dates of service for a provider charge, RPC calculates the maximum UCR charge for the most recent year of data available and adjusts the charge upward based on the appropriate subcategory inflation rate from the Consumer Price Index, published by the federal Bureau of Labor Statistics ("BLS"). Inpatient charge thresholds are inflated using the Inpatient Hospital subcategory index. Outpatient charge thresholds are inflated using the Outpatient Hospital subcategory index. Practitioner charge thresholds are inflated using the Professional Services subcategory index. These indices are available for download free from the Bureau of Labor Statistics website.[16]

STANDARD PERCENTILES FOR DETERMINING UCR CHARGES

41. RPC researched state laws and the past and current practices of public and private health plans, including Medicare, major commercial health plans, and property-casualty insurance companies to learn what percentiles different payors use for the maximum UCR charge for a service. We also reviewed expert monographs and medical charge reference publications and software.

42. It is not always possible to compare the charges of different providers in a geographic area to determine a reasonable charge. There must be enough providers in the area to allow for meaningful comparisons. If there are too few providers, prices may not be set independently. This method may not be reasonable for emergency services because charges may not be subject to market forces. For example, UCR is not a reasonable method for air ambulance or emergency physician groups.

State Laws

43. States have adopted laws governing payment for medical services covering workers' compensation, automobile insurance and commercial health plans. When the laws use the UCR charge method to set payment rates, they indicate the threshold percentile. The

[16] https://www.bls.gov/cpi/

paragraphs below describe these laws and show most are in the 75th percentile to the 80th percentile range.

Texas

44. In 2019, Texas passed legislation protecting consumers from surprise medical bills. The law establishes an arbitration process, and requires the arbitrator to consider the 80th percentile of billed charges and the 50th percentile of payments in the market in determining appropriate allowable amounts for certain out-of-network care.[17]

Alaska

45. Alaska adopted the 80th percentile of physician charges for emergency services as the payment standard for emergency services.[18]

Connecticut

46. Connecticut designated FAIR Health's 80th percentile charge benchmarks for health care services as the "usual, customary ***and reasonable rate***" to be used in determining insurance reimbursements for health care providers.[19] (emphasis added)

47. Connecticut establishes its Workers' Compensation Practitioner Fee Schedule as the 74th percentile level of the data base of statewide charges, with non-physician practitioners paid at 70% of the physician fee schedule.[20]

Idaho

48. The Idaho workers' compensation rules define a "reasonable charge" as "a charge that does not exceed the Provider's 'usual' charge and does not exceed the 'customary' charge, as defined in this rule," and the rules define a "customary charge" as, "a charge which shall have

[17] Texas Insurance Code §1467.083
[18] See Alaska Admin. Code tit. 3, § 26.110.
[19] See Conn. Public Act No. 15-146.
[20] CT Administrative Regulation §31-280-3

an upper limit no higher than the 90th percentile, as determined by the Commission, of usual charges made by Idaho Providers for a given medical service."[21]

Illinois

49. Illinois's Workers' Compensation Act sets the maximum allowable payment under its fee schedule as 90% of the 80th percentile of charge as determined by the Commission using databases with specific requirements.[22]

Indiana

50. Indiana's workers' compensation law limits pecuniary liability for non-facility medical services to the 80th percentile charge in the same community for like services or products. Facility charges are limited based on a percentage of Medicare payments.[23]

New Mexico

51. New Mexico's worker's compensation statute gives the director leeway in establishing a fee schedule, but requires that the rates fall between the 60th and the 80th percentile of current rates for health care provider charges.[24]

New Jersey

52. New Jersey adopted the 75th percentile for medical expenses in personal injury protection auto insurance cases.[25]

New York

53. New York State Budget Bill S6914, which became effective April 1, 2015, includes provisions aimed at providing increased transparency of insurers' out-of-network

[21] IDAPA 17.02.09.30
[22] 820 ILCS 305
[23] IC 22-3-6-1(k)
[24] NM Laws §52-4-5
[25] See N.J. Rev. Stat. 39:6A-4.6 (2004).

coverage and provisions addressing payments for emergency care and "surprise bills" by out-of-network physicians. [26] Under the Bill, insurers must describe their reimbursement methodologies "and make available at least one alternative option" for out-of-network coverage "using UCR after the imposition of 20% coinsurance." [27] The Bill defines usual and customary cost as meaning

> The eightieth percentile of all charges for the particular health care service performed by a provider in the same or similar specialty and provided in the same geographical area as reported in a benchmarking database maintained by a nonprofit organization…[28]

Guidance issued by the New York Department of Financial Services clarified that FAIR Health can "be used as the independent source to determine UCR" in satisfaction with the Bill. [29]

54. Insurers must also provide standardized examples that allow consumers to compare costs across plans. In doing so, they must use the 80th percentile charge. However, insurance plans can base their allowable amounts on other percentiles, data sources outside of FAIR Health or Medicare fees. [30] However, major insurers not exempted under the Bill must provide at least one plan that uses the 80th percentile of charges as its usual and customary charge for out-of-network services.

Pennsylvania

55. Pennsylvania states that persons or institutions treating a person injured in a motor vehicle accident "shall not require, request or accept payment … in excess of 110% of the prevailing charge at the 75th percentile."[31] "Prevailing charge" and "UCR charge" are synonymous.

[26] Medical Society of the State of New York. State Advocacy-Out of Network. Final Budget Includes Out-of-Network Transparency and Coverage Reform Provisions Sought by MSSNY, Medical Specialty Societies and Physician Leaders.
[27] New York Department of Financial Services. Out-of-Network Law (OON) Guidance. Available at: https://www.dfs.ny.gov/apps_and_licensing/health_insurers/outofnetwork_law_oon_guidance
[28] This definition occurs several times throughout the bill. For an example, see S. 6914 161 A.9205.
[29] New York Department of Financial Services. Out-of-Network Law (OON) Guidance. Available at: https://www.dfs.ny.gov/apps_and_licensing/health_insurers/outofnetwork_law_oon_guidance
[30] FAIR Health Consumer. FAQ. Available at: https://www.fairhealthconsumer.org/#answer1-faq
[31] PA Title 75. §1797(a)

56. In its Workers' Compensation Act, Pennsylvania states providers "shall not require, request or accept payment for the treatment, accommodations, products or services in excess of one hundred thirteen per centum of the prevailing charge at the seventy-fifth percentile, one hundred thirteen per centum of the applicable fee schedule, the recommended fee or the inflation index charge; or one hundred thirteen per centum of any other Medicare reimbursement mechanism."

Rhode Island

57. Rhode Island established its workers' compensation fee schedule to limit charges to the 90th percentile of the usual and customary charges of providers in the state.[32]

Utah

58. Utah defines the reasonable value of medical expenses in personal injury protection automobile insurance to be the 75th percentile per unit charge multiplied by the relative unit value of a service, as calculated from a biannual study by the state.[33]

Medicare

59. Before moving to a fee guideline based on Relative Value Units ("RVUs"), Medicare paid approved amounts for services, which were defined as "the lesser of a physician's bill, his or her customary (median) charge in the preceding year, or the fee that prevailed among like-specialty physicians (the 75th percentile of the local distribution of customary charges for that procedure, subject to limits imposed by the Medicare Economic Index)."[34] This was often called the customary or prevailing rate method of determining payment. The 75th percentile remains a standard reporting threshold and payors often use it to determine a UCR charge in a medical market.

[32] Rhode Island Statutes §28-33-7
[33] Utah Code, 31A-22-307
[34] Juba, David A. 1987. Medicare physician fee schedules: Issues and evidence from South Carolina. *Health Care Financing Review*, 8:3.

Commercial Health Plans and Property-Casualty Insurance Companies

60. Commercial health plans negotiate provider contracts with physicians, hospitals and other healthcare providers. The providers with contracts are called "in-network providers." These contracts set negotiated allowable amounts the provider agrees to accept as full payment, and the provider agrees not to collect from the patient the difference between the allowed amount and the provider's billed charge. An out-of-network provider is one with which a health plan has no provider contract and no agreement for an amount the provider will accept as full payment for a service. There is a contractual relationship between a health plan and the patient and the health plan or insurance policy determines how much the plan must pay the out-of-network provider on behalf of the patient. Commercial health plans need payment policies to establish an allowable amount for services.[35] For a given payor, the allowable amount and the method by which it is determined can be different for different health plans administered by that payor and may depend on whether a plan is an insured plan or a self-insured plan under ERISA.

Texas Department of Insurance

61. The Texas Department of Insurance ("TDI") appointed a technical Advisory Committee on Health Network Adequacy ("the Committee") that included representatives from health benefit plan, physician and hospital sectors. The Committee was charged with evaluating healthcare network adequacy and balance billing. As part of its work, the Committee surveyed insurance companies regulated by TDI to collect "detailed information on claims for services provided by both in-network and out-of-network health care providers."[36] The survey asked health plans about the methodologies used "to determine reimbursement rates for non-network physician" providers.[37] The responding health plans represented 95% of the enrollment in state-regulated health plans in Texas. In 2009, the Committee published the results in a report, and reported that the 75th percentile was "the most commonly cited percentile level" used in

[35] Please note that the allowable amount is not always the amount the health plan will pay the provider. Under some plans, only a portion of the allowable amount will be paid by the insurer, and the patient may be responsible for additional amounts the provider bills.
[36] Texas Department of Insurance. 2009. Report of the Health Network Adequacy Advisory Committee: Health Benefit Plan Provider Contracting Survey Results
[37] *Ibid*., p. 16.

calculating allowable amounts.[38] The 2009 TDI survey included detailed counts of responses by plans.

62. TDI updated this survey in 2017,[39] but the 2017 update did not give the same detailed results as the 2009 survey. It did not ask or report which percentile was most frequently used by state-regulated health plans that use the UCR charge method. It only states that, "Typical percentiles used by insurers are the 80th and the 50th percentile."[40] The report does not say how many plans use the 50th percentile, or if more than one plan uses this percentile. TDI has declined to make public the responses of each plan to any question in the survey. RPC believes that the 2009 survey is more relevant and reliable than the 2017 update on questions of industry standards.

United Healthcare

63. United Healthcare's website explains "certain health care benefit plans" administered by UnitedHealth and its affiliates "provide 'out-of-network' medical and surgical benefits for members." Under such plans, "members may be entitled to payment for covered expenses" if they use out-of-network health care professionals. If an out-of-network provider submits a claim, UnitedHealth will pay based on the specific plan, which "in many cases" provides for payment at the lower of either the out-of-network provider's actual charge billed to the plan member, or the "reasonable and customary amount" in a geographic area.[41] The website explains, "plans determine the amounts payable under these standards by reference to various available resources."[42] The website focuses on payments for professional services and explains the sources used to calculate the payments. The professional services are paid at the 80th percentile of FAIR Health's benchmarking of the charge for any service or procedure in an area.[43] The allowed amounts calculated using this methodology will "at times, be less than the

[38] *Ibid*, p. 4.
[39] Texas Department of Insurance. 2017. Usual and Customary Survey, Revised January 2017.
[40] *Ibid*, p. 11.
[41] United Healthcare also uses the terms "the usual, customary, or reasonable amount." and "the prevailing rate" and indicates that other similar terms base payment on what other healthcare professionals in a geographic area charge for the same services.
[42] United Healthcare. 2019. Information on Payment of Out-of-Network Benefits. Available at: http://www.uhc.com/legal/information-on-payment-of-out-of-network-benefits. Accessed July 10, 2019.
[43] FAIR Health is an independent, non-profit organization "whose mission is to bring transparency to healthcare costs and health insurance information." FAIR health has the nation's largest collection of private medical claims

amount billed for particular professional services." In such instances, the patient is "responsible for the difference between the professionals' charges and what the UnitedHealth Group affiliate pays."[44]

Aetna

64. Aetna uses several methods for paying for out-of-network services, and the exact calculation depends on the specific Aetna plan. However, under plans that pay for out-of-network services, many use the "reasonable charge" and "prevailing charge" methodology. Under that system, Aetna uses information from FAIR Health to determine how much providers in any geographic area charge for particular services. For most health plans, Aetna uses the 80th percentile to calculate how much to pay for out-of-network services. Aetna then uses the specific details of each health plan to determine how much of that charge it will pay, and how much the patient pays (in the example on the website, the plan covers 70 percent of the allowed amount). Aetna notes this methodology does not apply to every case. Some Aetna plans "set the prevailing charge at a different percentile" while others do not use FAIR Health data at all.[45]

Blue Cross Blue Shield

65. Some plans issued by Blue Cross Blue Shield insurers set allowed amounts for out of network services at percentiles applied to FAIR Health databases. For example, Horizon Blue Cross Blue Shield of New Jersey lets employers choose plans with out of network allowed amounts at the 70th, 80th, or 90th percentile of FAIR Health data.[46]

data. FAIR Health was established in 2009 as the successor to Ingenix as part of a settlement with the State of New York. As an independent organization, FAIR Health is a conflict-free and transparent data source, available to payors, providers, researchers and consumers in various formats. We discuss FAIR Health in more detail in subsequent sections of this paper.

[44] United Healthcare. 2019. Information on Payment of Out-of-Network Benefits. Available at: http://www.uhc.com/legal/information-on-payment-of-out-of-network-benefits. Accessed July 10. 2019.

[45] Aetna. 2019. Network and Out of Network Care. Available at: https://www.aetna.com/individuals-families/using-your-aetna-benefits/network-out-of-network-care.html

[46] Horizon Blue Cross Blue Shield of New Jersey. Out-of-Network Payments. Available from Accessed October 8, 2019. Available at: https://www.horizonblue.com/members/education-center/understanding-your-coverage/out-of-network-payments

Cigna

66. Cigna offers many plans that allow plan sponsors to choose out-of-network reimbursement rates at a percentile applied to FAIR Health data. The typical percentiles are the 70th or the 80th.[47]

Liberty Mutual

67. Liberty Mutual Insurance is a property-casualty insurer that does not offer commercial health plans. It sets the allowed amount at the 80th percentile charge from the FAIR Health database for out-of-network PIP claims in many states, including Texas.[48]

Medical Charge Publications and Databases

FAIR Health

68. FAIR Health provides a medical cost lookup tool for consumers that includes an estimated medical cost for medical and dental procedures, based on the procedure code and the geographic area of service. The tool provides separate cost estimates for insured and uninsured individuals. The results for both insured and uninsured patients provide estimated charges at FAIR Health's 80th percentile. Although the default on the consumer search site is the 80th percentile, FAIR Health's data resource for allowed medical benchmarking provides data on charges for given codes at the 50th, 60th, 70th, 75th, 80th, 85th, 90th and 95th percentiles.[49]

69. FAIR Health also sells data services to major health plans such as UnitedHealth and Aetna. It also provides data to third party claims administrators and to medical bill review

[47] Cigna. Out Of Network. Accessed October 8, 2019. Available from https://cignaforhcp.cigna.com/web/public/resourcesGuest/!ut/p/z1/hY3BDoIwDIafxQNHadWoXI2JoDGRyEG2iylYdYYB2SbK28vuGntp2v9rP5CQg6ypUzdyqqmpGmYhF-dDHC0mSYZJvEs3uE1xvZ1k2QwjhNM_QA4x_qiVv5f_EDEolr8Vczh1il-Q-U-GryACtMqxDbC8l22Ahm3zNCXvVWHI9MO6UrUqqTqy0sXTWNZcu5R63wLUfPHh-hsUtnRj73lQR--wbYyr2IVkQUyh1TmOhY5eq9HoA1J0SGU!/dz/d5/L2dBISEvZ0FBIS9nQSEh/p0/IZ7_OG861HS0HGJPF0IP0CI1SS3085=CZ6_OG861HS0HGJPF0IP0CI1SS3080=LA0=Eref!QCPsitesQCPchcpQCPresourceLibraryQCPclinicalReimbursementPaymentQCPmedicalClinicalReimburseOutOfNetwork.page==/#Z7_OG861HS0HGJPF0IP0CI1SS3085

[48] Liberty Mutual Insurance. Notice About PIP and MedPay Payments. https://www.libertymutual.com/claims-center/auto-insurance-claims/other-auto-claims/pip-medpay-payment-claims-notice

[49] FAIRHealth. 2013. Allowed Medical Benchmarks. http://www.fairhealth.org/servlet/servlet.FileDownload?file=%2001560000000YVRt

services. RPC's conversations with FAIR Health staff reveal that although the 80th percentile was the default on the consumer website for benchmarking and comparison purposes, it is not FAIR Health's position that the 80th percentile of charges is the usual and customary rate or the industry standard. FAIR Health staff reported that many of the health plans that use their data choose the 80th percentile for UCR charges, but that each health plan determines which percentile to use and that FAIR Health has no role in determining a health plan's UCR charges.[50]

Context4Healthcare

70. Context4Healthcare, which identifies itself as a software and data company providing billing, claims and charge solutions in the healthcare industry, reports charge amounts for every fifth percentile from the 25th through the 95th percentiles in its Decision Point Medical UCR dataset. The dataset provides benchmarking data to determine reimbursement and billing rates.[51] Context4Healthcare says it produces the data annually by analyzing billions of charges across the United States. Its database includes charges for millions of procedure combinations. Providing charges for a wide range of percentiles allows payors to adjudicate claims by creating their own rules on what payment amount they find most appropriate for given services.

Medical Fees in the United States

71. *Medical Fees in the United States* provides "a listing of medical procedure codes, descriptions, UCR charges at the 50th, 75th and 90th percentiles" and "Medicare fees and Medicare relative value units." The UCR charges "are derived from an analysis of over 600 million actual charges" and are designed as a resource "for reviewing, adjusting and setting fees." [52] As the editor explains in the introduction, "there is no 'secret' list of fees that health insurance plan and third-party payers use to determine the appropriateness" of a provider's charges. Instead, some payors use data purchased from databases and set payment levels at different levels. The editor contends that while some insurers may pay claims at the 90th, 80th or 75th percentile, "HMOs and other managed care groups typically negotiate fees that are closer to

[50] Darcy Lewis phone call with Andrez at FAIR Health on March 18, 2015. Supplemented with consumer information on FAIR Health's FAQ webpage.
[51] Context4Healthcare. DecisionPoint™ Health Payment System. Medical UCR. Available for download at: http://www.context4healthcare.com/data-products/medical-ucr/
[52] Davis, James B. Ed. *Medical Fees 2015*. Foreword, page iii.

the 50th percentile for a given area."[53] The editor provides no precise reason for including the 75th percentile in the book (rather than another potential percentile such as the 70th or 80th), but the introduction states that "the 50th, 75th and 90th percentile fees provided in this text are based on national averages and are generally reflective of payer allowables."[54] The MFB is now published in conjunction with Context4Healthcare using their data.

Physicians' Fee Reference

72. The Physicians' Fee Reference software ("PFR") displays charge information at the 50th, 75th and 90th percentiles. According to the PFR's introduction, it derived the charges from the most recent CMS Standard Analytical File. PFR does not explain why it included the 75th percentile instead of another percentile. It does discuss, however, how physician practice managers can use the percentiles in the book.

73. PFR's introduction has a section on designing and reviewing a charge schedule and notes that setting charges is "a question of the practice's or medical group's pricing philosophy, financial budgeting or 'revenue target' for the period rather than an objective industry 'norm' or standard."[55] Some practice management consultants advise physicians to "always charge the maximum allowable charge" to minimize the potential for any lost income. However, the PFR Introduction cautions that doing so may make other area providers more attractive to patients and may not provide "the pricing flexibility" needed to negotiate managed care contracts. The PFR Introduction notes that other practice consultants recommend setting charges between the 50th and maximum allowable amount, and that setting the charge at the midpoint between the 50th and 75th percentile would allow physicians to be comfortable that their charges are not in the bottom half but are still below the maximum. The PFR Introduction states, "Most practice consultants advise against a too aggressive pricing strategy especially for pricing common office visit services."[56] RPC interprets this to mean that while PFR publishes the 90th

[53] *Ibid*, pages 2-3.
[54] *Ibid*. RPC contacted PMIC on March 18, 2015 and none of the staff or customer service representatives were able to answer the question. Upon the recommendation of PMIC staff, RPC has emailed its account representative and asked her to research the issue.
[55] PFR Introduction. 2014. Physicians' Fee Reference. Page 6. Wasserman Publishing.
[56] PFR Introduction. 2014. Physicians' Fee Reference. Page 7. Wasserman Publishing.

percentile for their "too aggressive" customers, the 75th percentile is the highest they see as reasonable.

Summary of Standard Percentiles

74. Usually provider charges are considered reasonable charges if they are at or below the 75th to 80th percentile for charges for a service in a medical market. Major payors and some state governments recognize charges at these percentiles as reasonable charges for out-of-network providers. The chart below summarizes the percentiles used in state laws and by major payors in determining usual, customary, and reasonable charges.

Regulation or Payor	60th	70th	75th	80th	90th
Texas SB 1264 (one of several benchmarks)				■	
Alaska Law on Emergency Services				■	
Connecticut UCR Definition				■	
Connecticut Workers' Comp[1]			■		
Idaho Workers' Comp					■
Indiana Workers' Comp				■	
Illinois Workers' Comp[2]			■		
New Jersey PIP Law			■		
New Mexico Workers' Comp	■	■	■	■	
New York Out-of-Network Law				■	
Pennsylvania PIP Law[3]				■	
Pennsylvania Workers' Comp[4]				■	
Rhode Island Workers' Comp					■
Utah PIP Law			■		
Prior Medicare Rates			■		
United Healthcare (some plans)				■	
Aetna (some plans)				■	
Blue Cross Blue Shield (some plans)		■		■	■
Cigna (some plans)		■		■	
Liberty Mutual Auto Insurance				■	

[1] For this chart RPC treats the actual benchmark of the 74th percentile as roughly equivalent to the 75th percentile
[2] For this chart RPC treats the actual benchmark of 0.9 x 80th percentile as roughly equivalent to the 75th percentile
[3] For this chart RPC treats the actual benchmark of 1.1 x 75th percentile as roughly equivalent to the 80th percentile
[4] For this chart RPC treats the actual benchmark of 1.13 x 75th percentile as roughly equivalent to the 80th percentile

STANDARD CODING AND BILLING EDITS

75. When determining UCR charges, RPC makes standard coding and billing edits. The appropriate edits can be determined by entering the information on a bill into grouper software for outpatient facilities or into Optum 360's EncoderPro software for providers. The software objectively applies standard edits. RPC also adjusts UCR charges for co-surgeons or assistants at surgery based on industry standards. The following are example edits RPC makes. Not all types of edits apply to each bill.

Mutually Inconsistent Codes

76. National Correct Coding Initiative edits include code pairs which are mutually exclusive based on anatomic, temporal, or gender considerations. These procedure to procedure edits are maintained by CMS and are available free from the CMS website.[57]

Multiple Procedure Rule

77. According to the AAPC, "Most medical and surgical procedures include pre-procedure, intra-procedure, and post-procedure work. When multiple procedures are performed at the same patient encounter, there is often overlap of the pre-procedure and post-procedure work. Payment methodologies for surgical procedure account for the overlap of the pre-procedure and post-procedure work."[58] Generally, the primary procedure is paid at its full rate, and subsequent procedures are paid at 50% of their full rate. The EncoderPro software identifies codes eligible for the multiple procedure rule adjustments.

Bilateral Procedure Rules

78. Bilateral procedures are performed on both sides of the body during the same operative session or on the same day. The Medicare Physician Fee Schedule includes indicators of which codes are eligible for a bilateral procedure payment adjustment. Medicare and most other payors pay for eligible bilateral procedures at 150% of the rate paid for a single procedure.

[57] https://www.cms.gov/Medicare/Coding/NationalCorrectCodInitEd/NCCI-Coding-Edits
[58] https://www.aapc.com/blog/27973-understanding-the-multiple-procedure-rule/ Accessed January 30, 2019.

Unbundling of Services or of Supplies Included in the CPT Code

79. Some procedure codes cannot be billed together because performing one higher-level procedure requires performing a lower-level procedure. Payors assume the performance of the lower-level procedure in determining payment for the higher-level procedure. These procedures are described as being "bundled" and billing for them separately is called "unbundling." The National Correct Coding Initiative ("NCCI") program was developed by CMS to prevent inappropriate payment of services that should not be reported together. The EncoderPro software identifies which code pairs are not separately billable due to unbundling.

80. Some supplies (e.g. gloves, surgical trays, dressings, and needles) are commonly used or even integral to the performance of certain medical and surgical procedures. Using these supplies is assumed, and allowed amounts account for their use. Payors do not pay separately for these supplies.

Payments for Assistant Surgeons, Co-Surgeons, and Assistants at Surgery

81. When a surgery requires more than one surgeon, or when a surgery requires a qualified non-physician assistant-at-surgery, payors increase payment. However, payors do not pay double the single surgeon rate for surgeries requiring an assistant surgeon, co-surgeon, or assistant-at-surgery. Most payors set additional payment for these assistants between 10% and 25% of the fee for the primary surgeon. Medicare pays for assistant surgeons and co-surgeons at 16% of the fee for the primary surgeon.[59] RPC assumes the reasonable charge for these assistants is 25% of the reasonable charge for the primary surgeon.

Global Surgical Fee

82. The CPT codes for most surgeries includes pre-surgical consultation and post-surgical care of the patient by the surgeon. The time period for post-surgical care differs by CPT code. Office visits related to the surgery should not be billed by the surgeon in addition to the surgery, and payors do not pay separately for visits covered by the global surgery fee.

[59] Medicare Claims Processing Manual. Chapter 12, section 20.4.3.

Medically Unlikely Edits

83. Medically Unlikely Edits ("MUEs") are a subset of NCCI edits. MUEs create a maximum number of units of a good or service a provider would report under most circumstances for a single patient on a single day.[60] Not all HCPCS/CPT codes have an MUE.

METHODOLOGY

For Hospital Inpatient and Outpatient Services

84. RPC calculates the maximum UCR charge for an inpatient hospital stay based on the Diagnosis Related Group (DRG) assigned to the patient, or sometimes, both the DRG and principal surgical procedure. RPC calculates the maximum UCR charge for an outpatient hospital visit based on the principal procedure code on the bill. When we have the UB04 or similar form used to bill for the hospital's services, we rely on the DRG or principal procedure directly assigned by the provider.

85. RPC uses the DRG on inpatient records and the principal procedure on outpatient records to calculate the maximum UCR charge for a hospital bill from either the calendar year matching the discharge date or the most recent 4 quarters of data for planned procedures. RPC requires at least 5 facilities to calculate a maximum UCR charge. A provider's charge is usually compared only to facilities in the same HRR. However, if the HRR has a limited number of providers that performed the service, the comparison may include facilities in an adjacent HRR.

86. For an outpatient facility bill with HCPCS or CPT codes assigned to most or all lines on the bill, RPC may calculate the average charges for those codes at other hospitals in the HRR or HRRs and then determine the maximum UCR charge for each code. We compare claims from services at an ambulatory surgery center ("ASC") to charges at other ASCs when data permits. We compare claims from a hospital outpatient department to charges at other hospitals.

87. We calculate the maximum UCR charge by calculating the average total charge by DRG, principal procedure code, or HCPCS/CPT code at each facility, and then calculating the 80th percentile charge. Because the maximum UCR charge for a claim is calculated based on

[60] https://www.cms.gov/Medicare/Coding/NationalCorrectCodInitEd/MUE

facilities in the same medical market, no geographic adjustment is needed. The steps in calculating the 80th percentile charge are:

a. Identify the service by DRG, principal procedure code, or HCPCS/CPT code

b. Identify the HRR or HRRs

c. Pull records for the year for patients in that DRG or having that principal procedure or those HCPCS/CPT codes and facilities in the HRR(s) from the database

d. Calculate an average charge for each facility using the records in step c

e. Calculate an 80th percentile of the average charges in step d

f. Use BLS data as necessary to adjust the charges for the dates of service

g. A provider charge less than or equal to the maximum UCR charge is reasonable. A provider charge higher than the maximum UCR charge is unreasonable.

h. If RPC cannot calculate a maximum UCR charge, the provider charge is considered reasonable.

For Physicians and Other Suppliers

88. The steps to determine the maximum UCR charge by a physician or other supplier for a CPT code are:

a. Determine the dates of service.

b. Determine the practice zip code for the practitioner providing the service.

c. Determine the HRR for the practice zip code.

d. Identify all zip codes in the HRR.

e. Identify the UCR charge for the CPT code in the HRR from RPC's UCR Database.[61]

f. Indicate whether the UCR charge was calculated directly (Method 1 in the database) or calculated as an adjusted national charge (Method 2 in the database)

[61] RPC's methodology used to create the UCR Database is found in the white paper, "RPC's Usual, Customary, and Reasonable Charge Database for Practitioner Charges."

g. Use BLS data as necessary to adjust the maximum UCR charges for the dates of service

h. A provider charge less than or equal to the maximum UCR charge is reasonable. A provider charge higher than the maximum UCR charge is unreasonable.

i. If RPC's UCR Database does not include a UCR charge for a specific code in the HRR, RPC relies on the published 75th percentile charge from the MFB.

j. If neither RPC's UCR Database nor the MFB have a UCR charge for a specific code, the provider charge is considered reasonable.

89. The steps to determine the maximum UCR charge by a physician or other supplier for a HCPCS code are:

a. Determine the dates of service.

b. Determine the practice zip code for the practitioner providing the service.

c. Determine the HRR for the practice zip code.

d. Identify all zip codes in the HRR.

e. Identify all records in the CMS Carrier SAF in the date of service year for that HCPCS/CPT code for all practice zip codes in that HRR.

f. Calculate an average charge for each practitioner using the records in step e

g. Calculate an 80th percentile of the average charges in step f

h. A provider charge less than or equal to the maximum UCR charge is reasonable. A provider charge higher than the maximum UCR charge is unreasonable.

i. If RPC cannot calculate a maximum UCR charge the provider charge is considered reasonable.

For Anesthesia Services

90. Calculation of maximum UCR charges for anesthesiologists differs slightly from the procedure for other physicians because anesthesiologists calculate charges differently. Anesthesiologists bill using American Society of Anesthesiologist (ASA) codes, which are a subset of CPT/HCPCS codes that begin with "0". Each ASA code corresponds to a surgical or other procedure code for which an anesthesiologist provides anesthesia. Charges for

anesthesiology codes are calculated with a base unit for each surgical procedure code and a time unit measured in quarter hours. The base and time units are summed and multiplied by the anesthesiologist's unit rate to determine the charge for the surgical code. The steps to calculate the maximum UCR charge for an anesthesiologist's claim are:

a. Identify the CPT code for the procedure requiring anesthesia.

b. Identify the CMS anesthesia RVU conversion factor for the HRR and year.

c. Determine the dates of service.

d. Determine the practice zip code for the practitioner providing the service.

e. Determine the HRR for the practice zip code.

f. Identify all zip codes in the HRR.

g. Identify all records in the CMS Carrier SAF records in the date of service year for ASA codes for all practice zip codes in that HRR.

h. Divide the average Medicare allowed amount of the records in step g by the anesthesia conversion factor in step b to determine average units by provider.

i. Divide the average charges of the records in step g by the average units in step h to determine average unit charge by provider.

j. Calculate an 80th percentile of the average charges in step i

k. Use BLS data as necessary to adjust the maximum UCR charges for the dates of service

l. A provider charge less than or equal to the maximum UCR charge is reasonable. A provider charge higher than the maximum UCR charge is unreasonable.

m. If RPC cannot calculate a maximum UCR charge, the provider charge is considered reasonable.

91. Sometimes the documents from the anesthesiologist do not show how many units were billed for an anesthesia service, it only shows a total charge. In those instances, in order to calculate the total reasonable charge from the maximum reasonable charge per unit, RPC calculates the average number of units for the specific ASA code using data in the CMS Carrier SAF for anesthesiologists in the HRR. Then, to calculate the maximum UCR charge, multiply

the average units for the code by benchmark percentile unit charges. The additional steps in this procedure are:

a. Identify all anesthesiologist records from the CMS Carrier SAF for the specific ASA code.

b. Divide the average Medicare allowed amount of the records by the anesthesia conversion factor to determine the average number of ASA units by provider.

c. Calculate the weighted average of ASA units by anesthesiologist using the count of services as the weight.

d. Multiply the average ASA units calculated by the benchmark anesthesia unit charge.

EXHIBIT C

6 Cost/Vendor Survey

The purpose of this Cost/Vendor Survey (the "Survey") is to enhance the transparency of this Life Care Plan's Cost Analysis.

This Survey is presented in two sections:

1. The *Methods & Definitions* section discloses the methods and parameters used to perform this Survey.

2. The *Cost Data Sample* exhibits all unit costs and other source-specific information obtained during this Survey that are employed in this Life Care Plan's Cost Analysis.

6.1 Methods & Definitions

6.1.1 Survey Method[17]

1. In cases in which vendors/providers are specified (e.g. in cases in which specific Acute Care Services are to be performed at specified facilities, or in cases in which a life care plan's subject, his/her family member(s), care giver(s), treating physician(s), et al. specify particular physician(s) they are currently seeing and/or wish to see in the future), then the costs associated with the specified vendor(s)'/provider(s)' provision of such goods/services are cited in this Life Care Plan's Vendor Survey, and these values are used as unit costs for respective line items in this Life Care Plan's Cost Analysis (assuming it is possible to obtain such cost information from the specific vendor(s)/provider(s) in question).

2. In the absence of specific vendors/providers being specified, or in cases in which specific vendor(s)/provider(s) are specified, but from whom it is not possible to obtain cost information, then Usual, Customary & Reasonable (UCR) cost data is sourced, cited in this Life Care Plan's Vendor Survey, and used for applicable line items in this Life Care Plan's Cost Analysis—assuming it is possible to obtain UCR data from within the GeoZIP region I assigned to Mr. Halliburton's probable location of care (GeoZIP region "774"), or in the absence of the availability of such data, by relying upon UCR data obtained from within alternative GeoZip regions located within a 35 mile radius of Mr. Halliburton's probable location of care.

3. In the absence of preferred vendors/providers being specified, or in cases in which specific vendor(s)/provider(s) are specified, but from whom it is not possible to obtain cost information, and in the absence of UCR data being available for relevant geo-zip regions and/or for specific future medical requirements, then cost data in this Survey has been sourced via world-wide web, and/or telephone inquiry from vendors/providers located within a 35 mile radius of Mr. Halliburton's probable location of care. In all cases in which it was reasonably practical to obtain such information; an attempt was made to obtain at least 3 discrete costs from 3 discrete sources, all of which are exhibited (along with the direct contact information for all vendors/providers from which such cost data was obtained) in this Life Care Plan's Cost

[17] American Academy of Physician Life Care Planners, A Physician's Guide to Life Care Planning: Tenet, Methods, and Best Practices for Physician Life Care Planners, American Academy of Physician Life Care Planners, Austin, Texas, 2017.

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Data/Vendor Sample. Averages (arithmetic means) for each future medical requirement were then calculated, and the arithmetic mean values were used as the unit costs for respective line items in this Life Care Plan's Cost Analysis.

When sourcing cost data via world-wide web, this Vendor Survey has also included cost data from national online medication, durable equipment and other vendors, e.g. CVS.com, Walgreens.com, Drugstore.com, etc. without affording consideration to the national vendor's actual location, relative to Mr. Halliburton's probable location of care. In cases in which cost data is sourced from such vendors, it has been treated in the same manner as cost data sourced from vendors located within my previously specified 35 miles radius of Mr. Halliburton's probable location of care, i.e. such data is cited in this Life Care Plan's Vendor Survey, along with relevant vendor information. The values of such data were then used in the calculation of arithmetic means which constitute unit costs for respective line items in this Life Care Plan's Cost Analysis.

4. In cases in which particular medically-related goods/services require sourcing multiple data in order to formulate the cost of a single future medical requirement, e.g. as in the case of an acute care service, such as a surgery in which a cost for an actual surgical procedure, and a cost for a patient's hospitalization may not be able to be sourced as a single value, then values for each individual cost component were obtained, and then summed to calculate a total unit cost for the particular acute care service in question. When obtaining costs in such circumstances, I first looked for the specification of any preferred vendors/providers, and in the absence of such specification/availability, I looked for UCR data, and in the absence of available UCR data, I have sought to obtain cost data from individual vendors/sources via the World Wide Web and/or direct telephone inquiry. All sources from which any component costs were obtained are cited in this life care plan's vendor survey, and the values of such component costs have been summed to establish consolidated unit costs for respective line items.

6.1.2 Definitions

- **Probable Location of Care & Proximity**

  Prices of medically-related goods and services can vary based upon geographic location. The geographic scope of this survey is typically defined using a specified radius from the subject's primary residence. Primary residence ("probable location of care") is defined by a GeoZip. The geographic scope is defined using a 35 mile radius and the probable location of care in Mr. Halliburton's vendor survey is defined using GeoZip: 774.

- **Usual Customary & Reasonable (UCR) Cost Data**

  Usual Customary & Reasonable cost data in this Life Care Plan is sourced from Context4HealthCare, Inc. Context4 Healthcare, Inc. is an independent, disinterested, 3rd-party provider of medical cost data. Context4 Healthcare constructs UCR pricing using billions of actual, submitted charges from 310 geo-zip regions throughout the United States.

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Context4Healthcare's data collection, maintenance, and calculation methods are available for review in Context4Healthcare Inc.'s Usual, Customary & Reasonable Fee Database Methodology: A White Paper. This paper is available in PDF format www.physicianlcp.com/ucrmethodology.aspx.

UCR data as maintained by Context4Healthcare is organized into "conversion factors". These conversion factors are commonly used within the healthcare payer industry for the purpose of establishing benchmarks by which to filter submitted charges. Historically, it has been customary for healthcare insurance providers to use "UCR 80" (the 80th UCR percentile) as the standard conversion factor benchmark against which the acceptability of charges are measured.

For these reasons, and because this life care plan presumes the provision of optimal medical care in order to accomplish the Clinical Objectives of Life Care Planning, I have used UCR 80 (the 80th UCR percentile) as the conversion factor when sourcing UCR data in this Vendor Survey.

- **Employing UCR Data**

In order to obtain appropriate UCR cost data, it is necessary to define two basic parameters:

1. A GeoZip code that specifies a geographic region.

2. Specific CPT (Current Procedural Terminology) codes, or specific DRG (Diagnosis-Related Group) codes, or specific HCPCS (Healthcare Common Procedure Coding System) codes.

As previously stated, I have selected GeoZIP 774, which defines Mr. Halliburton's probable location of care.

UCR Data, as provided by Context4Healthcare is structured into "modules", which include "Medical", "Outpatient Facility", "Inpatient Facility", "Anesthesia", and "HCPCS".

The future medical requirements specified in this Life Care Plan have been coded for the purpose of soliciting UCR data from relevant UCR modules.

a. CPT codes have been assigned to future medical requirements in this life care plan to solicit UCR cost data contained in the Medical Module. Such items include professional service fees, e.g. physician services, routine diagnostics, laboratory services, etc.

b. CPT codes have also been assigned to future medical requirements in this life care plan to solicit UCR cost data contained in the Outpatient Facility Module. Such items would include outpatient facility fees, e.g. acute care services performed in outpatient hospital settings, ambulatory surgical centers, etc.

c. DRG codes have been assigned to future medical requirements in this life care plan to solicit UCR cost data contained in the Inpatient Facility Module. Such items would include inpatient facility fees, e.g. acute care services performed in inpatient facilities, including inpatient hospitalizations, in-patient admissions ("stays"), etc.

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d. CPT codes have been assigned to future medical requirements in this life care plan to solicit UCR cost data contained in the Anesthesia Module for anesthesia-related fees, such as minimal, moderate, and deep sedation.

e. HCPCS codes have been assigned to future medical requirements in this life care plan to solicit UCR cost data contained in the HCPCS Module. The HCPCS Module contains cost data for services not included in the Current Procedural Terminology (CPT) codes, e.g. durable medical equipment and supplies such as mobility devices, hospital beds, injection supplies, orthotics and prosthetics, and other services such as ambulance services, hearing and speech pathology services, etc.

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EXHIBIT D

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EXHIBIT D

[redacted]

I. LIFE CARE PLAN INTRODUCTION

Life care planning represents a process of analyzing the health care goods and service needs of individuals with disability or handicapping conditions resulting from injuries or chronic diseases. The life care plan is a dynamic document based upon standards of practice, comprehensive assessment, and data analysis and research that provides an organized and concise plan for projected future medical and medically related goods and services and associated costs.

Through the life care planning process, a systematic and logical approach is utilized to trace all of the needs relating from the disability to the end of life expectancy. This process requires the coordination and management of information from many sources. Health care professionals are often tasked with the development of life care plans. Medical, social, psychological, vocational, educational, and rehabilitation data are taken into consideration to the extent that they are available and applicable. Medical literature germane to critical issues in the plan is surveyed to reflect current concepts of care for patients and disease state management. The impact of aging with disability and the progression of disease are reflected. The life care plan provides for services that are needed to prevent or significantly reduce known complications or comorbidity over time. Current cost data are utilized representing the usual and customary costs for goods and services in the geographic domain where the majority of care is anticipated.

The life care plan serves as a guide for those with disability or chronic disease, their family members, case managers and health care providers. It is not a prescription for care but represents a blueprint for anticipated health care and other related needs based upon reasonable medical and rehabilitation probability and current concepts of patient care management. The information serves those charged with the fiduciary responsibility to provide for future care. The life care plan is often used by financial administrators tasked with selecting appropriate investment strategies to preserve funding over the life of the patient.

This life care plan is prepared for [redacted], a 50-year-old female who sustained cervical and lumbar spine injuries in a motor vehicle accident on 04/19/19. Despite oral pharmacotherapy, physiotherapy, and interventional pain management (i.e. epidural steroid injections, facet blocks), her pain persisted and [redacted] underwent both C4-7 anterior cervical discectomy and fusion (ACDF) as well as L5-S1 anterior lumbar interbody fusion (ALIF). However, at greater than one-year post-MVA, she continues to endorse chronic neck and back pain as well as bowel and bladder incontinence which have affected her activities of daily living and overall quality of life.

II. MEDICAL RECORDS REVIEW

Medical records from the following health care providers were received and reviewed:

- Texas Peace Officer's Crash Report
- [redacted] MD
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted], MD

A Texas Peace Officer's Crash Report dated 04/19/19 documents that [redacted] was the driver of a blue Hyundai Tuscon that was struck on the driver's side by a truck and pushed into another vehicle. [redacted] did not receive medical attention in the MVA.

Records from [redacted] (contained in the [redacted] records) are reviewed. On 04/22/19, [redacted] presented to [redacted] with neck and shoulder pain, as well as right arm and left lateral hip tenderness after a motor vehicle accident on 04/19/19. On 05/03/19, [redacted] was re-evaluated by [redacted] for left neck, trapezius, shoulder, and arm pain after a motor vehicle accident two weeks prior. On examination, [redacted] documented cervical, left shoulder, and trapezius tenderness and diagnosed [redacted] with cervicalgia. She referred [redacted] for a course of physical and occupational therapy.

Records from [redacted] are reviewed. [redacted] was evaluated on [redacted] for constant neck, mid back, and low back pain after a motor vehicle accident on 04/19/19. [redacted] noted 5/5 upper and lower extremity strengths (except for 4/5 right deltoid), symmetric reflexes, and diminished cervical and lumbar ranges of motion with pain. [redacted] began receiving massage, ultrasound, and electrical stimulation therapies through 08/28/19.

[redacted] evaluated [redacted] on 05/15/19 for 6/10 cervical radicular and lumbar pain after a motor vehicle accident on 04/19/19. She also endorsed insomnia, as well as upper and lower extremity numbness. On examination, [redacted] documented cervical paraspinal tenderness and spasms, a positive Spurling's test, and normal strengths and sensation. He prescribed meloxicam and tizanidine and ordered a cervical MRI, with consideration of cervical epidural steroid injections.

The cervical and lumbar MRI studies were performed on 05/22/19 at [redacted] and interpreted as follows:

- Cervical MRI
  - Straightening of the spine compatible with post-traumatic muscle spasm
  - C4-5: 4 mm disc protrusion/herniation with right C5 nerve root impingement
  - C5-6: 3.5 mm posterior disc protrusion/herniation
  - C6-7: 4 mm posterior disc protrusion/herniation
- Lumbar MRI
  - L5-S1: 5.5 mm posterior disc extrusion with displacement of the left L5 nerve root

[redacted] noted on 05/29/19 that [redacted] endorsed moderate cervicalgia and exhibited C5-6 and C6-7 facet tenderness. He reviewed the cervical and lumbar MRI studies from 05/22/19 and discontinued meloxicam secondary to GERD exacerbation. He also scheduled [redacted] for C7-T1 interlaminar ESI to address radicular pain.

On 06/10/19, [redacted] performed C7-T1 epidural steroid injection without any documented complications.

In follow-up on 06/24/19, [redacted] noted that [redacted] reported 30% pain relief after her cervical ESI on 06/10/19 and repeated a second C7-T1 injection.

On 07/02/19, [redacted] noted that [redacted] reported improvement in her numbness but not her pain after the second cervical ESI.

[redacted] performed left C3-6 facet injections on 07/19/19, without any documented complications.

During the 07/26/19 visit, [redacted] noted that [redacted] reported an initial 100% relief of her cervical pain after the C3-6 injections on 07/19/19. On examination, he noted decreased cervical range of motion as well as left cervical paraspinal tenderness. He planned to perform lumbar TFESI for lumbar pain.

On 08/23/19, [redacted] performed bilateral L5 TFESI without any documented complications.

Upon the return visit to [redacted] on 09/20/19, it was noted that [redacted] had experienced 10-20% relief after the lumbar TFESI. A second set of bilateral L5 TFESI was performed without any documented complications.

On 10/01/19, [redacted] noted that [redacted] endorsed 30% pain relief after her last lumbar TFESI and that she continued to endorse cervicalgia. He referred her to [redacted] for surgical consultation.

Records from [redacted], are reviewed. On 10/26/19, [redacted] was evaluated by [redacted] for neck and low back pain after a motor vehicle accident on 04/19/19. She had received 5 cervical and 4 lumbar injections as well as 4 months of PT and was taking tizanidine, Aleve, or ibuprofen for pain. [redacted]'s past medical history was documented as unremarkable, aside from right knee surgery. On examination, [redacted] noted diminished left triceps reflex, 4/5 left elbow extension/grip strengths, diminished left upper extremity sensation, and cervical and lumbar spinal tenderness. He reviewed the cervical and lumbar MRI studies from 05/22/19 and diagnosed [redacted] with cervical and lumbar radiculopathies. [redacted] recommended that she undergo C4-7 ACDF.

On 11/07/19, [redacted] noted that [redacted] endorsed cervical radicular pain to both shoulders and documented left C7/8 weakness, as well as cervical and lumbar paraspinal tenderness. He recommended ALIF of L5-S1 and ACDF of C4-7.

In follow-up on 12/03/19, [redacted] (CPM) noted that [redacted] endorsed 6/10 lumbar and 9/10 cervical pain as well as paresthesias and that she was scheduled for cervical fusion on 01/17/20. He prescribed celecoxib as well as Norco 10, and tizanidine.

On 01/14/20, [redacted] (CPM) noted that [redacted] endorsed 8/10 low back pain with radicular symptomatology as well as insomnia. She also endorsed 8/10 cervical radicular pain. He opined that [redacted] exhibited axial low back pain consistent with L5-S1 discogenic etiology and prescribed tizanidine and planned to consider TFESI upon re-evaluation in 2-3 months after her cervical surgery.

An Operative Report dated 01/16/20 [redacted] documents that [redacted] performed the following procedures without any complications:

- Anterior cervical discectomy/fusion C4-5, C5-6, C6-7
- Placement of intervertebral devices at C4-5, C5-6, C6-7
- Intraoperative monitoring.

On 01/22/20, [redacted] noted that [redacted] was post-surgery and using Percocet sparingly for severe pain only. [redacted] endorsed insomnia as well as lower extremity numbness, neck, and back pain. Ms.

Ramirez refilled a prescription for tizanidine and planned to see [redacted] in follow up in six weeks.

Cervical x-rays (AHI) on 01/29/20 were interpreted to demonstrate stable C4-C7 ACDF without hardware complication.

Upon return to [redacted] on 01/31/20 it was noted that surgery was a success and that [redacted] denied numbness or tingling in the upper extremities. He documented that she endorsed loss of bowel and bladder control. On examination, [redacted] noted 5/5 upper and lower extremity strengths, 2+ and symmetric upper and lower extremity reflexes, and normal sensation. He reviewed cervical x-rays from 01/2020 (stable fusion) and recommended light range of motion exercises for cervical spine.

On 02/18/20, [redacted] noted that [redacted] endorsed 6/10 lumbar pain. On examination, he noted anterior cervical scarring, lumbar pain with flexion, and a positive left straight leg raise test. [redacted] documented that her neck pain responded to ACDF and that she continued to experience axial low back pain consistent with discogenic (L5-S1) etiology that had responded to previous TFESI with betamethasone. He planned to perform addition TFESI.

[redacted] presented to [redacted] on 02/28/20 for follow-up. It was noted that [redacted] was doing well with regard to her cervical spine and wanted to proceed with lumbar surgery. He documented (subjective) right leg weakness and numbness as well as loss of bowel control. On examination, [redacted] noted 5/5 upper and lower extremity strengths, a positive right straight leg raise test, and normal upper and lower extremity sensation. He planned to perform L5-S1 ALIF.

On 03/02/20, [redacted] (CPM) performed bilateral L5 TFESI without any documented complications. [redacted] returned to [redacted] (CPM) on 03/17/20 and reported a 40% reduction in her lumbar pain after the L5 TFESI. She was noted to have increased cervical range of motion since her 01/17/20 surgery. [redacted] recommended continued Celebrex and tizanidine and noted that [redacted] was considering lumbar surgery.

On 04/17/20, [redacted] noted that [redacted] endorsed lumbar and right leg pain as well as loss of bowel control and planned to perform L5-S1 ALIF.

A cervical CT scan (AHI) on 04/30/20 was interpreted as follows:

- Straightening of the spine
- Interval ACDF C4-C7 without hardware complication
- Mild to moderate spondylosis and uncinate hypertrophy

Lumbar x-rays (AHI) on 05/20/20 were interpreted to demonstrate prior ALIF at L5-S1 without any hardware complications.

On 06/25/20, [redacted] documented that [redacted] reported 1/10 neck and back pain and that she had not yet started PT. He noted that she endorsed loss of bowel control. [redacted] reviewed lumbar x-rays from 05/2020 (stable, no fracture) as well as a cervical CT scan from 04/30/20 (C4-7 post-surgical changes with fusion and no complications), and recommended that she start PT. He planned to see her in follow up in two months.

This concludes my review of the medical records provided.

III. INTERVIEW AND EVALUATION

[redacted] was seen for a comprehensive interview, evaluation, and examination on 07/14/20 in the offices of [redacted] in San Antonio, Texas. She had driven herself to the appointment. The interview, evaluation, and examination were performed by the author of this life care plan, [redacted], M.D., CLCP.

GENERAL

[redacted] is 50 years of age. She is a married, left-hand dominant, English speaking, Caucasian female who is 5' 5" in height and weighs 225 pounds (a reported 40-pound weight gain). [redacted] requires corrective lenses for both distance and near vision. She presented ambulating with a quad cane and was alert, fully oriented, with fluent speech. At the onset of the evaluation, [redacted] endorsed 1/10 left lower back pain and stated that she had taken Celebrex several hours earlier.

By history provided, on 04/19/19, [redacted] was the restrained driver of a Hyundai Tuscon that was struck frontally by a semi-truck with airbag deployment and pushed into another vehicle. She denied any loss of consciousness. [redacted] was assisted from the vehicle by a witness and her husband picked her up and took her home. The next morning, [redacted] began experiencing neck, low back, left shoulder, and left hip pain for which she saw her primary care physician. Approximately seven day later, [redacted] saw [redacted], who prescribed Celebrex and ordered cervical, thoracic, and lumbar MRI studies. She was diagnosed with disc bulges at C3, 4, 5, and L5 and underwent cervical and lumbar epidural steroid injections by [redacted] in addition to physiotherapy. [redacted] continued to experience cervical and lumbar pain and underwent cervical fusion on 01/16/20 followed by lumbar surgery on 05/08/20 by Dr. Adam Bruggeman. However, she continues to experience cervical and lumbar pain and stiffness.

SOCIAL HISTORY/HABITAT

[redacted] was born on 09/02/70 in Chicago, IL, and currently resides in San Antonio, TX, where she receives her medical care.

[redacted] is a high school graduate with three semesters of college. She has training in computers but has not worked since 1994 ([redacted] had been a secretary). She denied any changes to her income resulting from the MVA, although her husband lost some income secondary to taking time off to attend her appointments and surgeries.

[redacted] has been married 30 years to [redacted], a pipeline control operator for Valero. The couple has two biological sons, ages 25 and 22, as well as a 15-year-old, adopted daughter.

[redacted] resides with her husband and daughter in a 3-bedroom, 2-bathroom, single story home. There are three steps to the front entrance and a threshold to the rear entrance. The master bathroom (remodeled after this MVA) has a walk-in shower while the guest bathroom has a tub/shower combination. [redacted] stated that the family plans to remain in San Antonio for the foreseeable future.

[redacted] drives a Toyota Highlander but stated that driving aggravates her neck and back pain. She described pain when turning her head to the left or right as well as post-MVA anxiety about being in a vehicle.

Family History

[redacted]'s father is 74 years old and has been diagnosed with insulin dependent diabetes mellitus, peripheral vascular disease, and obesity. Her mother is 70 years old and has been diagnosed with uterine cancer, coronary artery disease/MI, hypothyroidism, and osteoporosis. [redacted] has a 48-year-old sister who has been diagnosed with HIV, reportedly acquired through IV drug abuse, and had a brother who died at 3 days of age from hypoxic ischemia.

PREMORBID MEDICAL HISTORY

- Liposuction
- Right knee arthroscopic surgery around 2017
- GERD, prescribed omeprazole
- LASIK surgery
- Left scapular degenerative arthritis
- 2 uncomplicated vaginal deliveries

INPATIENT HOSPITALIZATIONS/ACUTE CARE

- 01/06/20: [redacted]r: cervical fusion
- 05/08/20: [redacted]: lumbar surgery

CURRENT MEDICAL TREATMENT

Physician Care:

- Dr. [redacted], Pain Management. Performed cervical and lumbar spine injections prior to surgeries.

- [redacted], Orthopedic/Spine Surgeon. Performed cervical and lumbar spine surgeries.
- [redacted], PCP/FP

Therapeutic Services:

- Prior to her surgeries, [redacted] received 4 months of PT (three days per week) at Spire
- After her surgeries, she received PT and OT twice weekly at Exact PT
- [redacted] stated that she also received PT for her right knee (from re-injury post MVA) through [redacted] for approximately two months

MEDICATIONS

- Celebrex 200 mg twice daily
- Ibuprofen 600 mg, 2 twice daily (alternates with Aleve 4 tablets twice daily)
- Oral contraceptive pill
- Omeprazole (pre-MVA medication) 20 mg daily
- Claritin D daily
- Melatonin ER 10 mg at bedtime, 5 nights per week

DIAGNOSTICS

- Cervical, thoracic, and lumbar spine x-rays and MRI studies
- Cervical and lumbar spine CT scans

PAIN ASSESSMENT

- Cervical pain
  - Daily, intermittent, usually rate 1-2/10, but up to 3/10 (since surgery)
  - Pain radiates to the top of the left shoulder, causing it to throb and lock up
- Lumbar pain
  - Daily, intermittent, dull throbbing
  - Usually 2-3/10 (post-surgery)
  - Associated with left lower extremity radicular pain as well as left dorsal foot pain
  - Worse with walking greater than 1 mile, bending, or twisting

HOME HEALTH SERVICES

No formal home health services have been provided through a home health care agency. [redacted]'s husband and daughter assisted with lower body dressing (i.e. tying shoes) for approximately 12 months after the MVA.

EQUIPMENT & SUPPLIES

- Quad cane
- Neck massager
- Massage table
- Inversion table
- Hot/cold packs
- Cryotherapy
- TENS unit
- Commode chair (no longer using)
- Depends (one per day)
- Poise pads (2 per day)
- Biofreeze daily
- CBD cream daily
- Scar Away (applied twice daily to cervical incision scar)

ACTIVITIES OF DAILY LIVING

[redacted] arises around 6 a.m. and retires around 10 p.m. She reported insomnia approximately four nights per week since the MVA secondary to cervical and lumbar stiffness and discomfort.

[redacted] stated that tying her shoes and cutting her toenails aggravate her lumbar pain and that she started getting pedicures after this accident. She also reported that cooking, laundry (loading/unloading the washer/dryer), housework (vacuuming, mopping, scrubbing, sweeping), shopping (walking, carrying bags), and driving aggravate her cervical and lumbar pain.

[redacted] stated that since the MVA, she wears Depends/Poise pads secondary to bowel (approximately once per week) and bladder (approximately 3-4 times per week) incontinence and that she is afraid to go out in public secondary to this issue.

Prior to the MVA, [redacted] stated that she had enjoyed hiking, walking nature trails, swimming, horseback riding, elliptical exercise, and step aerobics but that all these activities have been significantly curtailed.

PSYCHOSOCIAL

[redacted] was alert and oriented to person, place, time, and situation. Her stream of thought and concentration were within normal limits. She endorsed symptoms of depressed mood.

When asked how this injury has most affected his life, [redacted] replied: " I don't do as much as I used to secondary to the pain." She also reported diminished spousal intimacy secondary to aggravation of her neck and back pain.

PHYSICAL EXAMINATION [focused]

General:

Please refer to above psychosocial examination.

Neck:

See image of anterior cervical incision scar. Paraspinal tenderness without spasms. Diminished range of motion secondary to reported discomfort.

Extremities:

Normal upper and lower extremity tone. Negative straight leg raise tests. 2+ dorsalis pedis and radialis pulses bilaterally.

Back/Spine:

Lumbosacral tenderness, without spasms. See image of lumbar incision scar.

Neurological:

Cranial nerves II-XII grossly normal.

Strengths:

Upper Ext	Deltoids	Biceps	Triceps	Wrist Extensors	Interosseous	Abductor Pollicis Brevis
Left	5	5	5	5	5	5
Right	5	5	5	5	5	5

Lower Ext	Hip Flexors	Quadriceps	Hamstrings	Ankle Dorsiflexors	Toe Dorsiflexors	Ankle Plantarflexors
Left	5	5	5	5	5	5
Right	5	5	5	5	5	5

Deep tendon reflexes were 2+ in the upper and lower extremities. Down going plantars. Diminished sensation over the dorsum of the left foot as well as over the left biceps. Grossly normal gait.

Impressions:

1. S/P Motor vehicle accident on 04/19/19
    a. Cervical and lumbar injuries
        i. s/p C4-7 ACDF 01/16/20
        ii. s/p L5-S1 ALIF 05/08/20
        iii. Chronic cervical/lumbar pain
        iv. Bowel/bladder incontinence

IV. PROJECTED MEDICAL CARE NEEDS

[redacted] sustained cervical and lumbar spine injuries in a motor vehicle accident on 04/19/19. Despite oral pharmacotherapy, interventional pain management, and physiotherapy, she continued to experience radicular cervical and lumbar pain for which [redacted] performed C4-7 ACDF and L5-S1 ALIF surgeries. While [redacted] has experienced improvement, she continues to endorse chronic, daily cervical, and lumbar pain in addition to bowel and bladder incontinence.

As a result of injuries sustained in the accident, [redacted] should continue to follow actively with a pain management physician or other physician who is experienced in treating patients with chronic pain. This physician can provide necessary medical management and prescriptive services, to include symptomatic monitoring, medication management, therapeutic services, interventional procedures, diagnostic surveillance, referral to other specialists and alternative means of treatment over the long term.

[redacted] should undergo consultation with a urologist as well as urodynamic testing related to her symptoms of incontinence and I reserve the opportunity to supplement this report based upon the results of such testing.

[redacted] will also require intermittent consultative visits with a spine surgeon in addition to periodic imaging of her cervical and lumbar spine. Given her age, it is medically probable that [redacted] will require at least one cervical fusion extension surgery as well as one lumbar fusion extension surgery over her residual life expectancy secondary to the development of symptomatic adjacent segmental disease. I have also projected the costs associated with interventional pain management therapy (i.e. epidural steroid injections or medial branch blocks followed by radiofrequency ablations) later in life to treat flares of [redacted]'s cervical and lumbar pain with the anticipation of accelerated degenerative osteoarthritis.

Medication options that are commonly employed for individuals with chronic pain associated with both nociceptive and neuropathic components include opioid analgesics combined with non-opioid agents such as acetaminophen and NSAIDs, tricyclic antidepressants, selective serotonin reuptake inhibitors and serotonin-norepinephrine reuptake inhibitors, such as Cymbalta, as well as Lidoderm patches and certain anticonvulsant agents (neural membrane stabilizers), such as gabapentin, pregabalin and others. With the chronic use of many pharmacologic agents (especially NSAIDs), GI prophylaxis is indicated to protect the gastrointestinal tract from gastritis and/or the development gastric/duodenal ulcers (although I have not projected the cost for this category of medication in consideration of Mrs.

[redacted] premorbid diagnosis of GERD). While these medications can and likely will change over time, the specific categories of medications have been reflected with average associated costs for the most commonly prescribed agents over the long-term.

Routine diagnostics, including radiologic studies of the cervical and lumbar spine will be needed over time with new onset of pain flares to evaluate for more serious complications. Periodic laboratory testing (i.e. CBC, serum chemistries, and urinalysis, drug screens) beyond that which can be reasonably anticipated for general health care maintenance is included due to [redacted]'s need for chronic pharmacotherapy. As discussed previously, I have also projected the cost for urodynamic testing related to her symptoms of incontinence.

Due to the influence of pain upon her activities of daily living in general, I project that [redacted] will require intermittent courses of physiotherapy (i.e. modalities such as physical or occupational therapy providing biofeedback, heat, massage, ultrasound, and range of motion exercises) to maximize function and quality of life, as well as to mitigate deterioration over time. Her pain levels will likely fluctuate depending upon activity levels, quality of rest, and even environmental factors, such as changes in weather (cold fronts, rain, and associated barometric pressure changes).

Adjustment disorders with features of depression and anxiety are commonly associated with chronic pain syndromes. Psychological intervention for patients with chronic pain is often essential to help them deal with the depression and anxiety that typically results from prolonged pain. Most, if not all, patients suffering from chronic pain should be provided appropriate levels of psychological and psychiatric help to contend with this problem. This may also provide effective coping strategies and address psychosocial factors that often adversely affect response to treatment. In addition to mood and emotional difficulties associated with chronic pain, sleep is typically impaired and further impacts one's ability to concentrate and focus on day-to-day tasks required for occupational demands, family requirements, and household management. I projected the cost of modest levels of disability adjustment counseling to assist [redacted] with processing life changes and to develop coping strategies that will assist her as she ages with the sequelae of her injuries.

It will be important that [redacted] avoid heavy lifting, extensive bending, stooping, or more aggressive exercises that would be likely to exacerbate her pain, and she will need to employ proper body mechanics with all activities. This will result in activity limitations that will impact her ability to perform heavier household chores as well as other tasks that most individuals perform routinely for household, lawn, and other maintenance. Typical services that fall into this category are heavier household chores and homemaking tasks, lawn care, and certain home

maintenance tasks that cannot or should not be performed secondary to a disability. I have projected modest provisions for household services.

This life care plan also includes modest projections for equipment aids to enhance independent functioning or activities of daily living (ADL aids), such as long-handled sponges, dressing sticks, reachers, grabbers, long-handled shoe horns and other basic devices that improve the level of functional independence for individuals with chronic pain and that are recommended to avoid re-injury or injury exacerbation. These are usually recommended to patients by therapists, along with heat and cold applications and other devices, such as TENS units, that reduce pain and swelling. To reduce the risk of further pain or injury and to maintain independence, modest wet area safety items are also generally recommended, such as anti-slip flooring, grab bars and handrails for the shower and bathtub along with an ADA toilet and Washlet.

I respectfully reserve the opportunity to review any additional records that may become available and to supplement this report with recommendations provided by [redacted]'s treating physicians or other health care providers.

RESIDUAL LIFE EXPECTANCY

The average residual life expectancy for 50-51-year-old Caucasian females living in the United States is 33.3 (33) years. This is based upon statistical data obtained from the National Vital Statistics Reports, Vol. 68, No. 7, June 24, 2019, Table 15: Life table for non-Hispanic white females: United States, 2017. This represents the average number of years of life remaining for race, gender and age matched persons living in the United States who have attained a given age.

In view of the fact that the National Vital Statistics Reports of the United States provides an "average" residual life expectancy, it should be considered a conservative, yet appropriate, projection for estimating [redacted]'s individual life expectancy for the purpose of life care planning.

COST PROJECTIONS

An itemization of costs is prepared in Table I of this life care plan, the Life Care Cost Analysis. This analysis includes the medical and medically related goods and services that can be projected within a reasonable degree of medical and rehabilitation probability as they are related to the injuries that [redacted] sustained in a motor vehicle accident on 04/19/19.

Current cost data have been utilized and represent the fair marketplace for goods and services in the geographic domain where the majority of care is anticipated. Cost

information is procured and routinely updated from healthcare databases and other cost data sources that I consider to be among the most reliable in the marketplace.

Potential care needs are identified separately representing other goods and services commonly employed for individuals with similar injuries, as well as other care and treatment of medical complications for which the risk of occurrence is considered significant, although at this point in time, the probability of occurrence as an individual complication or care implementation risk cannot be determined to meet the threshold of reasonable medical probability or "more likely than not".

In developing this life care plan, the methodological approach and established standards and guidelines were utilized as embraced by other peers in the industry, the International Academy of Life Care Planners (IALCP) and the International Association of Rehabilitation Professionals (IARP). The Life Care Cost Analysis is presented in specific categories designed to aid economic or financial experts with long-term financial planning and resource allocation. No adjustments have been made within the context of this plan for inflation, projected real rates of growth or present value.

V. RESEARCH AND DATA SOURCES

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COST DATA, REFERENCE SOURCES AND VENDOR SURVEYS

Physician & Therapeutic Services, Hospitalization & Diagnostics

- Context4 Healthcare, Inc. 2020
- Physicians' Fee Reference 2020 Pricing Program [Database]

Medications

- CVS
- Drugs.com
- GoodRX
- Walgreens
- Walmart
- WellRX

Medical Equipment & Supplies

- 1800Wheelchair.com
- Active Medical
- Allegro Medical
- Bed Bath & Beyond
- Bidet King
- Bruno Independent Living Aids
- Columbia Medical
- CVS Pharmacy
- Discount ramps
- Drugsupplystore.com
- Faucet Direct
- Home Click
- Home Depot
- Independentliving.com
- LG Med Supply
- Live Oak
- Lowes
- MedEx Supply
- Medicalprodcutsdirct.com
- MedMartonline
- Mobility Works
- OUC Medical
- Performance Health [formerly Patterson Medical]
- PHC-Online
- Plumber Surplus
- Quality Medical Supplies
- RehabMart
- Southwest Medical
- Spinlife.com
- The Wright Stuff
- Walgreens Pharmacy
- Wheelchairs Plus

General Resources for Household/Lawn Services

- Care.com
- Handy.com
- Housekeeper.com
- Merry Maids
- Molly Maid
- Mopp.com
- Just Right Lawns
- Task Easy.com

TABLE I

LIFE CARE COST ANALYSIS

[redacted]

Date of Report: 09/21/2020
Date of Birth: 09/02/70
Current Age: 50 Years
Gender: Female
Ethnicity: Caucasian
Average Residual Life Expectancy: 33.3 (33) Years
Projected Residual Life Expectancy: 33 Years

Impressions:
MVA 04/19/19;
C/L Spine Injuries;
s/p C4-7 ACDF & L5-S1 ALIF;
Chronic C/L Spine Pain;
B/B Incontinence.

Service/Item	Begin At Age	Duration Years	Frequency per Year	Average Unit Cost	Annual Cost	Life Time Cost
Outpatient Physician Services						
Pain Management MD	50	15	2.5	$191.64	$479.10	$7,186.53
Pain Management MD	65	18	3.5	$191.64	$670.74	$12,073.37
Spine Surgeon (Consultative)	50	15	1/4	$272.10	$68.03	$1,020.38
Spine Surgeon (Consultative)	65	18	1/3	$272.10	$90.70	$1,632.61
Urology Consultation	50	1	1.5	$260.87	$391.30	$391.30
Therapeutic Services						
Adjustment Counseling	50	1	24	$180.64	$4,335.30	$4,335.30
Intermittent Physical Therapy	50	15	1/4	$3,961.19	$990.30	$14,854.46
Intermittent Physical Therapy	65	18	1/3	$3,961.19	$1,320.40	$23,767.13
Medication						
Prescriptive Analgesic	50	15	78	$3.73	$291.31	$4,369.70
Prescriptive Analgesic	65	18	182	$3.73	$679.73	$12,235.16
Prescriptive NSAID	50	15	130	$4.95	$643.83	$9,657.39
Prescriptive NSAID	65	18	234	$4.95	$1,158.89	$20,859.97
Neuropathic Pain Agent	65	18	365	$5.93	$2,165.17	$38,973.02

Service/Item	Begin At Age	Duration Years	Frequency per Year	Average Unit Cost	Annual Cost	Life Time Cost
Diagnostics						
X-ray (Cervical/Lumbar Complete)	50	15	1/4	$596.93	$149.23	$2,238.48
X-ray (Cervical/Lumbar Complete)	65	18	1/3	$596.93	$198.98	$3,581.57
MRI (Cervical/Lumbar Spine)	50	33	1/7	$4,565.45	$652.21	$21,522.85
CBC (Additional)	50	33	1.5	$39.43	$59.14	$1,951.71
Metabolic Panel (Additional)	50	33	1.5	$59.60	$89.40	$2,950.26
Urinalysis (Additional)	50	33	1.5	$20.17	$30.26	$998.55
Drug Levels	50	33	2.5	$454.80	$1,137.01	$37,521.25
Urodynamic Testing	50	1	1	$2,613.28	$2,613.28	$2,613.28
Surgery/Other Acute Care						
Lumbar ESI/MBB/RFA (Series of 3)	65	18	1/3	$20,847.06	$6,949.02	$125,082.34
Cervical ESI/MBB/RFA (Series of 3)	65	18	1/3	$21,590.96	$7,196.99	$129,545.73
Lumbar Fusion Extension	70	13	1/13	$213,852.61	$16,450.20	$213,852.61
Pre-Surgery Clearance	70	13	1/13	$497.90	$38.30	$497.90
X-rays (L-Spine, Pre/Post-Op, 4)	70	13	1/13	$1,243.37	$95.64	$1,243.37
Spine Surgeon (Pre/Post-Op, 4)	70	13	1/13	$766.56	$58.97	$766.56
Cervical Fusion Extension	70	13	1/13	$138,117.19	$10,624.40	$138,117.19
Pre-Surgery Clearance	70	13	1/13	$497.90	$38.30	$497.90
X-rays (C-Spine, Pre/Post-Op, 4)	70	13	1/13	$1,144.34	$88.03	$1,144.34
Spine Surgeon (Pre/Post-Op, 4)	70	13	1/13	$766.56	$58.97	$766.56
Equipment, Supplies & Household Services						
ADL Equipment/Devices	50	33	1	$137.50	$137.50	$4,537.50
Bathroom (Wet Area) Safety	50	33	1/6	$607.50	$101.25	$3,341.25
ADA Toilet (Installed)	50	33	2/33	$720.00	$43.64	$1,440.00
Toto Washlet/Equivalent (Installed)	50	33	1/9	$1,179.00	$131.00	$4,323.00
Electric Scooter	65	18	1/5	$4,449.00	$889.80	$16,016.40
Scooter Lift/Hauler	65	18	1/7	$2,046.11	$292.30	$5,261.43
Gel Cell Battery	65	18	1/2	$491.50	$245.75	$4,423.50
Battery Charger	65	18	1/5	$306.77	$61.35	$1,104.37
Household Services	50	15	26	$112.50	$2,925.00	$43,875.00
Household Services	65	18	52	$112.50	$5,850.00	$105,300.00
Potential Care Needs						
Lidoderm/Other Topical Analgesic	50	33	130	$12.76	$1,658.62	$54,734.39

TABLE II

COST ANALYSIS SUMMARY

[redacted]

SERVICE/ITEM	LIFE TIME COST TOTALS	PERCENT OF TOTAL
Outpatient Physician Services	$22,304.20	2.17%
Therapeutic Services	$42,956.88	4.19%
Medication	$86,095.24	8.39%
Diagnostics	$73,377.96	7.15%
Surgery/Other Acute Care	$611,514.52	59.61%
Equipment, Supplies & Household Services	$189,622.45	18.48%
GRAND TOTAL	**$1,025,871.26**	**100.00%**
Potential Care Needs	*$54,734.39*	