UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY

RENEE McCOY, individually and on behalf of all others similarly situated, Plaintiff, -against- HEALTH NET, INC., HEALTH NET OF THE NORTHEAST, INC. and HEALTH NET OF NEW JERSEY, INC., Defendants.	:	Docket No. 03-CV-1801 (FSH) (PS)
ZEV and LINDA WACHTEL, individually and on behalf of their minor children, TORY JESSE and BRETT WACHTEL, and on behalf of all others similarly situated, Plaintiffs, -against- GUARDIAN LIFE INSURANCE COMPANY, HEALTH NET, INC., HEALTH NET OF THE NORTHEAST, INC. and HEALTH NET OF NEW JERSEY, INC., Defendants.	:	Docket No. 01-CV-4183 (FSH) (PS)

PLAINTIFFS' SUPPLEMENTAL EXPERT REPORT DATED JUNE 15, 2006

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INTRODUCTION

I am submitting this Supplemental Report to my report dated March 31, 2004. I have reviewed, among other sources, documents, deposition testimony and exhibits from March and April 2005 by Ingenix, the owner and operator of the challenged databases used by Health Net to determine UCR; and by Aetna and CIGNA and Guardian, three significant data contributors to the Ingenix databases ("Data Contributors").

OVERVIEW

Ingenix Uses Flawed Methodology (Data Contribution and Processing) to Create the MDR and PHCS Databases

In 2000-01, Ingenix consolidated the MDR and PHCS databases and the data contribution and screening (editing) process (*i.e.*, "scrubbing") used to create them. I explain in this report how the MDR and PHCS databases share a flawed underlying methodology (including both data contribution and editing), which skews downward the amounts reported by MDR and PHCS for the percentiles at and above the 70th percentile ("Upper Percentiles"). As I note, these methodological flaws affect all CPT codes in all geographic areas. The methodology does not consider (i) any differentiation of services provided within a CPT code; (ii) patient age, health or conditions; (iii) patient's prior medical history; (iv) the provider's qualifications, credentials, specialty, training or experience; or (v) the place of service (hospital, clinic or doctor's office).

The first step in Ingenix's methodology is the collection of data from voluntary Data Contributors ("Step 1"). The data it receives is a convenience sample. As I stated in my March 31, 2004 report, Ingenix fails to ensure that the convenience sample is representative of the population of charges. It fails to ensure the Contributed Data contains the fields it requested, is

not pre-edited to remove high charges, does not contain non-market charges, and reflects each Data Contributor's complete population of relevant charges. It then edits or "scrubs" (*i.e.*, deletes) the data using a "scrubber" prior to analytical processing ("Step 2"). Ingenix's scrubbing is inappropriate for two reasons. First, it uses formulaic edits to identify purported statistical outliers and automatically removes them without factual basis or further investigation to determine if they are truly incorrect data points (and should be removed) or are simply high (or low) charges that should not be removed. The incorrect removal of valid charges, even if removed from both the high and low ends, biases the Upper Percentile values downward. If an equal number of valid charges are deleted from the high and low ends, the Upper Percentiles will be biased downward.[1] Even if more valid low charges than valid high charges are removed, the Upper Percentile values will most likely be biased downward. For example, if Ingenix removes just 5 percent of total charges from the high end, it would have to remove 4 times that number, or 20 percent, of total charges from the low end before the 80th percentile in the "scrubbed" data is the actual 80th percentile of all the valid charges. Secondly, Ingenix's scrubbing combines the charges for a broad range of CPT codes without adjusting for differences in the spread of charges between CPT codes (*i.e.*, the "standard deviation"). This flaw tends to systematically remove valid high data points, particularly in CPT codes having a wide variation in charges (*e.g.*, because different types of providers are billing the same CPT code). This biases the Upper Percentile values downward.

The third and final step is the analysis and publication of the scrubbed data ("Step 3"). Ingenix produces MDR and PHCS data for each three-digit zip code area in the nation. The

[1] There is no indication that Ingenix in fact removes more valid low charges than valid high charges. In the dental data example that I discuss in this report, Ingenix admitted that it had removed more valid high charges than low charges.

PHCS database calculates and reports the percentile distribution of reported charges for individual CPT codes having at least nine occurrences in the final database. For CPT codes for which fewer than nine charges are reported, the PHCS database reports a "derived" percentile distribution of charges. PHCS derives charge data for approximately 90% of all CPT codes because the vast majority of data reported is for the most common 10% of CPT codes. The MDR Database derives charge data for all CPT codes. Derived percentile amounts are estimated for both PHCS and MDR by: (i) grouping together various CPT charges after the different CPT charges have purportedly been adjusted so that they are comparable; (ii) computing the percentiles of the combined CPT charges; and (iii) readjusting the percentiles for the different CPT charges. However, Ingenix fails to adjust for the differences in the spread of charges (i.e., standard deviation) within each CPT code among the combined CPT charges and, as a result, the derived percentiles are all biased (other than the mean). This flaw results in understatement of the Upper Percentile values of the derived PHCS and MDR data. Because UCR purports to determine what "most" providers charge for a similar service in a geographical area, the relevant data points are the Upper Percentile values. This means that the relevant data points are disproportionately affected (biased) by Ingenix's improper methodology for deriving data.

The end result of Ingenix's methodology is that PHCS and MDR data:

- Does not use appropriate statistical methodology (including sampling, data editing or data estimation) and as a result, creates data that is inappropriate and biased downward for use in computing UCR[2];

[2] The bias occurs at the Upper Percentile values. Cognizant of this bias, Ingenix disclaims the use of its data to compute UCR. Ingenix publishes both the MDR and PHCS data with the following disclaimer:

"Client is responsible for decisions made and actions taken based on the database. The database is designed and intended for use by professionals experienced in the uses and limitations of claims processing, and it is client's responsibility to ascertain the suitability of the database for client's purposes. The database is provided for informational purposes only and Ingenix disclaims any endorsement, approval, or recommendation of data in the database." Gee Ex. 12 (PHCS); Ex. 39 (MDR).

- Does not ensure that the data it collects does not pre-screen out valid high charges, does not contain non-market charges, and is complete in that it contains all the requested information on all the Data Contributors' relevant charges;

- Does not ensure that the data it reports is representative of the total population of relevant charges in the geographic area;

- Does not report the qualifications of the providers billing the charge data (whether medical doctor, nurse practitioner, physician assistant, etc.)[3];

- Does not report the training, experience or expertise of the providers billing the charge data;

- Does not report modifiers billed by the providers;

- Does not report the place of service (*i.e.*, clinic, hospital, medical office) for the charge data;

- Does not report the type of service (*i.e.*, inpatient, emergency, ambulatory surgery) for the charge data;

- Improperly edits out valid charges, which biases the reported Upper Percentile values downward; and

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Ingenix's Product Schedule agreement prior to 2005 stated:

"The Data is provided to Customer for informational purposes only. Ingenix disclaims any endorsement, approval or recommendation of particular uses of the Data. There is neither a stated nor an implied 'reasonable and customary' charge, either actual or derived; neither is there a stated nor an implied 'reasonable and customary' conversion factor. Any interpretation and/or use of the Data by Customer is solely and exclusively at the discretion of Customer. Customer shall not represent the Data in any way other than as expressed in this paragraph." PHS 7009738.

In April 2005, Ingenix's Product Schedule agreement reflected the additional italicized language:

"The Data is provided to Customer for informational purposes only. *Customer acknowledges that the Data is a tool that Customer may use in various ways in its internal business.* Ingenix disclaims any endorsement, approval or recommendation of particular uses of the Data *either in general or with respect to Customer's operations. The Data does not provide to Customer* a stated or an implied 'reasonable and customary' charge, either actual or derived. *The Data does not contain* a stated nor an implied 'reasonable and customary' conversion factor. Any *reliance upon,* interpretation *of* and/or use of the Data by Customer is solely and exclusively at the discretion of Customer. *Customer's determination or establishment of an appropriate reimbursement level or fee is solely within Customer's discretion, regardless of whether Customer uses the Data. Ingenix does not determine, on Customer's behalf, the appropriate fee or reimbursement levels for Customer and its business. Customer acknowledges that Ingenix sells both the MDR and the PHCS relative and actual charge databases, and that Customer has decided to license the PHCS database.* Customer shall not represent the Data in any way other than as expressed in this paragraph." PHS 7108744.

[3] I will use the word "report" to mean "collect", "determine", "include" "identify," and "use as a basis for UCR calculations."

- Statistically incorrectly estimates derived percentile data which understates the Upper Percentile values.

I explain in detail below my critique of Ingenix's methodology and my conclusion that the MDR and PHCS databases are unreliable and invalid for determining usual, customary and reasonable ("UCR") amounts for services rendered to Health Net members by out-of-network providers. I also provide an overview of how Health Net's claims system uses the Ingenix data to make UCR determinations.

DETAILED DISCUSSION REGARDING INGENIX'S METHODOLOGY

I INGENIX'S DATA CONTRIBUTION FLAWS (STEP 1)

In my prior report,[4] I stated that Ingenix's methodology for selecting a convenience sample without testing or validation resulted in two fundamental flaws: *first,* that one cannot assume that the Contributed Data was representative of the population of charges; and *second,* that there were no controls in place to ensure that Data Contributors were contributing appropriate data (*e.g.*, market charge data, complete data reflecting all of their relevant charges, etc.) and were not pre-editing or pre-scrubbing their Contributed Data. I noted that the argument that the database is large and collects a lot of charge data misses the point, because the mere existence of large quantities of data would not remedy the fundamental flaws caused by incomplete, unrepresentative and pre-scrubbed Contributed Data.

[4] In my March 31, 2004 report I stated among other deficiencies that (i) convenience sampling and the reward system in which reimbursement is based only on the amount of data passing screening; entices Data Contributors to eliminate high values when submitting data regardless of whether the charge was valid or not (March 31, 2004 Report at 18 n.8); and (ii) the data contributed by each Data Contributor was not established as representative of all its charge data (*id.* at 13).

Recent testimony provided by Data Contributors CIGNA, Guardian and Aetna has confirmed the numerous deficiencies in Ingenix's data collection process. Ingenix also confirmed many of the deficiencies I noted in my prior report.

A. Ingenix Does Not Receive Useful Data on Provider, Place of Service, Difference in Level of Service or Type of Service within CPT Codes Necessary for Properly Estimating UCR

At the time of my initial report, it was unclear whether Ingenix was requiring and using expanded information from its Data Contributors or was continuing to permit some or all of its data contributors to contribute only limited information consisting of the date of service, CPT code (only 5 digits rather than the 7 digits needed to reflect billed modifiers), billed charge and provider's zip code. Even when Ingenix started to collect provider information (*e.g.*, the identity of the provider, the provider's professional degree specialty, etc.), its Data Contributors provided it partially or not at all. As a result, Ingenix continued doing its analysis and created the final PHCS and MDR data without considering any of these factors. Data Contributors also do not consistently contribute other data fields that Ingenix purports to require, such as provider information, place of service and type of service. Thus, Ingenix does not consider these additional factors in the MDR and PHCS databases.

Ingenix, Aetna, CIGNA and Guardian, all confirmed that Ingenix does not receive adequate expanded data from them. CIGNA, for example, provides fewer than half of the allegedly required data fields, and provides *no* provider-specific information (*e.g.*, the name and address of the provider; his or her licensure, specialty, etc.). At least until March 2005, when it apparently stopped contributing data, Guardian continued to contribute only the same limited four data elements that it contributed since the 1970s and failed to provide provider-specific and patient-specific information. Ingenix has consistently acquiesced in receiving Contributed Data

that does not include most of the requested information from Data Contributors and has continued to report the same four data fields used since the inception of the HIAA database: billed charge, date of charge, zip code of location where service provided; and CPT code.[5]

B. CIGNA's Contributed Data Demonstrates That The PHCS Sample is Not Representative of the Population of Charges

CIGNA contributes data to Ingenix from only four of its nine claims systems. The five claims systems from which CIGNA does not contribute data are nationwide in scope. CIGNA stated that it decided not to contribute all its data to Ingenix because contributing additional data would not increase the discount it receives from Ingenix (75 percent). CIGNA has only one claims system from which it contributes data to Ingenix that contains any HCPCS data.[6] Neither CIGNA nor Ingenix has ever compared the claims systems from which CIGNA contributes data to the claims systems from which it does not contribute data to determine whether the data that CIGNA contributes is representative of CIGNA's entire universe of charge data.

Although Ingenix claims that its database is based on market rate charge data, CIGNA could not verify whether its Contributed Data includes Medicare, Medicaid, discounted or other non-market rate charges. Although CIGNA maintains data on all 49 data fields on the Ingenix contribution form, its Contributed Data contains fewer than half of such fields, and excludes provider-specific information (such as identity, licensing and credentials of the provider), and modifiers used in the billed charges. Ingenix has never audited CIGNA's data contribution. CIGNA

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[5] HIAA, the operator of the predecessor database, stated that these four data fields were selected because they were relatively easy for Data Contributors to submit. HIAA acknowledged they do not provide provider-specific, patient-specific, service-specific information about the charge.

[6] HCPCS refers to data for medical supplies, equipment and pharmaceuticals.

admits that it still does not contribute the "entire universe of billed charges" even though it certified to having done so on Ingenix's data contribution form. Even when Ingenix changed its Data Contribution form, it still did not audit or verify the information and its Data Contributors did not change their deficient Data Contributions.

C. Guardian Violated Ingenix's Data Contribution Requirements

Guardian never contributed all of its available data. It produced no charge data relating to anesthesia procedures. Its Contributed Data was limited to certain CPT codes, and specifically excluded data relating to other CPT codes. Even as to the CPT codes it did contribute, Guardian failed to contribute provider-specific data fields (such as provider licensure, specialty, etc.) and patient-specific data fields (including the patient's age and gender). Except for three modifiers, Guardian's data excluded modifiers that were identified on the providers' billed charges.

D. Aetna Confirms That It Pre-Edits Valid High Charges

It is appropriate for a Data Contributor to delete data errors. However, it is important that Data Contributors do not pre-edit or pre-scrub high charges which it labels "outliers." There are two reasons for this requirement. First, such pre-editing removes valid high charges and biases downward the Upper Percentile values in the reported data. Second, Ingenix's scrubbing process assumes and requires that the Contributed Data is not pre-edited.

Aetna, Ingenix's largest data contributor, pre-edits (pre-scrubs) its claims data according to its so-called Profiling Rules.[7] Aetna considers its Profiling Rules mandatory, and they are substantially unchanged since 1980. Aetna uses two different Profiling Rules according to whether the usual, customary and reasonable determination (which Aetna refers to as "R&C")

[7] Aetna refers to its Contributed Data as "profiled data."

resulted from Aetna's automated claims processing or from manual claims processing (*i.e.*, after review by the medical review unit). The vast majority of Aetna's R&C determinations are made by its automated claims processing system. Aetna does not profile (contribute) data to Ingenix for any automated claims determination that reduced reimbursement on the basis of R&C (*i.e.*, where the charge exceeded the 80th percentile of the contemporaneous reported PHCS data). Where an R&C determination was made by a manual process, Aetna does not profile (contribute) data to Ingenix if the billed charge is 150 percent above R&C (or is 50 percent below R&C).

Aetna's pre-scrubbing of its data under its Profiling Rules significantly and adversely impacted the database, and continues to do so. Aetna is a major data contributor, contributing over 84 million charges per cycle to Ingenix. Ingenix claims to base its data on 450 million claim records per cycle. Aetna's Contributed Data is 18 percent of the charges Ingenix claims to use.

In order to illustrate the effect of the charges Aetna pre-scrubbed and *eliminated* from its Contributed Data, assume that Aetna's claims system contained 100 valid charges. One would expect that 20 percent of the valid charges should exceed the 80th percentile of such charges. Thus, one would expect 20 percent of all valid charges to be pre-edited.

Approximately 70 percent of all Aetna R&C charges were determined automatically. Hence, approximately 70 percent of the 84 million charges (*i.e.*, about 60 million charges) contributed to Ingenix were "profiled" under its automated rule. That means that approximately 15 million valid high charges were pre-scrubbed by Aetna. Those 15 million valid charges that were systematically pre-scrubbed will cause the 80th percentile of the Contributed Data to grossly understate the true 80th percentile of charge data. If there were only one CPT code,

Aetna's pre-scrubbing alone would cause the 80th percentile of the Contributed Data to actually represent less than the 77th percentile. This estimate is conservative since it assumes that none of the claims processed manually by Aetna were pre-scrubbed. Given that the data is reported by zip code and CPT, the percent of valid high data that was pre-scrubbed for many geographic areas will be substantially higher and the bias will also be substantially increased. Thus, before Ingenix even begins to edit the Contributed Data, the data is seriously biased to underrepresent the Upper Percentile values.

E. Ingenix's Failure to Insist on Compliance with Its Rules or to Audit its Data Contributors Led to Invalid Data Contributions

Proper statistical procedures require that Ingenix assess the completeness and accuracy of the data it receives from its Data Contributors and ensure that its rules are being followed. A Data Contributor database cannot be considered valid when there is inadequate data quality control in place.

Despite the importance of Ingenix receiving all available "un-scrubbed" and market rate data (by excluding governmental payor data) from its Data Contributors, Ingenix took no steps to ensure that this occurred. Ingenix did not inquire as to how CIGNA, Aetna or other Data Contributors selected data, or whether they pre-scrubbed or included non-market rate data. Aetna believes that it was free to pre-edit its data to delete valid charges in excess of R&C. Most significantly, Aetna informed Ingenix that it was pre-editing its data and contributing less than all of its available data as a result. Ingenix acknowledges that it is improper for Data Contributors to pre-scrub Contributed Data. Nevertheless, it took no steps to prevent Aetna from

doing so even after Aetna informed Ingenix of this practice.[8] Despite Ingenix's understanding that pre-scrubbing biases the data, Ingenix used Aetna's Contributed Data as is.

Although its Data Contribution rules require submission of the entire universe of charge data, and requires its Data Contributors to certify that they have submitted the entire universe of charge data, Ingenix knew that CIGNA, Guardian and Aetna continued to contribute less than all of their available data, failed to submit information for all required data fields and, at least in Aetna's case, pre-scrubbed its Contributed Data. Yet, Ingenix ignored, and continues to ignore, these clear violations of its stated policy and its Data Contributors' admittedly false certifications.

The following relevant chronology makes that clear:

1. Ingenix's pre-November 2004 contribution forms did not request, and Ingenix did not receive, Contributed Data reflecting the entire universe of provider data from its Data Contributors.

2. Commencing in November 2004, Ingenix changed its data contribution form to require each Data Contributor to certify that it was contributing the "entire universe of billed charges."

3. Aetna, CIGNA and Guardian each signed such a certification (as did other Data Contributors) despite continuing their prior practice of contributing less than the entire universe of billed charges from their claim systems.

4. Even when Aetna told Ingenix it was continuing to pre-scrub its data, Ingenix failed to audit its Contributed Data or otherwise enforce its stated rules, rendering the

[8] It is possible and perhaps likely that other Data Contributors are pre-scrubbing their Contributed Data prior to sending it to Ingenix. Ingenix's failure to audit permits pre-scrubbing and other manipulation by its contributors.

certification requirement a meaningless gesture, and one that in no way ensured statistical compliance.

As I stated in my prior report, the collector of the data in a convenience sample is responsible for testing and verifying the data to ensure that it is not biased and to ensure that its data is in fact representative of the population of charges. Ingenix failed to live up to its responsibility.

II INGENIX'S INVALID SCRUBBING METHODOLOGY (STEP 2)

A. Common Data Created by Merger of PHCS and MDR Databases

Ingenix has since 2001 pooled the Contributed Data into a common data repository ("Common Data") which it uses to create both the MDR and PHCS databases. Ingenix applies the same edits and scrubs ("Common Scrubber") to the Common Data for both MDR and PHCS, and uses the same geozips for both MDR and PHCS. (This represents a change from prior years when Ingenix used different geozip groupings for MDR and PHCS.) In creating Common Data, Ingenix uses MDR's relative values and method for grouping procedures by CPT code ranges.

The MDR and PHCS reported data differs as a result of differences in the final preparation of each database, after the Common Scrubber has scrubbed the Common Data. The PHCS and MDR reported 80th percentile values are different, despite Common Data and the Common Scrubber, because (i) PHCS reports "actual data" for some CPT codes in some geographic areas while MDR reports "derived" data for all CPT codes in all geographic areas; (ii) Ingenix uses different methods of combining different CPT codes (*i.e.*, PHCS uses bodily systems to group CPT codes while MDR groups by CPT code ranges); (iii) Ingenix uses different conversion factors (*i.e.*, relative values which measure the average level differences

between charges among CPT codes) for MDR and PHCS Derived Data; and (iv) MDR uses an inflation factor to adjust its reported data over time, while PHCS does not.[9]

B. The Common Scrubber Used for Both MDR and PHCS

As described in my prior report, Data Contributors submit their data on tapes or disks to Ingenix. Ingenix then edits, or scrubs, the Contributed Data by contributor and computes the credit due each contributor, only giving credit for data that passes (*e.g.*, is not eliminated by) its scrubs. Ingenix does an initial preliminary scrubbing to eliminate obviously invalid data entries. For example, Ingenix eliminates data with obvious keypunch errors (*e.g.*, a CPT code or a zip code which does not exist). This preliminary scrubbing is statistically proper and is not challenged.[10]

Ingenix uses other scrubs which create serious flaws. For example, it groups together ranges of CPT codes and then subjects the data to a formula which scrubs and eliminates valid high charges as supposedly unreliable outliers.[11] This scrubbing is done for the Common Data used by both MDR and PHCS databases. It is inappropriate because it eliminates valid high charges as discussed below.

The Common Scrubber is applied without regard for provider specialty, training, experience, expertise or qualifications, such as whether a provider is a physician or not, and regardless of the type or place of service. The Common Scrubber reviews each data record contributed by the Data Contributors that has not already been eliminated (*e.g.*, because it

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[9] The difference in 80th percentile values in its two databases demonstrates that the reported data is sensitive to various data manipulations.

[10] One of these preliminary scrubs was to eliminate all charges of $1 or less. Significantly, Ingenix eliminated this $1 charge scrub. Ingenix has chosen to rely on its low screen edit, inflating the number of charges eliminated from the low end. However, eliminating all charges of $1 or less from Medical and Surgical services as obvious data errors was a better procedure than relying upon a so-called statistical edit.

[11] Ingenix uses a Common Scrubbing Process on all the data contributed by data contributors to MDR and PHCS. According to Ingenix, there are only two minor exceptions where it does not do so, both with respect to the PHCS database.

contains a list of modifiers).[12] Ingenix's stated reason is that the eliminated charges represent modifiers that would affect the way a provider bills. This elimination of modifiers, by definition, means that the reported PHCS and MDR data cannot be used to evaluate the reasonableness of any medical (or other) billed charges that contained modifiers.

Charges associated with given CPT codes are grouped together based on numerical ranges of CPT codes. All charges for CPT codes within that CPT code range are combined and are subjected to a Common Scrubber formula. In order to combine all of the charges for the different CPT codes within the CPT code range, Ingenix converts each charge by the relative value for that CPT code (*i.e.*, the adjusted or standardized data value is the actual charge divided by the relative value of its CPT code). The relative value is supposed to standardize (*i.e.*, account for) the differences in the average values of the charges among different CPT codes. This process does not adjust for the spread from the mean of different procedures. All standardized charges in the CPT code range are then subjected to a high and a low formula. The two basic formulas to eliminate contributed data on the high end and low end, respectively are:

(i) **"Flag if charge is > RV x per 80 x hifct"**

(ii) **"Flag if charge is < RV x per 50 x lowfct."**

Translated, the high formula (*i.e.*, (i) above) means that Ingenix eliminates a contributed charge if it exceeds the product of the relative value for that CPT code multiplied by the 80th

[12] Ingenix's Contributed Data includes charges originally billed with these modifiers. Some Data Contributors (including CIGNA and Guardian) contribute charge data but delete modifiers. They will be included in the database, whereas data with modifiers is excluded. Ingenix's failure to audit its Data Contributors or to effect proper quality control over the Contributed Data causes indiscriminate and inconsistent treatment of charges billed with modifiers. Charges with modifiers are thus improperly compared to data which has been assembled without modifiers.

percentile for the combined data in the CPT code range (the "per 80") multiplied by an arbitrary high factor number (hifct) determined by Ingenix.[13]

The per80 and per50 values for a particular CPT code range incorporate the charge data for a broad range of CPT codes combined together, and adjusted for average value or "level" among the CPT codes, but not adjusted for the differences in the spread of charges within each CPT code (measured statistically by standard deviation from the mean). Not adjusting for the spread of charges means the formulas do *not* consider the distinct distribution of charges for any particular CPT code (*e.g.*., infrequent, less common procedures will have greater spread from the mean than more frequently performed simple procedures; procedures performed by different types of providers will have greater spread from the mean than those performed by a single type of provider, etc.). Ingenix's methodology rests on the assumption -- without proof or reason -- that the distribution of charges as to all CPT codes in the CPT code range is the same. In short, Ingenix uses relative values to standardize the data, but fails to account for their distribution as measured by standard deviations among charges in each CPT code range. Ingenix's failure to account for standard deviations is a fundamental error and will incorrectly eliminate valid high charges in those CPT codes especially where the spread of charges differs among the grouped CPT codes.

To illustrate this, consider the following hypothetical:

CPT Code 1: 1,000 charges, all $50 (relative value equals 1)

[13] The values of the high and low factors ("hifct" or "fee high" and "lowfct" or "fee low") that are used in the Common Scrubber formula are arbitrary. Very similar high and low factors have been used since 1992. Ingenix uses the following high factors: 1.95 for all medical procedures; 1.9 for all surgical procedures; 1.8 for all radiology procedures; and 1.88 for all laboratory procedures.

CPT Codes 2-10: 10 charges for each code, all with means of 100, but with significant variance in charges (relative value equals 2)

Assume the charges for CPT code 2 are as follows:

50, 50, 50, 50, 50, 50, 100, 150, 225, 225 (mean of 100)

Because of the numerical dominance of CPT code 1, the per 80 value for the entire range of CPT codes 1-10 will be $50. Thus, the Common Scrubber formula using a hifct of 1.95 will eliminate as unreliable outliers all charges for CPT codes 2 through 10 which exceed $195 (*i.e.*, 1.95 x 50 x 2). Specifically, all charges above $195 for CPT codes 2-10 will be eliminated, even though such charges are valid and not unusual for the particular CPT code. For example, for CPT code 2, the two $225 charges would be eliminated as unreliable (*i.e.*, because they exceed $195). They are eliminated, even though they are valid charges, and are not unusual for the particular CPT code (*i.e.*, they reflect 20 percent of the charges).

The 10 charges noted above for CPT 2 ($50, $50, $50, $50, $50, $50, $100, $150, $225, $225) could reflect differences in provider qualifications. In other words, the $50 charges may reflect charges billed by a physician assistant, while the higher charges ($100, $150 and two at $225) may reflect charges billed by a cardiologist. Elimination of the two $225 charges is incorrect and skews the data downward.

One would expect that higher priced charges within a CPT code may reflect increased complexity, impaired patient health, or greater provider experience. By combining charges for CPT codes, adjusting only for the difference in level and not for standard deviation among

charges for each CPT code, high charges which are valid and usual are regarded as unreliable outliers, and are eliminated from the Common Data, thereby skewing downward the Upper Percentile values in the final MDR and PHCS reported data.

C. The Dental Data Example Proves Ingenix Systematically Understates UCR at the Upper Percentile Values.

On August 24, 2001, Jill Faddis, an Aetna insured, faxed questions to Carla Gee of Ingenix relating to her husband's UCR reimbursement for a dental procedure performed by a periodontist. The billed charge was $140 while the UCR reported by the PHCS database was less than half that amount. The fax also included her survey of periodontists listed in the yellow pages giving their rates for the identical procedure codes (*see* Exhibit 14 Ingenix 00857).[14] On October 31, 2001, Ms. Faddis sent a follow-up letter and survey, stating:

> "I have identified the problem. The dentists and periodontists are using the exact same codes for their service even though the service is not the same...It is obvious to me now that when Ingenix and other such data collecting companies comprise their data, they do so by looking at the codes and coming up with figures that represent the vast number of bills charged by dentists which far outweigh those bills charged by periodontists. This is an outrage and certainly not accurate."

She asked Ingenix to explain why the final MDR/PHCS UCR amounts for two particular CDT codes were both $65 when her survey of billed charges by periodontists in her geographic area reflected higher charges than on the MDR/PHCS.

Ingenix reported that it had been scrubbing out between 3-5% of charges, mostly from the high end. By eliminating charges for being "too high," Ingenix eliminated precisely the data

[14] Ms. Faddis's survey included eleven periodontists and one dentist. All eleven periodontists provided their charge for D0150, while ten of the eleven periodontists provided their charge for D0140. The dentist provided his charge for CDR 0140 and D0150 ($51 and $64, respectively).

it should be capturing. Even though Ingenix concluded that legitimate high charges had been scrubbed by Ingenix's Common Scrubber, it did not undertake any further analysis of the data, or otherwise take any effort to remedy the elimination of valid high charges.[15]

Ingenix restored the scrubbed out high charges and recomputed the UCR only as to Jill Faddis, the complaining Aetna subscriber. After adding back in the scrubbed out high charges, the 90th percentile value for D0150 increased by $2, from $65 to $67, and for D0140 increased by $10, from $65 to $75 (an increase of 15 percent).

Jill Faddis's survey demonstrates the inadequacy of the Ingenix data. For D0150, her survey reflects the following periodontist charges: $140; $125; $125; $163; $162; $162; $140; $110; $125; $130; $149. The single dentist she surveyed charged $64 for the procedure. (Her periodontist had charged $140.) Ingenix reported that its PHCS data for CDT code D0150 reflected charges ranging from $16 to a high of $125. Ingenix 00848. Thus, 7 out of 11 periodontists charged *above* $125, the highest charge appearing in the PHCS data; 3 out of 11 periodontists charged $125, and only 1 out of 11 charged *less* than the highest charge reported by PHCS ($110).

Ingenix reported that the charges for D0140 ranged from $16 to a high of $120. Ingenix 00848. For D0140, Ms. Faddis's survey reflects the following ten charges for periodontists in her area: $90; $90; $90; $103; $106; $106; $98; $60; $92 and $100.[16] The average charge for the 10 periodontists is $93.50. Nine of the ten surveyed periodontists charged *above the 90th*

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[15] Although the charges of periodontists were systematically higher than those of dentists for this CPT code, the lower dentist charges are far more voluminous and "swamp" the higher periodonist charges. Although Ingenix became aware of this phenomenon, it failed to evaluate or track its impact on any other CDR or CPT codes or to disclose it. As the producer of this data, Ingenix failed to ensure data quality at all steps during the process.

[16] One periodontist never billed for code D0140.

percentile values in the PHCS reported data ($65) and in the data as modified by Ingenix after restoring the scrubbed high charges ($75).

There are various reasons why the 90th percentile as modified by Ingenix after restoring the scrubbed high charges still drastically understates an accurate 90th percentile value: *first,* Data Contributors (such as Aetna) may have pre-scrubbed out periodontist charges for these procedure codes from their Contributed Data, or may have simply failed to contribute all of their available claims data, such that most periodontist charges for these procedures were not submitted to Ingenix; *second*; the insurance companies that receive claims for periodontists in that geographic area may not be Data Contributors; and *third,* because dentists bill the same CDT code but charge much less (i.e., $64 in Ms. Faddis's survey), and there are many more dentists than periodontists, the lower-priced dentist charges swamp the higher periodontist charges, skewing down the values even at the 90th percentile. (To the extent dental assistants and other ancillary providers bill for these codes, this phenomenon will be even more pronounced.) The end result is that the Ingenix data skewed the Upper Percentile values downward.

The same phenomenon illustrated by Ms. Faddis's survey of periodontists and dentists occurs for all types of procedures in all geographic areas. This data confirms my opinion that by failing to collect all available data (due to pre-scrubbing or otherwise), by scrubbing out valid high charges, and by indiscriminately combining charges from various types of services without any consideration of provider qualifications or the type of service provided (within the particular CPT or CDT code), Ingenix understates the Upper Percentile values in the reported MDR and PHCS data.[17]

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[17] Ingenix in fact collects the data that would enable it to separate specialists' charges, but it fails to use it.

D. The Scrubbing of High Charges is Not Balanced Out by Scrubbing Low Charges, and Biases the Data

Ingenix's scrubbing of some charges on the low end is not balanced by its scrubbing of charges on the high end. Even if Ingenix edits out more low than high charges, the scrubbing of high charges still skews the database downward. Assuming that Ingenix's formulaic edits were equally likely to remove valid high and valid low charges, the result would bias the Upper Percentile values downward.[18] Even removing many more valid low charges than valid high charges may not offset the effect of removing high charges and biasing the Upper Percentile values downward.

This fact is illustrated by the following hypothetical case: assume 100 valid observations in rank order, such that the 80th observation is the 80th percentile. All the observations represent valid charges. Suppose the top 20 percent of the observations are eliminated through pre-scrubbing (as Aetna does) or by Ingenix's scrubbing of the data. As a result, the 100th percentile of the scrubbed data is what had been the 80th percentile, which is the true 80th percentile. No matter how many low values are scrubbed (assuming, of course, that some data remains after scrubbing), the reported 80th percentile will be lower than the true 80th percentile, since the true 80th percentile will always be the reported 100th percentile.

Consider the following hypothetical example: 100 charges are numbered consecutively between 1 – 100. As a result of scrubbing by Ingenix, assume that all 10 charges between 91 and 100 are deleted from the high end, and all 30 charges from 1-30 are deleted from the low end. This hypothetical assumes that Ingenix is scrubbing out three times as many low charges

[18] Given that one would expect the percent distribution of charges to be skewed to the right, where there are larger values (*i.e.*, it is more likely to see a valid charge twice the mean charge than one-half the mean charge), one would expect more valid high charges than valid low charges to be incorrectly removed.

(30) as high charges (10). Even so, the elimination of only one-third the number of valid high charges still skews the 80th percentile value downward. After scrubbing the 30 charges from the low end and the 10 charges from the high end, 60 charges remain in the example, arrayed from 31-90. The 80th percentile of the scrubbed charges is 78 (.8*60+30). Thus, even where Ingenix edited out three times as many low charges as high charges, the statistical effect of removing high charges is to skew the database downward.

III PUBLICATION AND ANALYSIS OF FINAL FEE SCHEDULES (STEP 3)

Only the Common Data that the Common Scrubber does not eliminate is used to create the final MDR and PHCS fee schedules.

A. PHCS Actual Data

Ingenix creates PHCS fee schedules by taking the Common Data that the Common Scrubber did not eliminate for each CPT code, with only minor exceptions. If there are nine or more occurrences (*e.g.*, charges), then Ingenix considers the data to be "actual data" and reports the actual data at each percentile (*i.e.*, 50th, 60th, 70th, 75th, 80th, 85th and 90th along with the mean and the mode charges.) The PHCS database reports "actual" data for only 10% of all CPT codes, and derives data for approximately 90% of all CPT codes. Ingenix states that 90% of the Contributed Data is attributable to 5% of CPT codes, leaving insufficient charges for the vast majority of CPT codes.

B. PHCS Derived Data

Ingenix derives data for PHCS for each CPT code in which fewer than nine charges passed the Common Scrubber for that geographical area (geozip). Ingenix groups together broad CPT ranges into a bodily system. For example, Ingenix considers all CPT codes from 40490 to 43499 to be in the same bodily system ("upper digestive system"). There is wide diversity

among these CPT codes, ranging from the simple repair of lip (CPT 40490, rv of 5.50) to the very complex (esophagectomy, CPT 43116, rv of 240).

The data that passed the Common Scrubber for all CPT codes in a bodily system in the geographic area is used to derive the data for the CPT codes in each bodily system with fewer than 9 charges. To create the 80th percentile for a CPT code with fewer than 9 reported charges, Ingenix first computes the 80th percentile for charge data from all CPT codes within a bodily system and area. In order to combine across different CPT codes within a bodily system and area, Ingenix adjusts each charge using the RVs from Relative Value Studies, Inc. ("RVSI"). That is, each charge is divided by RVSI's RVs (these RV values are different from those used in the scrubbing process) and referred to as a "converted" charge. That is, if one CPT has a relative value of 2 and another has a relative value of 4, the average cost of charges in the second CPT is twice (4/2) that of the first.

The 80th percentile value for the adjusted charge data for the bodily system is then calculated. This is referred to as the "converted 80th percentile." This value is then used to derive the 80th percentile value for all CPT codes with fewer than nine observations in the same bodily system and area. This is done simply by reconverting the converted 80th percentile to adjust the average level of the specific CPT code that the derived data represents. Specifically, the derived 80th percentile for the CPT code would be the converted 80th percentile for its bodily system times RVSI's RV for that CPT code. Ingenix uses the same method to derive each percentile for each CPT code in that bodily system and area in which fewer than nine data points pass Ingenix's scrubbing process.

C. MDR Reported Data

Ingenix derives MDR data from the Common Data using the same methodology as for the PHCS derived data. Ingenix uses different relative values, and combines different ranges of CPT codes, but the methodology for deriving data between MDR and PHCS is the same.

The CPT code book groups together CPT codes for a procedure from the simplest to the most complex. Sequentially numbered CPT codes, therefore, reflect both simple and far more complex procedures. Ingenix states that it wanted to change its current system to use more similar, non-contiguous, non-sequential CPT code ranges. Despite its recognition, Ingenix has only used this mothod to calculate conversion factors in its HCPCS database and not for its other databases (medical/surgical, anesthesia, dental, etc.).

This process of combining CPT data together to conduct analyses and then breaking the results back out to specific CPT codes is similar to what Ingenix does in its Common Scrubbing process. Just as with the Common Scrubber, Ingenix's process for computing derived data for both MDR and PHCS Derived Data assumes that the distribution of charges among all CPT codes in a bodily system are the same, and fails to account for standard deviations in the charges for each CPT code.[19]

D. The Editing Methodology for Creating Derived Data for CPT Codes with Fewer Than Nine Occurrences is Statistically Invalid and Biases Downward the Upper Percentile Values in Reported MDR and PHCS Data

The key to combining data across a range of CPT codes is standardization of the charge data. Proper standardization enables the meaningful combination and comparison of charges across different CPT codes. When combining data across a range of CPT codes, Ingenix must standardize the data to account for the fact that the level and distribution of charges varies

[19] Throughout this Report, references to CPT codes should be broadly understood to include procedure codes of all types, including dental, anesthesia, HCPCs, etc.

among CPT codes. Data standardization by level and spread is a common issue for statisticians. There are proper well-known statistical methodologies for combining data with different means and variances. For example, if the data in each CPT code had been standardized by subtracting its relative mean from each value and dividing by its relative standard deviation, the data could be combined and then unwound by reversing the process, multiplying by its standard deviation and adding back its mean. Assuming adequate and proper data - - a requirement not satisfied in either MDR or PHCS - - such a methodology could estimate each CPT's percentile distribution from the combined data.

By proper standardization, considering differences in both the relative values and the relative standard deviations, the 80th percentile value in one CPT becomes equivalent to the 80th percentile value in every other CPT code, and all the combined data is comparable. However, if one standardizes only for level, the only combined values that are actually comparable are the average values. Since UCR involves knowing the Upper Percentiles, all of the combined data must be comparable, unbiased estimates of the Upper Percentile values (which is what UCR purports to measure).

Ingenix, however, standardizes only for level by using the RV. For example, if the charges in CPT code 1 are, on average, twice that of those in CPT 2, then if the charges in CPT code 2 are simply doubled (or conversely, if those in CPT code 1 are divided in half), Ingenix groups them and the difference in the average level of charges between the two CPT codes is accounted for in the combined charge data.

Because Ingenix fails to consider that some CPT codes have a wider distribution of charges (*i.e,* standard deviation) than others, the derived percentiles understate the true Upper Percentile values for these CPT codes. This is a particularly significant problem because those

CPT codes with a large number of observations tend to be the most common and have the smallest standard deviation, while the CPT codes with fewer observations have a greater standard deviation.

That is, Ingenix's flawed method of combining data without proper standardization groups together data relating to numerous procedures where the more common, less expensive procedures, which typically have little variation, will dominate in number compared to the more specialized and less common CPT codes. As a result, when the data is combined based only on the relative value of the procedures, almost any charge above the mean in the less common CPT codes with a higher relative standard deviation can appear to be unusually high.

Consider the following simplified hypothetical:

[Note: The underlined value is the 80th percentile of each distribution.]

Hypothetical

CPT 1: charges 9, 9, 10, 10, 10, 10, 10, <u>10</u>, 11, 11 Average = 10

CPT 2: charges 50, 50, 50, 100, 100, 100, 100, <u>150</u>, 150, 150 Average =100

Combining the two CPT codes using RV of 10 for CPT 2 yields:

5, 5, 5, 9, 9, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, <u>11</u>, 11
15, 15, 15

Thus, the combined 80th percentile is 11, which translates back to 11 for CPT 1 (11 x RV of 1) and 110 for CPT 2 (11 x RV of 10). Therefore, the three 150 charges in CPT 2 (which are actually the 70th percentile for CPT 2) are now classified as being above the 80th percentile for the combined data set.[20] By failing to account for the standard deviation in the charges for CPT 2, Ingenix's methodology skews the 80th percentile value downward from 150 to 110.

[20] Note: the "converted" 50th percentile is 10 which correctly translates back to 10 (10 x 1) for CPT code 1 and 100 (10 x10) for CPT code 2.

Consider the following hypothetical:

Hypothetical

CPT 1		
RV = 1		
Charge	Adjusted Charge	Frequency
	(1)	(2)
150	150	79
160	160	21
152	152	Avg. Chg.

CPT 2		
RV = 2		
Charge	Adjusted Charge	Frequency
	(1)	(2)
220	110	4
300	150	2
380	190	2
400	200	2
304	152	Avg. Chg

CPT 3		
RV = 3		
Charge	Adjusted Charge	Frequency
	(1)	(2)
330	110	2
450	150	1
570	190	1
600	200	1
456	152	Avg. Chg

CPT 4		
RV = 4		
Charge	Adjusted Charge	Frequency
	(1)	(2)
490	123	2
647	162	6
608	152	Avg. Chg

All Adjusted Charges		
Value	**Frequency**	
	(1)	
11-	**6**	
123	**2**	
150	**82**	
160	**21**	**80th Percentile**
162	**6**	
190	**3**	
200	**3**	

In this hypothetical, 80 percent of the charges in CPT code 4 and 20 percent of the charges in CPT codes 2 and 3 would incorrectly be deemed to be unreliable, based on using the incorrect derived 80th percentile as the UCR value.

IV HEALTH NET'S AUTOMATED USE OF THE INGENIX DATA

Health Net's computer system automatically adjudicates claims for the vast majority of provider claims. In other words, no human intervention is necessary for Health Net to evaluate a submitted claim, process it, and send an Explanation of Benefits and a reimbursement check to the member (if applicable).

Since Health Net's UCR pricing is automatic, the fee schedule hierarchy established by, for example, Op Alert 493 (1998 HIAA data, followed by 2000 HIAA data, MDR data, 70% of the V1 fee schedule and 35% of the billed charge), is performed automatically by Health Net's claims system. Both the HIAA and MDR fee data are computerized, and the claims processing system has been directed to look for a price in the order determined by Health Net's nonpar statewide fee schedule.

With few exceptions, reprocessing of claims may be performed automatically as well. Many of the state-directed restitutions required of Health Net by state departments of insurance use several basic data points, including the member's name and ID number; the date of service; the CPT code; the billed charge; the old allowed amount; the new allowed amount; interest and the total to be paid the member. For example, in New York, Health Net wrote programs to reprocess claims for certain groups from July 1999 forward to replace 1998 HIAA amounts with updated HIAA amounts. (In New Jersey, Health Net wrote programs to reprocess claims from

July 2001 through October 2002; the earlier period is subject to the audit being performed at the direction of DOBI.)

Health Net is also able to compute a "per member/per month" (PMPM) estimate of financial liability caused by variables in pricing. For example, Health Net's actuary was able to calculate that the difference caused by using 1998 HIAA (in lieu of updated HIAA data) was 93 cents per member, per month. Calculation of PMPM is a common way for insurance companies such as Health Net to compute the financial liability imposed on members by various pricing alternatives. A computer program could be written to reprice invalid Ingenix or Outdated Data or Op Alert 493 underpayments in the same manner as it was done in the prior restitutions.

CONCLUSION

After reviewing Ingenix's methodology (including data contribution and editing), I conclude that the MDR and PHCS databases are invalid for use by Health Net to determine UCR.

Dated: Philadelphia, PA

June 15, 2006

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