Lawrence + Memorial Corporation

Cost and Market Impact Review

Final

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Prepared for:

Yale New Haven Health Services Corporation
under the Auspices of the Connecticut Office of Health Care Access
To Comply with Requirements of the Agreed Settlement between
Yale New Haven Health Services Corporation
And the Connecticut Department of Public Health

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KEY TERMS

The following key terms are referenced in the report.

Key Term	Acronym	Definition
Agreed Settlement		Document detailing terms of the agreement between YNHHSC and DPH authorizing the transfer of ownership of L+MC and its subsidiaries to YNHHSC
Ambulatory Payment Classification	APC	Unit used to determine reimbursement for outpatient services; an ambulatory payment classification is defined by a particular set of outpatient services
Calendar Year	CY	The year ending December 31 of a given year
Case Mix Adjusted Discharge	CMAD	Discharge with a relative weight of 1.00; see definition of relative weight below
Centers for Medicare and Medicaid Services	CMS	Federal agency responsible for Medicare and the partner with states for Medicaid
Charge		The total amount billed for a service, often has little relationship to price
Commercial Fee Cap		The limit on increases in total price per unit of service paid by commercial insurers
Commissioner		Commissioner of the Department of Public Health
Compound Annual Growth Rate	CAGR	Geometric average of the growth rate over a period of time, stated as percent growth per annum
Conversion Factor		Converts relative value units into payment rates; see definition of relative value units below
Cost Based Statistical Area	CBSA	Areas to which Medicare assigns wage indices
Cost and Market Impact Review	CMIR	A review required by Condition 22 of the Agreed Settlement
Department of Public Health	DPH	Connecticut department with hospital oversight responsibility; parent department of OHCA
Department of Social Services	DSS	Connecticut department responsible for Medicaid
Eastern Connecticut	E-CT	Tolland, Windham, and New London counties (includes Lawrence + Memorial Hospital)
Fee		Price per unit of service; see definition of price below
Fee Ratio		The ratio of L+MH average all payer fee to the market average all payer fee. Fee caps are set so that the ratio does not increase during the Agreed Settlement monitoring period
Fiscal Year	FY	The year ending September 30 of a given year, as defined by CT Hospital Financial Review Regulations for CT hospital reporting[1]
Freedom of Information Act	FOIA	An act that enables the requires the government to respond to public requests for information
Geographic Practice Cost Index	GPCI	GPCIs reflect the costs of intensity, practice expense, and malpractice insurance in an area compared to the national average costs
Hospital Fees		Hospital net revenue divided by the total MS-DRG relative weights for the hospital's discharges
Lawrence & Memorial Medical Group	LMMG	The physician group of Lawrence + Memorial Corporation

[1] State of Connecticut. Office of Health Care Access. *Hospital Financial Review Regulations*. N.p., n.d. Web. 4 May 2017. http://www.ct.gov/dph/lib/dph/ohca/hospitalfillings/2017/hospital_financial_review_regulations.pdf.

Key Term	Acronym	Definition
Lawrence + Memorial Corporation	L+MC or L+M	The parent organization of Lawrence + Memorial Hospital and Lawrence & Memorial Medical Group
Lawrence + Memorial Hospital	L+MH	The hospital organization of Lawrence + Memorial Corporation
Market		All CT providers, both in and outside eastern CT, serving eastern CT patients
Medicare Severity Diagnosis Related Group	MS-DRG	Unit used to determine reimbursement for inpatient services; a Medicare Severity Diagnosis Related Groups is defined by a particular set of patient attributes, which include principal diagnosis, specific secondary diagnoses, procedures, sex and discharge status[2]
MS-DRG Relative Weight	RW	A weight assigned to a MS-DRG that reflects the expected relative cost to a hospital to provide that MS-DRG; *relative weights do not average to 1.00*
Net Revenue		Total price, after adjustments, as reported in hospital financial statements
Non-Eastern CT	Non-E-CT	All CT counties excluding eastern CT (Tolland, Windham, and New London counties); excludes out of state counties
Office of Health Care Access	OHCA	An office of Connecticut's Department of Public Health
Payer		Medicare, Medicaid, commercial insurers, and other third parties that cover the cost of care
Price		The total amount paid for a service, inclusive of patient cost-sharing
Relative Value Unit	RVU	RVUs account for the relative resources used in furnishing a service
Unit of Service		For inpatient care: a MS-DRG relative weight of 1.00; for outpatient care: an APC with a relative weight of 1.00
Yale New Haven Health Services Corporation	YNHHSC Or YNH	The organization acquiring Lawrence + Memorial Corporation

[2] Centers for Medicare and Medicaid Services (CMS). *Defining the Medicare Severity Diagnosis Related Groups (MS-DRGs), Version 34.0*. N.p., n.d. Web. 4 May 2017. https://www.cms.gov/ICD10Manual/version34-fullcode-cms/fullcode_cms/Defining_the_Medicare_Severity_Diagnosis_Related_Groups_(MS-DRGs)_PBL-038.pdf.

COST AND MARKET IMPACT REVIEW

In early September 2016, the Connecticut (CT) Office of Health Care Access (OHCA) granted Yale New Haven Health Services Corporation (YNHHSC) approval to acquire Lawrence + Memorial Corporation (L+MC). The Agreed Settlement between YNHHSC and the CT Department of Public Health authorized the transfer of ownership of L+MC and its subsidiaries to YNHHSC. The Agreed Settlement had a number of terms, including requiring YNHHSC to engage an independent consultant to prepare a Cost and Market Impact Review (CMIR), evaluate the non-governmental price per unit service (fees) of services provided by L+MC's Lawrence + Memorial Hospital (L+MH) and Lawrence & Memorial Medical Group (LMMG), and annually set maximum fee increases (for 5 years for L+MH and for 28 months for LMMG). With OHCA approval, YNHHSC engaged Milliman as the independent consultant.

As the independent consultant Milliman must satisfy the requirements of the Agreed Settlement and report to and take direction from the Commissioner. Milliman is a global actuarial and financial services consulting firm that has been serving clients as an independent consultant for over 70 years. We serve a diverse client base, representing virtually all types of private, non-profit, and public sector enterprises in healthcare, employee benefits, investment consulting, life insurance, financial services, and property and casualty insurance. We have no agenda other than high quality work.

This document is Milliman's 2017 report to OHCA and YNHHSC, which is intended to satisfy requirements of the Agreed Settlement. It may not be suitable for other purposes.

CMIR REQUIREMENTS

The Agreed Settlement's Condition 22 describes the information to be included in the CMIR. This report provides certain information specified in Conditions 22b, 22c, 22d, and 22e of the Agreed Settlement. Condition 22 is reproduced below (boldface added to highlight the role of the independent consultant).

22. Within ninety days of the Date of Closing, YNHHSC shall initiate a cost and market impact review, which shall comply with Connecticut General Statute Section 19a-639f, which such analysis shall include and shall be utilized to establish the baseline cost structure set forth below:

a. Establishing a baseline cost structure and total price per unit of service (the "baseline CMIR") and establishing a cap on annual increases in total price per unit of service (as defined below) for L+MH and LMMG (the "annual CMIR update"). YNHHSC shall retain an independent consultant, subject to OHCA's approval, to conduct the baseline CMIR and the annual CMIR update and shall pay all costs associated with the cost and market review. To the extent that all data is not available to comply with the provisions of section l 9a-639f the baseline CMIR shall be adjusted to reflect such information when it becomes available.

*b. In conducting the baseline CMIR and annual CMIR update, the cost and market impact review shall analyze the factors relative to L+MH and LMMG in accordance with subsection (d) of section 19a-639f of the general statutes and the Eastern Connecticut market more specifically: (a) L+MH and LMMG's size and market share within their primary and secondary service areas; (b) L+MH's and LMMG's prices for units of service, including its relative price compared to other providers for the same services in Eastern Connecticut; (c) L+MH and LMMG cost and cost trends in comparison to total healthcare expenditures statewide; (d) the availability and accessibility of services similar to those provided by L+MH and LMMG in their primary and secondary service areas; (e) the role of L+MH and LMMG in serving at-risk, underserved and government payer populations, including those with behavioral, substance use disorder and mental health conditions, within their primary and secondary service areas; (f) the role of L+MH and LMMG in providing low margin or negative margin services within their primary and secondary service areas; (g) general market conditions for hospitals and medical foundations in the state and in Eastern Connecticut in particular; and (h) and other conditions that the **independent consultant determines** to be relevant to ensuring that L+MH and LMMG prices do not exceed the market price for similar services in Eastern Connecticut.*

c. In recognition that the baseline CMIR pursuant to Connecticut General Statute Section 19a-639f shall be conducted after the Date of Closing, in the event that the baseline CMIR finds a likelihood of materially

increased prices as a result of the L+M affiliation with YNHHSC, notwithstanding these conditions, the Commissioner of Public Health (Commissioner) and YNHHSC shall meet and confer for the purposes of determining further conditions as necessary to correct such condition and to create a performance improvement plan to address the conditions. The Commissioner shall determine whether YNHHSC is in compliance with such performance improvement plan. Prior to the end of each fiscal year, the ***independent consultant shall conduct*** *the annual CMIR update and use the results of such annual CMIR update to establish a cap on any increase in the price per unit of service for the upcoming fiscal year. Nothing herein shall prohibit the* ***independent consultant from considering and recommending*** *any recommendations of the Certificate of Need Task Force on cost containment measures or a cap on annual cost or price increases.*

d. *The* ***independent consultant shall report*** *to and take direction from the Commissioner. The independent consultant in establishing the cap shall take into consideration the cost reductions reflective of the efficiencies resulting from the affiliation and the annual cost of living of the primary service area or the Eastern Connecticut area.*

e. *The* ***independent consultant shall provide*** *the baseline CMIR and the annual CMIR update to OHCA within thirty days of completion. OHCA shall keep confidential all nonpublic information and documents obtained as part of the baseline CMIR and the annual CMIR update and shall not disclose the information or documents to any person without the consent of YNHHSC and L+M, unless required to do by law.*

METHODOLOGY SUMMARY

Our commercial fee cap methodology, as approved by OHCA:

1. Establishes market baskets of high frequency services for inpatient and outpatient hospital services and physician services.
2. Estimates the fiscal year 2016 (FY2016) average fee per market basket service across all payers for services provided by L+M and all hospitals and physicians serving E-CT patients (aka "the market"), and calculates the FY2016 ratio of L+M fees to market fees.
3. Projects the market basket fee changes and service changes, other than L+M commercial fee changes, from FY2016 to calendar year 2018 (CY2018).
4. Estimates the L+M commercial fee change from FY2016 to CY2018 that will allow L+M to maintain the FY2016 ratio of L+M fees across all payers to market fees across all payers and establishes that change as the commercial fee cap.

Following the expectations of the Agreed Settlement, we also review the Eastern Connecticut (E-CT) healthcare market and make non-fee cap recommendations.

Fiscal years (FYs) for Connecticut hospitals end in September and calendar years (CYs) end in December. FY2016 is the year October 2015 through September 2016 and CY2018 is the year January 2018 through December 2018. Under the Agreed Settlement L+MC must maintain commercial fee contracts from the end of FY2016 to the beginning of CY2018 and may negotiate fee increases, subject to the fee cap, for CY2018 onward. Hence, for establishing the fee cap, FY2016 is our base period and CY2018 is the period for which we establish the fee cap. Next year we will establish inpatient and outpatient hospital fee caps for CY2019.

Medicare and Medicaid fees impact the commercial fee cap. The estimated average fees per market basket service and fee ratios are inclusive of all payers. Therefore, any Medicare or Medicaid fee change that differentially affects L+M relative to other hospitals serving E-CT patients will impact the calculation of L+M's commercial fee cap. The differential impact may be the result of L+M having a different fee change than the other hospitals or it may be due to L+M providing a disproportionate share (more or less) of Medicare or Medicaid market basket services relative to the other hospitals.

MARKET REVIEW

Our review of the Eastern Connecticut (E-CT) healthcare market yielded the following observations:

Hospital Inpatient Care

1. **E-CT patients had about 51,000 discharges in FY2016.** About 25,000 or about 50% of the discharges were for market basket MS-DRGs. Of these about 25,000 market basket MS-DRGs, 27% were from L+MH (see Exhibit 1).
2. **E-CT hospitals lost market share between FY2014 and FY2016.** The percent of E-CT patients discharged from E-CT hospitals, inclusive of L+MH, declined from 67.0% to 62.3% of discharges – a -6.9% change[3]. In FY2016, nearly 40% of E-CT patient discharges were from non-E-CT hospitals (see Exhibit 1).
3. **E-CT patients with commercial insurance are disproportionately cared for outside of E-CT relative to Medicare patients**. In FY2016 46.6% of commercial market basket MS-DRG discharges were from non-E-CT hospitals vs. 32.9% for Medicare discharges and 19.0% for Medicaid discharges (see Exhibit 2A).
4. **Patient volume for government payers grew from FY2014 to FY2016.** In FY2016 35.8% of market basket MS-DRG discharges were paid for by commercial payers (see Exhibit 2B). From FY2014 to FY2016, E-CT patient market basket MS-DRG discharges declined for commercial payers (-4.3%) and grew for Medicaid (+5.5%) and Medicare (+2.1%) payers (see Exhibit 2B).
5. **In each of FY's 2014-2016 L+MH provided more than a 1/5 of the inpatient behavioral health discharges for E-CT patients.** The percentage ranged from 21.4% in FY2015 to 22.1% in FY2016. Behavioral health discharges includes mental illness and substance abuse MS-DRGs (see Exhibit 2C).
6. **In FY2016, non-E-CT hospitals, on average, provide more high intensity care than E-CT hospitals**. In FY2016, non-E-CT market basket MS-DRG discharges had an average case mix per discharge of 1.42, while E-CT hospitals had an average case mix of 1.25 (see Exhibit 3).
7. **In FY2016, government payers paid much less than commercial payers did**. In FY2016, Medicare fees were $7,717, Medicaid fees were $5,359, and commercial payers fees $12,467 per case mix adjusted discharge (CMAD), inclusive of patient cost sharing. Commercial payer fees more than double Medicaid fees (see Exhibit 4A).
8. **From FY2014 to FY2016, commercial fees per CMAD for hospitals serving E-CT patients increased by +4.3% per annum** (see Exhibit 4A).
9. **In FY2016, L+MH fees per CMAD were similar to other E-CT hospitals**. In FY2016, L+MH fees per CMAD were somewhat higher than that of other E-CT hospitals: +5.2% for Medicare, +3.5% for Medicaid, and +0.7% for commercial (see Exhibit 4B).
10. **Non-E-CT fees per CMAD were much higher than E-CT fees per CMAD across all payers**. In FY2016, fees per CMAD for non-E-CT hospitals were higher than that of E-CT hospitals: +9.2% for Medicare, +25.6% for Medicaid, and +22.6% for commercial (see Exhibit 4B).
11. **CT Medicaid has planned changes to fees that will disproportionately reduce fees for L+MH**. Medicaid has planned fee changes per CMAD between FY2016 and CY2018 of -12.8% for L+MH, -8.4% for other E-CT hospitals, and -6.8% for non-E-CT hospitals (see Exhibit 5A).
12. **L+MH and non-E-CT hospital Medicare fees are expected to increase modestly in January 2018, while the fees for other E-CT hospitals are expected to have a larger increase due to changes in the geographic assignment for some hospitals.** January 2018 Medicare fees are expected to change +0.6% for L+MH, +0.4% for non-E-CT hospitals, and +2.8% for other E-CT hospitals (see Exhibit 5B).

Medicare payments are based on statistical area assignments. Medicare outpatient and inpatient payments are adjusted for local wage levels, using the wage indices that Medicare publishes for cost based statistical areas (CBSAs). CBSAs are typically metropolitan statistical areas (MSAs), and hospitals are generally assigned to the CBSA corresponding to their physical location. Medicare can, however, assign hospitals to CBSAs that do not correspond to their physical location. L+MH has been assigned to the Nassau County-Suffolk County, NY CBSA – a CBSA with a higher

[3] Changes in market share cited in this analysis are relative to the first period market share. For example if a hospital has a 20% market share that declines to 18%, then the hospital has lost 10% of its market share.

wage index than the New Haven-Milford, CT CBSA for several years. Another E-CT hospital, Backus Hospital, will be assigned to the Nassau County-Suffolk County, NY CBSA as of January 2018.

Hospital Outpatient Care

1. **Outpatient care is a significant portion of hospital net revenue, particularly for E-CT hospitals.** Outpatient care represented 60.4% of FY2015 hospital net revenue for E-CT hospitals, and 42.8% of FY2015 hospital net revenue for non-E-CT hospitals providing services to E-CT patients (see Exhibit 6).
2. **Medicaid and Medicare represent a significant portion of outpatient net revenue for hospitals serving E-CT patients.** Medicare and Medicaid represent 38.1% of outpatient net revenue for L+MH, 38.0% of outpatient net revenue for other E-CT hospitals, and 36.3% of outpatient net revenue for non-E-CT hospitals (see Exhibit 6).
3. **E-CT patients receive a higher portion of their outpatient surgical care than ED care at non-E-CT hospitals**. According to CHIME, 35.5% of FY2016 outpatient hospital surgery discharges[4] for E-CT patients were from non-E-CT hospitals and 11.9% of ED discharges were from non-E-CT hospitals (see Exhibit 7).
4. **E-CT patients with Medicare or commercial insurance receive a higher portion of their outpatient surgical and ED care at non-E-CT hospitals than E-CT patients with Medicaid**. According to CHIME, 35.4% of Medicare and 37.9% of commercial FY2016 outpatient hospital surgery discharges for E-CT patients were from non-E-CT hospitals, whereas 29.3% of Medicaid discharges were from non-E-CT hospitals. Similarly, 10.7% of Medicare and 17.0% of commercial FY2016 ED market basket services for E-CT patients were from non-E-CT hospitals, whereas 8.1% of Medicaid ED market basket services were from non-E-CT hospitals (see Exhibit 7).
5. **In FY2016 L+MH emergency department served the same proportion of E-CT patients with behavioral health primary diagnoses as patients with any diagnosis.** In FY2016 L+H provided 29.6% of emergency room discharges for E-CT patients with a behavioral health primary diagnosis (mental illness or substance abuse) and 29.5% of total emergency room discharges for E-CT patients (see Exhibit 7).
6. **CT outpatient hospital Medicaid Modernization, which was a significant change in outpatient hospital methodology, disproportionately reduced fees for L+MH.** In July 2016, CT Medicaid introduced an APC payment methodology. Medicaid outpatient fees increased somewhat (1.4%) for all hospitals serving E-CT patients, whereas fees decreased significantly (-11.0%) for L+MH (see Exhibit 8).

   CT hospital outpatient Medicaid Modernization. Prior to July 2016, CT Medicaid hospital outpatient fees (for most services) were set at a hospital-specific percentage of the hospital's charges. The percentage was based on the hospital's cost to charge ratio. In July 2016, CT Medicaid implemented a Medicare-like payment system where most fees are paid using Medicare's APC methodology. Many individual hospitals saw significant outpatient fees change as a result of Medicaid Modernization, with some receiving higher fees while other received lower fees.

   Under the modernized payment system, CT Medicaid uses Medicare's APC assignment rules, relative weights, and wage indices but sets its own APC fee per relative weight unit. CT Medicaid adjusts for labor costs through a wage index based on each hospital's CBSA corresponding to their physical location. Wage indices for a given CBSA can "bounce" somewhat from year to year. L+MH's January 2017 fee change relative to some other hospitals is due to a decline in the New Haven-Milford, CT wage index relative to other CT CBSAs.
7. **The January 2017 CT Medicaid fee update also reduced fees for L+MH**. Routine updating of Medicaid APC fees, effective January 2017, resulted in 0.0% change for all hospitals serving E-CT patients, but a -1.2% change for L+MH (see Exhibit 8).
8. **L+MH's outpatient hospital Medicare fees are expected to decrease modestly in January 2018, while the fees for other E-CT are expected to have increase due to changes in the geographic assignment for some hospitals.** January 2018 Medicare APC fees are expected to change -0.2% for L+MH, +3.6% for other E-CT hospitals, and -0.5% for non-E-CT hospitals (see Exhibit 9).

[4] "Discharges" is CHIMEs term for an outpatient surgery procedure or an emergency room visit.

Physician Care

1. **LMMG provided a consistent volume and payer-mix of market basket services in FY2015 and FY2016.** In FY2015, 43.6% LMMG's services were for E-CT patients with Medicare, 13.9% were for E-CT patients with Medicaid, and 41.5% were for E-CT patients with commercial insurance (see Exhibit 10). In FY2016, 44.1% LMMG's services were for E-CT patients with Medicare, 14.3% were for E-CT patients with Medicaid, and 40.8% were for E-CT patients with commercial insurance (see Exhibit 10).
2. **E-CT patients with Medicaid and Medicare receive the majority of their care in E-CT.** In CY2016, E-CT patients with Medicaid received 67.8% of their physician services from E-CT physicians and 32.2% from non-E-CT physicians (see Exhibit 11). In CY2014, E-CT patients with Medicare received 66.5% of their physician services from E-CT physicians and 33.5% from non-E-CT physicians (see Exhibit 11).
3. **Medicare fees for all Medicare physicians in Connecticut have changed very modestly from CY2015 to CY2017.** Medicare fees changed -0.3% from CY2015 to CY2017 (see Exhibit 12).
4. **Medicaid fees for all Medicaid physicians in Connecticut have remained flat since September 2015 (beginning of FY2016).**
5. **In FY2015, LMMG's average Medicaid fees were about 85% of what Medicare fees would have been for the same services**.
6. **There are no announcements that indicate that Medicaid and Medicare fees will significantly change between now and CY2018**.

FEE CAPS AND RECOMMENDATIONS

Overview

In this section, in our role as an independent consultant, working to satisfy requirements of the Agreed Settlement, we estimate the fee caps for L+MC's average commercial fees for hospital inpatient, hospital outpatient, and physician care. According to the Agreed Settlement, fee caps are the highest permitted aggregate increase in L+MC or LMMG fees for CY 2018 relative to FY2016 — a span of 2.25 years from midpoint to midpoint. Fee increases for a particular commercial health plan may be more or less than the cap.

> **Commercial fee increases within maintained health plan contracts are included in the fee cap**. Condition 20 of the Agreed Settlement requires L+MC to maintain health plan contracts that were in effect as of the date of closing (September 8, 2016) through December 31, 2017. Until January 1, 2018, L+MC commercial fees can increase only if there were fee increases already incorporated within these maintained contracts. L+MC must consider these previously negotiated fee increases when setting fees for CY 2018. According to the Agreed Settlement, the total commercial fee increase, including fee increases within maintained contracts, must not exceed the cumulative fee cap for inpatient, outpatient or physician services.

Hospital Inpatient Fee Cap

We estimate that L+MH could increase its commercial inpatient fees per market basket service 16.5% cumulative for the period between FY2016 and CY2018 and maintain the same fee ratio as FY2016. Therefore, the cumulative fee change cap for the period between FY2016 and CY2018 is +16.5%.[5] The +16.5% fee change for a 2.25 year period is the equivalent of +7.0% fee change per annum. The cumulative fee increase allows L+MC to attempt to regain the annual increases it may have lost during the maintained contract period.

The fee cap is based upon the following considerations:

a. The facts outlined in the Market Review section, including
   i. Shifting of the distribution of E-CT hospital discharge market share to non-E-CT hospitals
   ii. Annual growth in the average case mix per market basket discharge between FY2016 and CY2018
   iii. Modest growth in L+MH's Medicare fees in January 2018 relative to larger increases in Medicare fees for Other E-CT hospitals (see Exhibit 5B).
   iv. Planned changes to CT Medicaid fees that will disproportionately reduce fees for L+MH (see Exhibit 5A).

b. A 2.25 year span between FY2016 and CY2018.

c. No shifts in the distribution of inpatient service mix by payer between FY2016 and CY2018

d. Commercial fee increase of +4.0% for hospitals other than L+MH. The increase is consistent with the increase FY2014 to FY2016 by payer, rounded down (see Exhibit 4A).

Note: The two key determinates of the 3.0% per annum spread between L+MH's capped commercial fee increase (+7.0%) and the expected non-L+MH fee increase (+4.0%) are 1) the modest January 2018 Medicare fee increase for L+MH relative to larger fee increases for other E-CT hospitals and 2) the planned CT Medicaid fee reductions. The impact of these fee changes on 65% of L+MH's discharges needs to be balanced by commercial fee increases that are applicable to the other 35% of L+MH's discharges.

Hospital Outpatient Fee Cap

We estimate that L+MH could increase its commercial outpatient fees per market basket service 11.6% cumulative between FY2016 and CY2018 and maintain the same fee ratio as FY2016. Therefore, the cumulative fee change cap for the period between FY2016 and CY2018 is +11.6%. The +11.6% fee change for a 2.25 year period is the equivalent of +5.0% fee change per annum. The cumulative fee increase allows L+MC to attempt to regain the annual increases it may have lost during the maintained contract period.

[5] Fee changes are to be measured by comparing the average commercial fee in CY2018 to the average commercial fees in FY2016.

The fee cap is based upon the following considerations:

a. The facts outlined in the Market Review section, including
   i. The significant decline in L+MH's Medicaid outpatient fees in July 2016 due to hospital outpatient Medicaid Modernization
   ii. L+MH's anticipated Medicare outpatient fee decrease as of January 2018
b. A 2.25 year span between FY2016 and CY2018
c. No shifts in the distribution of outpatient services or service mix by payer or by hospital between FY2016 and CY2018
d. Assumptions for annual growth in fees
   i. Commercial – for hospitals other than L+MH: +4.0% from CY2015 to CY2018
   ii. Medicare – fee per APC relative weight unit: +0.5% from CY2017 to CY2018
   iii. Medicaid – fee per APC relative weight unit: 0.0% from CY2017 to CY2018

Note: Only one-quarter of the impact of outpatient Medicaid Modernization is reflected L+MHs FY2016 fees and Medicare fees will in January 2018. Therefore, L+MH needs a significant above-market commercial outpatient fee increase to bring its CY2018 fee ratio (average all-payer fees relative to the market) to FY2016 levels.

Physician Fee Cap

We estimate that LMMG could increase its commercial physician fees per market basket service 8.0% cumulative between FY2016 and CY2018 and maintain the same fee ratio as FY2016. Therefore, the cumulative fee change cap for the period between FY2016 and CY2018 is +8.0%. The +8.0% fee change for a 2.25 year period is the equivalent of +3.5% fee change per annum. The cumulative fee increase allows L+MC to attempt to regain the annual increases it may have lost during the maintained contract period.

The cap is based upon the following considerations:

a. The facts outlined in the Market Review section, including
   i. No change in Medicaid and Medicare fee levels. There are no announcements that indicate that Medicaid and Medicare fees will significantly change between now and CY2018
b. A 2.25 year span between FY2016 and CY2018
c. No shifts in the distribution of physician services or service mix by payer between FY2016 and CY2018
d. Assumptions for annual growth in fees
   i. Commercial – for market and LMMG: +3.5% per annum from CY2015 to CY2016 based on various consultant reports
   ii. Medicare – fee per service: flat from FY2016 to CY2018
   iii. Medicaid – fee per service: flat from FY2016 to CY2018

Non-Fee Cap Recommendation

1. **We recommend that OHCA consider not making this CMIR public.** There is a risk that if other hospitals serving E-CT patients know that L+MH is seeking commercial fee increases, these other hospitals will request increases themselves, potentially creating a multi-year upward spiral of fee increases.

MONITORING AND FUTURE CMIRS

In this CMIR, Milliman, sets fee caps and otherwise performs the tasks that the Agreed Settlement describes for the independent *consultant*. The Agreed Settlement assigns another entity, the independent *monitor*, with the task of monitoring fee L+MCs fee changes and assuring the changes do not exceed the fee caps.

Condition 20 of the Agreed Settlement subjects L+MH fees to annual caps for the five year period following the September 2016 closing – therefore through August 2021. Since this CMIR is for CY2018, there will be three future CMIRs for L+MH: CY2019, CY2020, and CY2021. There will be no future CMIRs for LMMG as Condition 20 specifies that LMMG's fee caps end 28 months from the date of the closing and the fee caps for this CMIR extend through December 2018.

Because the L+MH CMIRs are ongoing and the fee caps are cumulative, the fee caps are also self-adjusting. As contemplated in Condition 22a of the Agreed Settlement, if data that is not available at the time of a CMIR subsequently becomes available or unexpected events occur in the market (such as an unanticipated change in government payer fees), the new data and events will be incorporated into the next CMIR and the next year's fee cap. Likewise, should L+MH not be able to obtain the fee increases that allow it to retain its pre-transfer of ownership fee ratio, LM+H will be able to attempt to do so the next year.

The annual CMIRs will also allow us to assess whether L+MH is continuing to provide emergency care services, services to government payer populations, and substance use disorder and mental health services at L+MH's FY2016 (pre-Agreed Settlement) levels as contemplated by Conditions 22b(e) and 22b(f) of the Agreed Settlement.[6] This CMIR establishes the baseline for the assessments.

[6] 22b(f) specifically asks us to examine L+MH's provision of low and negative margin services. Emergency care services, services to government payer populations, and services to substance use disorder and mental health services are generally considered low and negative margin services. Similarly the people needing these services are generally considered to be "vulnerable populations" as specified by 22b(e). We do not have the data for further examination of vulnerable populations and low and negative margin services.

DATA AND METHODOLOGY

HOSPITAL INPATIENT CARE

Overview

As described in our methodology below, we created a market basket of hospital inpatient discharges for the top MS-DRGs associated with CT's top inpatient primary diagnoses, principal procedures, surgical procedures, and surgical MS-DRGs. We then used Medicare MS-DRG relative weight factors to adjust for the case mix of the market basket discharges[7], defining a case mix adjusted discharge (CMAD) as a discharge with a relative weight factor of 1.00. CMAD is our "unit of analysis" for purposes of recommending a fee cap.

For all payers, we estimated the fee per CMAD of a group of hospitals as the sum of its net revenue divided by the sum of its MS-DRG relative weight factors, where the sum of the MS-DRG relative weight factors is the sum of the product of the case mix index and number of discharges by hospital. The calculation for an individual hospital is the same, except without the summations.

$$Fee\ per\ CMAD_{group\ of\ hospitals} = \frac{\sum(Net\ Revenue)_{hospital}}{\sum(MS-DRG\ Relative\ Weight\ Factor)_{hospital}}$$

$$Where\ (MS-DRG\ Relative\ Weight\ Factor)_{hospital} = (Case\ Mix)_{hospital} * (Unweighted\ Discharges)_{hospital}$$

The fee per CMAD calculation relies upon:

1. CT Hospital Information Management Exchange (CHIME) data to identify which hospitals provide the market basket MS-DRG discharges.
2. "Twelve Month Actual Filing" data filed with OHCA to estimate market basket inpatient discharge fees.

We describe hospital discharges and fees for FY2014 – FY2016. We project hospital discharges and their case mixes from FY2016 to CY2018, estimate Medicaid and Medicare fee changes from FY2016 to CY2018, and calculate the fee increase as the maximum commercial fee increase from FY2016 to CY2018 that will maintain L+MH's average fee relative to the market.

Data

We relied upon the following data sources for our inpatient analysis:

- CT Department of Insurance most common inpatient hospital service lists[8].
- CT hospital discharge data from the CHIME[9] database as provided to us under a data use agreement by YNHHSC, for the period 10/2013 through 9/2016.
- CT hospital "Twelve Month Actual Filing"[10] operational and financial data filed with OHCA, for FY2014, FY2015, and FY2016. Tabs within the Filing are referred to as "Reports" and have a number, such as Report 165.
    - FY2016 annual reports have not been reviewed by OHCA.

[7] Medicare MS-DRG relative weight factors are used by Medicare and other payers to compensate hospitals for more and less costly hospital discharges.

[8] Connecticut Department of Public Health. Access Health CT. *Connecticut Acute Care Hospital and Outpatient Surgical Facility Data: FY2015*. N.p., 1 Aug. 2016. Web. 4 May 2017. http://www.ct.gov/dph/lib/dph/ohca/publications/2016/consumerhealthinformationreport.pdf.

[9] "ChimeData Overview." *Chime*. Connecticut Hospital Association, n.d. Web. 4 May 2017. http://www.chime.org/member-services/chimedata/chimedata-overview/.

[10] "Twelve Month Filing 2015." *Department of Public Health*. State of Connecticut, n.d. Web. 4 May 2017. http://www.ct.gov/dph/cwp/view.asp?a=3902&q=583316.

  - Two hospitals, Manchester Memorial Hospital and Rockville General Hospital, have filing extensions, which means that FY2015 annual reports are the latest available. We assumed that their reported values are unchanged from FY2015.
  - If new or amended data becomes available, the fee and trend values cited in this report may change. The data, however, is unlikely to have a substantial impact on the conclusions.
- Medicare fee per CMAD developed from the corrected final rules for CY2015 to CY2018[11,12,13,14,15].
- CT Medicaid fee schedules and fee schedule changes and analysis of fee schedule change impact by hospital from the DSS website[16].
- L+MH hospital outpatient claims and payment data.
- Other
  - County to zip code mapping provided by YNH and checked for reasonableness.
  - Medicare 2016 MS-DRG service weights[11~~10~~,12~~11~~,17].

Methodology

Summarize Historical Discharges

Step 1: Create a set of inpatient market basket MS-DRGs.

a. **Identify relevant discharges:** Identify the CHIME FY2014-FY2015 statewide discharges related to one or more of the top inpatient primary diagnoses, principal procedures, surgical procedures, and surgical MS-DRGs as listed in the Department of Insurance (DOI) service lists.

b. **Create market-basket MS-DRG list** (see Table 1). Count the FY2015 statewide discharges for each MS-DRG identified in Step 1a. Create list of the 50 MS-DRGs with the most discharges – the "market basket MS-DRGs." Note: we used FY2014-FY2015 as the market basket years. Due to the October 2015 conversion to ICD-10, FY2015 was the last year that the ICD-9 codes corresponding to the DOI lists were available within CHIME.

Step 2: Identify hospitals providing inpatient services to E-CT patients.

a. **Identify E-CT zip codes** (see Table 2).

b. **Identify E-CT patient discharges.** Using patient residence zip codes, identify the CHIME FY2014-FY2015 statewide discharges for patients residing in E-CT.

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[11] "FY 2015 Final Rule Tables *Centers for Medicare and Medicare Services (CMS)*. N.p., n.d. Web. 4 May 2017. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/FY2015-IPPS-Final-Rule-Home-Page-Items/FY2015-Final-Rule-Tables.html?DLPage=1&DLEntries=10&DLSort=0&DLSortDir=ascending.

[12] "FY 2016 Final Rule and Correction Notice Data Files" *Centers for Medicare and Medicare Services (CMS)*. 4 May 2017. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/FY2016-IPPS-Final-Rule-Home-Page-Items/FY2016-IPPS-Final-Rule-Data-Files.html?DLPage=1&DLEntries=10&DLSort=0&DLSortDir=ascending.

[13] "FY 2017 Final Rule and Correction Notice Tables" *Centers for Medicare and Medicare Services (CMS)*. 23 June 2017. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/FY2017-IPPS-Final-Rule-Home-Page-Items/FY2017-IPPS-Final-Rule-Tables.html?DLPage=1&DLEntries=10&DLSort=0&DLSortDir=ascending

[14] "FY 2018 Final Rule and Correction Notice Data Files" *Centers for Medicare and Medicare Services (CMS)*. 7 October 2017. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/FY2018-IPPS-Final-Rule-Home-Page-Items/FY2018-IPPS-Final-Rule-Data-Files.html?DLPage=1&DLEntries=10&DLSort=0&DLSortDir=ascending

[15] "Acute Care Hospital Inpatient Prospective Payment System." 23 June 2017. https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/AcutePaymtSysfctsht.pdf.

[16] "Hospital Rates: Inpatient Rates." *Department of Social Services*. State of Connecticut, 1 Jan. 2017. Web. 4 May 2017. http://www.ct.gov/dss/cwp/view.asp?a=4598&q=540318.

[17] "FY 2014 Final Rule Data Files" *Centers for Medicare and Medicare Services (CMS)*. N.p., 28 Jan. 2014. Web. 4 May 2017. https://www.cms.gov/medicare/medicare-fee-for-service-payment/acuteinpatientpps/fy-2014-ipps-final-rule-home-page-items/fy-2014-ipps-final-rule-cms-1599-f-data-files.html.

c. **Create a list of hospitals caring for E-CT patients**. Create a list of the hospitals responsible for 99%+ of the E-CT patient discharges for FY2014 and FY2015. This list contains 13 hospitals (see Table 3).

d. **Group hospitals by region**. Group the 13 hospitals as L+M (1), other E-CT hospitals (5), non-E-CT hospitals (7) (see Table 3).

Step 3: Assign payer categories and service weights to FY2014 to FY2016 CHIME discharges.

a. **Assign payer categories**. Map CHIME payers to payer categories (see Table 4A).

b. **Assign relative weights**. Assign MS-DRG relative weights to each discharge.

Step 4A: Summarize the number of CHIME discharges and service weights from E-CT patient hospitals for market basket MS-DRG discharges by FY, facility, payer category, region.

Step 4B: Separately summarize CHIME discharges for mental illness and substance abuse MS-DRGs (MS-DRGs 880 to 897) by FY, facility, payer category, region.

Calculate Historical Fees

Step 5: Collect data for the 13 hospitals from the **"Twelve Month Actual Filings"**. Specifically:

a. **Report 165**: Inpatient Net Revenue (by payer).

b. **Report 185**: Discharges (by payer) and Case Mix Index (by payer).

c. Confirm that case mix index as reported in Twelve Month Actual Filings are average Medicare MS-DRG relative weights.

Step 6: Calculate average net revenue per case mix adjusted discharge and average case mix by hospital and payer.

a. **Map "Twelve Month Actual Filings" payers** to Medicare, Medicaid, commercial, uninsured, and other (see Table 4B).

b. **Calculate average net revenue per case mix adjusted discharge by hospital and mapped payer.**

Summarize Historical Discharges and Fees

Step 7: Summarize historical discharges and fees.

a. Count market basket and non-market basket DRG discharges by fiscal year and hospital region and calculate the market basket percentage of total discharges (see Exhibit 1).

b. For market basket DRG discharges, quantify discharges by year, hospital region, and payer (see Exhibit 2A & Exhibit 2B). For mental illness and substance abuse DRGs, quantify discharges by year, hospital region, and payer (see Exhibit 2C).

c. For market basket DRG discharges, calculate average case mix by year, hospital region, and payer, where totals across regions and payers are weighted by market basket discharges (see Exhibit 3).

d. For market basket DRG discharges, calculate average fees per CMAD, where totals across regions and payers are weighted by the product of market basket discharges and relative weight factors (see Exhibit 4A & Exhibit 4B).

Project Future Discharges, Case Mix, and Fees

Step 8: Calculate scheduled Medicaid fee changes per CMAD from FY2016 to CY2018, where totals across regions and payers are weighted by the 2016 product of market basket MS-DRG discharges and average case mix.

Note: CT Medicaid has/is implementing two inpatient fee changes. One was an all hospital 5% fee reduction as of January 2017 to adjust for unexpected high inpatient intensity after the implementation of hospital inpatient Medicaid Modernization in 2015. The other is 4-year adjustment of hospital-specific base fees, starting January 2017. While the 4-year adjustment is neutral across the state, hospitals serving E-CT patients will (on average) receive fee decreases and the fee decreases will be (on average) larger for E-CT hospitals than non-E-CT hospitals. Between FY2016 and CY2018, hospital basket weighted Medicaid fee decrease will be -12.8% for L+H, -8.4% for other E-CT hospitals, and -6.8% for non-E-CT hospitals (see Exhibit 5A).

Step 9: Calculate scheduled Medicare fee changes per CMAD from FY2016 to CY2018, where totals across regions and payers are weighted by the product of the estimated market basket MS-DRG discharges and average case mix (see Exhibit 5B).

Note: In order to estimate the CY 2018 IP fee per CMAD, the CY 2017 IPPS corrected final rule was used, updated for the operating and capital base rates, wage indexes, and capital geographic adjustment factors from the CY 2018 corrected final rule.

Step 10: Assign other values

a. A 2.25 year span between FY2016 and CY2018.

b. No shifts in the distribution of inpatient service mix by payer between FY2016 and CY2018

c. Assumptions for annual growth in fees per CMAD between FY2016 and CY2018:

i. Medicare, where L+MH's fees will increase modestly from FY2016 through CY2017, and then decrease in CY2018 due to a change in their geographic assignment. The rest of the market continues to increase modestly over FY2016 – CY2018. The figures below annualized and inclusive of all fee changes from FY2016 – CY2018(see Exhibit 5B)

1. -2.8% L+MH
2. +1.0% other E-CT
3. +1.0% non-E-CT

ii. Medicaid, where L+MH's fees have decreased more than the market (see Exhibit 5A)

1. -5.9% L+MH
2. -3.8% other E-CT
3. -3.1% non-E-CT

iii. Commercial fee increase of +4.0% for hospitals other than L+MH. The increase is consistent with the increase FY2014 to FY2016 by payer, rounded down (see Exhibit 4A).

Step 11: Find the L+MH commercial fee increase that maintains the FY2016 ratio of L+MH all-payer fees per CMAD to total all-payer market fees per CMAD.

HOSPITAL OUTPATIENT CARE

Overview

Hospital outpatient departments provide a variety of services, including emergency services, surgeries, diagnostic and screening tests, laboratory services, and imaging. A given outpatient visit, particularly an emergency or surgery visit, can result in a bill with a long list of service-line charges. Medicare pays for many, but not all, outpatient services using the Ambulatory Payment Classification (APC) system, a system that often groups the charges from a visit into a single payment – much like MS-DRGs are used to make a single payment for an inpatient admission. Some services, such as mammograms, are not grouped but paid as stand-alone services. On July 1, 2016, CT Medicaid implemented an outpatient payment system that is Medicare-like, including the use of APCs. Prior to July 2016, CT Medicaid paid for outpatient services using a cost-to-charge methodology.

Commercial payers are not required to use an APC methodology. If commercial payers do use an APC methodology, they may not use it consistently for all providers or all services. Furthermore, commercial fee levels vary dramatically among payers and providers paid by the same payer[18].

As described below, we created a market basket of APCs and stand-alone services associated with CT's top outpatient services. 95%+ of the market basket services are APCs; the remainder are mammogram services. We grouped L+MH and market commercial-payer claims data into APCs to calculate APC commercial fees for market basket services, whether or not the payer used an APC methodology.

Data

We relied upon the following data sources for our outpatient analysis:

- CT Department of Insurance most common outpatient hospital service lists[19].
- Medicare rules for assigning outpatient services to payment methodologies and within the APC methodology to specific APCs[20].
- CT hospital discharge data from the CT Hospital Information Management Exchange (CHIME)[21] database as provided to us under a data use agreement by YNHHSC, for FY2016.
- CT hospital "Twelve Month Actual Filing" data filed with OHCA, for FY2015[22]. Tabs within the Filing are referred to as "Reports" and have a number, such as Report 165.
- CT Medicaid fee schedules and hospital outpatient Medicaid Modernization impact analysis by hospital from the DSS website[23].
- CT Medicaid freedom of information act (FOIA) request for counts of outpatient market basket services provided July-December 2016 to E-CT Medicaid patients by hospital. Data was requested for the second half of 2016 as

[18] New York State Health Foundation. *Why Are Hospital Prices Different? An Examination of New York Hospital Reimbursement*. Gorman Actuarial, Dec. 2016. Web. 4 May 2017. http://nyshealthfoundation.org/resources-and-reports/resource/an-examination-of-new-york-hospital-reimbursement.

[19] Connecticut Department of Public Health. Access Health CT. *Connecticut Acute Care Hospital and Outpatient Surgical Facility Data: FY2015*. N.p., 1 Aug. 2016. Web. 4 May 2017. http://www.ct.gov/dph/lib/dph/ohca/publications/2016/consumerhealthinformationreport.pdf.

[20] "Hospital Outpatient Payment Methodology - Ambulatory Payment Classification (APC)." *Connecticut Department of Social Services*. N.p., n.d. Web. 4 May 2017. https://www.ctdssmap.com/CTPortal/HospitalModernization/tabid/143/Default.aspx

[21] "ChimeData Overview." *Chime*. Connecticut Hospital Association, n.d. Web. 4 May 2017. http://www.chime.org/member-services/chimedata/chimedata-overview/.

[22] "Twelve Month Filing 2015." *Department of Public Health*. State of Connecticut, n.d. Web. 4 May 2017. http://www.ct.gov/dph/cwp/view.asp?a=3902&q=583316.

[23] "Hospital Outpatient Reimbursement Modernization." *Connecticut Department of Social Services*. State of Connecticut, n.d. Web. 2 May 2017. http://www.ct.gov/dss/cwp/view.asp?a=4598&q=563932.

the market basket services are mostly APC services and CT Medicaid did not use an APC payment methodology until the second half of 2016.

- Medicare 5% sample of Medicare fee for service claims CY2014.[24]
- Medicare wage indices (known as "Table 2" and "Table 3"), from the corrected final rules for CY2015 to CY201~~10~~,~~11~~,~~12~~,~~13~~
- Medicare APC payment per relative weight units CY2015 to CY2017[25].
- Truven MarketScan and Milliman Consolidated Health Cost Guidelines Sources Database claims data for E-CT CY2014 and CY2015[26].
- L+MH hospital outpatient service billing and payment (claims) data CY2016.
- Other
    - County to zip code mapping provided by YNH and checked for reasonableness.
    - Data from various sources for commercial outpatient hospital fee trends[27].

Methodology

Summarize Outpatient Services

Step 1: Create a set of outpatient market basket services.

a. **Identify the payment methodology for top procedures**. Identify the Medicare (and CT Medicaid July 2016+) payment methodology associated with the top outpatient procedures, outpatient surgical procedures, and outpatient imaging procedures listed in the Department of Insurance (DOI) service lists.

b. **Eliminate HCPCS codes that do not result in a distinct payment.** Eliminate HCPCS codes that are packaged into various APCs and are never or only sometimes distinctly paid and services are not eligible for payment.

c. **Create a market basket list of APCs and HCPCS codes** (see Table 5).

Step 2A: Estimate the distribution of market basket outpatient services by hospital for E-CT patients.

a. **Identify E-CT (all-payer) CHIME patient emergency department and outpatient surgical discharges.** Using patient residence zip codes, identify the CHIME FY2016 statewide discharges for patients residing in E-CT.

b. **Identify E-CT Medicaid market basket services.** Using data from a FOIA request, identify the statewide hospitals providing Medicaid market basket services for patients residing in E-CT.

c. **Identify E-CT Medicare market basket services.** Using the Medicare 5% sample, identify the statewide hospitals providing Medicare market basket services for patient residing in the three counties of E-CT.

d. **Estimate the distribution by hospital of market basket outpatient services for residents of E-CT for Medicaid, Medicare, and commercial payers by hospital area** (see Exhibit 7A).

Step 2B: Summarize the distribution of emergency department discharges where the primary diagnosis if mental illness or substance abuse. From the emergency department discharges identified in Step 2A.a, identify all discharges where the primary ICD-10 diagnosis code starts with the letter F (F denotes mental illness or substance

[24] Standard Analytical Files (Medicare Claims). *Centers for Medicare and Medicaid Services (CMS)*. N.p., n.d. Web. 23 Apr. 2017. https://www.cms.gov/research-statistics-data-and-systems/files-for-order/limiteddatasets/standardanalyticalfiles.html.

[25] "Hospital Outpatient PPS." *Centers for Medicare and Medicaid Services (CMS)*. N.p., 30 Dec. 2016. Web. 5 May 2017. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/Hospitaloutpatientpps/?agree=yes&next=Accept.

[26] MarketScan® Research Databases. *Truven Health Analytics*. N.p., n.d. Web. 25 Apr. 2017. http://truvenhealth.com/markets/life-sciences/products/data-tools/marketscan-databases.

[27] List of sources available upon request.

abuse) and summarize the discharges for Medicaid, Medicare, and commercial payers by hospital area (see Exhibit 7B).

Calculate Historical and Current Fees

Step 3: **Track Medicare average APC fees from CY2015 to CY2017**.

a. **Develop hospital fees** using each hospital's geographic assignment, the wage factor for the geography, and the national fee per APC relative weight unit.

b. **Weight across hospitals** using each hospitals' proportion of Medicare market basket services, developed from the CY2015 Medicare 5% sample.

Step 4: **Track Medicaid average APC fees from July 2015 to CY2017**.

c. **Develop hospital fees** using APC fee data and the hospital outpatient Medicaid Modernization impact analysis from the CT Medicaid website.

d. **Weight across hospitals** using each hospitals' proportion of Medicaid market basket services, developed using data from the FOIA request.

Step 5: Estimate commercial E-CT fee levels for FY2015 using Truven MarketScan and Milliman Consolidated Health Cost Guidelines Sources Database claims data.

Step 6: Estimate commercial E-CT fee trends from FY2015 to FY2016 using various public sources.

Step 7: Estimate L+MH's commercial hospital outpatient fees levels for FY2016 using billing and payment data provided by L+MH.

Estimate Payer Distribution

Step 8: Estimate the service distribution by payer for the hospitals serving E-CT patients.

a. **Sum outpatient hospital net revenue by payer for the 13 hospitals.**

b. **Adjust the distribution from Step 8a for differences in relative fees and impute the service distribution by payer** using the relative fee levels by payer calculated from Steps 4, 5, and 7.

Project Future Fees

Step 9: Project CY2018 Medicare fees by hospital using Medicare final wage indices and final CBSA assignments. Assume 0.5% increase in APC fee per relative weight unit.

Step 10: Project CY2018 Medicaid fees by hospital using Medicaid final wage indices and final geographical CBSA assignments. Assume no change in APC fee per relative weight unit.

Step 11: Project CY2018 commercial fees (in total for non-L+MH hospitals). Assume a 4% non-L+MH trend continues for the 2.25 year span between FY2016 and CY2018

Step 12: Find the L+MH FY2018 commercial fee that maintains the FY2016 ratio of L+MH fees to total market fee using the CY2016 historical fees and the projected CY2018 fees. Weight across hospitals using results from Step 3. Weight across payers (same weight for all hospitals) using result of Step 9.

PHYSICIAN CARE

Overview

Physician groups provide services including office visits, surgical procedures, anesthesia services, laboratory services, and other diagnostic and therapeutic services. Physician groups provide these services in several settings including offices, hospitals, skilled nursing facilities, and others. A physician may bill one or several services for a single patient interaction.

Medicare pays for most physician services using a formula that incorporates time and intensity of the service (work), costs of maintaining a practice (practice expense or PE), and costs of malpractice insurance (MP). Each component is quantified using relative value units (RVU) adjusted for geographic variations using geographic practice cost indices (GPCI). Medicare uses a different approach to set fees for laboratory services. The sum of these pieces is then multiplied by a conversion factor to generate the payment for a given service. This is described in the following formula:

$$\begin{aligned} Physician\ Fee = &(Work\ RVU\ x\ CT\ Work\ GPCI) \\ &+ (PE\ RVU\ x\ CT\ PE\ GPCI) \\ &+ (MP\ RVU\ x\ CT\ MP\ GPCI) \end{aligned}$$

CT Medicaid pays for physician services using a fee schedule available on the DSS website. Commercial fee levels vary between payers and between various providers paid by the same payer.

As described below, we created a market basket of HCPCS associated with LMMG's top physician services.

Data

We relied upon the following data sources for our physician analysis:

- LMMG physician billing data for physician services provided from October 2014 – June 2016.
- CT Medicaid fee schedules from the DSS website[28].
- CT Medicaid freedom of information act (FOIA) request for counts of market basket physician services provided CY2016 to E-CT patients by LMMG physicians and other physicians by geographical area.
- Medicare 5% sample of Medicare fee for service claims CY2014[29].
- Medicare conversion factors from CY2015 to CY2016[30] and for CY2017[31].
- Medicare geographic practice cost indices for CY2015[32] and from CY2016 to CY2017[33].

[28] Connecticut Provider Fee Schedule. *Connecticut Department of Social Services*. N.p., n.d. Web. 21 May 2017. https://www.ctdssmap.com/CTPortal/Provider/ProviderFeeScheduleDownload/tabid/54/Default.aspx.

[29] Standard Analytical Files (Medicare Claims). *Centers for Medicare and Medicaid Services (CMS)*. N.p., n.d. Web. 23 Apr. 2017. https://www.cms.gov/research-statistics-data-and-systems/files-for-order/limiteddatasets/standardanalyticalfiles.html.

[30] "History of Medicare Conversion Factors." American Academy of Pediatrics, n.d. Web. 3 June 2017. https://www.aap.org/en-us/Documents/coding_valuationpayment_medicare_conversion_factor_history.pdf.

[31] "Final Policy, Payment, and Quality Provisions in the Medicare Physician Fee Schedule for Calendar Year (CY) 2017." *Centers for Medicare and Medicaid Services (CMS)*. N.p., 2 Nov. 2016. Web. 2 June 2017. https://www.cms.gov/newsroom/mediareleasedatabase/fact-sheets/2016-fact-sheets-items/2016-11-02.html.

[32] "CMS-1612-FC." *Centers for Medicare and Medicaid Services (CMS).* N.p., 13 Nov. 2014. Web. 3 June 2017. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/PFS-Federal-Regulation-Notices-Items/CMS-1612-FC.html.

[33] "CMS-1654-F." *Centers for Medicare and Medicaid Services (CMS).* N.p., 19 Jan. 2017. Web. 5 June 2017. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/PFS-Federal-Regulation-Notices-Items/CMS-1654-F.html.

- Medicare HCPCS payment per relative weight units for CY2015[34] and from CY2016 to CY2017[35].
- NPI registry data[36].
- Other
    - County to zip code mapping provided by YNH and checked for reasonableness.
    - Data from various sources for commercial physician fee trends[37].

Methodology

Summarize Physician Services

Step 1: Create a set of physician market basket services.

a. **Rank order by frequency of procedure codes for physician services provided by LMMG.** Count the number of procedures performed at LMMG in June 2016 by HCPCS code and select the most common procedures.

b. **Eliminate procedure codes that are not for payment purposes or are invalid.**

c. **Create a market basket list of 25 HCPCS codes** (see Table 6).

Step 2: Calculate the distribution of market basket physician services by payer for services performed at LMMG.

a. **Map "financial class" that appears in LMMG data to Medicare, Medicaid, commercial, or other** (see Table 7).

b. **Map each location in LMMG data as "facility" or "non-facility"**. Each location is first mapped to a CMS Location Type using a table provided by LMMG (see Table 8). The CMS Location Type is used to determine if the location is considered "Non-Facility" or "Facility".

c. **Calculate the distribution of market basket physician services by payer for E-CT patients for FY2015 and FY2016** (see Exhibit 10). The LMMG data contains all 12 months of FY2015, but only the first 8.5 months of FY2016, because L+MH switched accounting systems mid-June 2016. October 2015 – May 2016 services were annualized to estimate the total services provided in FY2016.

d. **Calculate Medicaid allowed as a percent of Medicare allowed for market basket physician services.** For market basket services provided to Medicaid patients, calculate the Medicare allowed amounts using the 2017 Medicare fee schedule.

Step 3: **Calculate the percent of market basket services provided by LMMG, other E-CT physicians, and non-E-CT physicians**.

a. **Calculate the percent of Medicaid market basket physician services provided by LMMG, other E-CT physicians, and non-E-CT physicians** using data provided by CT Medicaid via a FOIA request.

b. **Calculate the percent of Medicare market basket services provided by LMMG, other E-CT physicians, and non-E-CT physicians.**

    i. **Identify E-CT zip codes** (see Table 2).

    ii. **Identify the E-CT and non-E-CT market basket services by HCPCS code and physician NPI and listed zip code with the Medicare 5% sample.**

[34] "CMS-1612-FC." Centers for Medicare and Medicaid Services (CMS). N.p., 13 Nov. 2014. Web. 3 June 2017. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/PFS-Federal-Regulation-Notices-Items/CMS-1612-FC.html.

[35] "CMS-1654-F." *Centers for Medicare and Medicaid Services (CMS).* N.p., 19 Jan. 2017. Web. 5 June 2017. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/PFS-Federal-Regulation-Notices-Items/CMS-1654-F.html.

[36] "DataDissemination." CMS.gov Centers for Medicare & Medicaid Services. N.p., 04 Aug. 2016. Web. 22 June 2017. https://www.cms.gov/Regulations-and-Guidance/Administrative-Simplification/NationalProvIdentStand/DataDissemination.html.

[37] List of sources available upon request.

iii. **Estimate the total volume of E-CT and non-E-CT Medicare market basket services.** "Gross up" the 5% sample of fee-for-service Medicare services to 100% of total Medicare services (fee-for-service and Medicare Advantage).

iv. **Divide E-CT market basket services between LMMG and other E-CT physicians** using LMMG's data for LMMG's portion.

Calculate Historical and Current Fees

Step 4: **Develop Medicare fees for CY2015 to CY2017**.

a. **Develop Medicare fees by service, year, and location of service for market basket services paid using work, practice expense (PE), and malpractice (MP) RVUs** from Medicare fee data.

b. **List Medicare fees by service and year for market basket laboratory services** using Medicare fee data.

Step 5: Calculate Medicare trends. Weight the fees developed in Step 4 by LMMG's distribution of market basket services across all time periods in the LMMG billing data.

Step 6: Develop Medicaid fees for FY2016 to now using Medicaid fee data. Note: the data shows that there have been no changes since the beginning of FY2016.

Step 7: **Compare Medicaid fees to Medicare fees**. "Reprice" LMMG's market basket Medicaid services using CY2017 Medicare fees. Calculate the ratio of Medicaid fees to Medicare fees.

Project Future Fees

Step 8: Project CY2018 Medicaid fees for LMMG. Medicaid fees have remained flat since September 2015. There are no announcements that indicate that Medicaid fees will significantly change between now and CY2018.

Step 9: Project CY2018 Medicare fees for LMMG. Medicare fees have changed very modestly from CY2015 to CY2017. There are no announcements that indicate that Medicare fees will significantly change between now and CY2018.

Step 10: Project CY2018 commercial fee increase for the market. Based on a review of recent trends and trend predictions, assume a 4% non-L+MH trend continues for the 2.25 year span between FY2016 and CY2018

Step 11: Find the LMMG FY2018 commercial fee that maintains the FY2016 ratio of LMMG fees to total market fees. Unless there are changes in Medicaid and Medicare fee levels or changes in payer mix, LMMG will be able to maintain its fee ratio to the market if its commercial fee increases are the same as the market's commercial fee increases.

ESTIMATION CHALLENGES

In order to prepare the Cost and Market Impact Review, the independent consultant must estimate current and future prices for L+MC and for the eastern CT market (Tolland, Windham, and New London counties). Here we note important challenges inherent in the estimation process. Because of these challenges, actual current or future prices may vary from our estimates.

Lack of Publicly Available Data

Healthcare prices paid by private payers are generally not publicly available. By contrast, charges defined by hospital "charge masters" are available on the OHCA website[38]. Virtually no payer, however, pays the charges in these reports. Payers, including Medicare, Medicaid, and commercial insurance companies, declare or negotiate their prices. These negotiated prices often have little relationship to the reported charges, and may vary substantially from payer to payer. While prices (inclusive of patient cost sharing) are the "true cost" of care, hospitals and physician groups are not required to reveal the actual prices for the care that they provide. Therefore, we estimated historical prices from various public and non-public data sources. Connecticut has been working on developing an all payer claims database (APCD) for some time. We confirmed that at the time of this project, APCD data was not available[39]. Complete APCD data, if available in future years, will provide additional precision to our estimates of commercial prices.

Recent and Future Price Increases are Unknown

The goal of assuring that L+MC's future price increases per unit service (fees) do not exceed the market fee increases requires knowledge of recent and future fee increases in the market. Future fee increases are often unknown and may be subject to disruptive changes, such as a significant change in a government fee schedule. Furthermore, for commercial insurance, it may take months to years for public and non-public data sources to become available for the estimation of recent fee increases. We have made estimates of recent and future changes and will adjust them as further data becomes available.

Reliance on Data from Financial Reports

For hospital inpatient discharges, we estimate FY2016 prices using hospital net revenue as reported by the hospitals. The reported net revenue is the most recent (through September 2016), comprehensive (all patients and payers), and consistent (all CT hospitals) data source for estimating hospital prices. Reported net revenue, however, is subject to accounting adjustments that are not necessarily related to services rendered in the reporting period and the prices for the reporting period services. For example, there may be an adjustment for an over- or under-estimate of the prior year's net revenue. We have implicitly assumed that the adjustments are minor and/or "cancel-out" (negatives offset positives) across the hospitals within a region.

Changes in Payer Mix

Because different payers may pay different fees, changes in payer mix can affect a provider's fee across all payers, aside from any individual fee changes by payer. Therefore, the calculation of an allowed fee increase requires estimates of payer mix by hospital or group of hospitals. For example, Medicaid typically has the lowest fee and therefore a hospital that decreases Medicaid patient volume will collect higher average fees per patient without any fee increase. Conversely, a hospital that increases its Medicaid patient volume will need to increase its commercial fees in order to maintain its average fees level. We have made estimates of changes in payer mix.

Changes in Provider Mix

Because different providers may charge different fees, changes in provider mix can affect the market's fee, aside from any individual fee changes by provider. Therefore, the calculation of market fee increases requires estimates of the past and future provider mix for the market. For example, if patients shift to a hospital or group of hospitals with higher fees, then the hospital fee for the market will increase without any hospital-level fee increases. We have made estimates of changes in provider mix.

[38] "Hospital Pricemaster Filings" *Department of Public Health*. State of Connecticut, n.d. Web. 4 May 2017. http://www.ct.gov/dph/cwp/view.asp?a=3902&q=526224.

[39] E-mail from Robert Blundo, acting Director of Access Health, 4 Apr 2017.

LIMITATIONS AND CAVEATS

In performing our analysis, we relied on data and information as described above. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete. The rate cap estimates are based on assumptions which we have summarized in our report. Our estimates should be viewed as best estimates. For some of the assumptions, there are reasonable alternative assumptions which would result in higher and lower estimates for the rate caps.

This work product was prepared to satisfy Conditions 22 b, c, d, and e of the Agreed Settlement between YNHHSC and the Commissioner of the Department of Public Health. It may be inappropriate to rely upon it for any other purpose. We were required to follow the terms of the Agreed Settlement, including reporting to and taking additional direction from the Commissioner. We believe we have satisfied the terms in the Agreed Settlement.

As required by the Agreed Settlement, YNHHSC engaged Milliman as an independent consultant. Milliman agrees that the work product may be provided to OHCA and the independent monitor that monitors YNHYSC's compliance with the Agreed Settlement. Milliman does not intend to benefit any third party recipient of work product, even when Milliman consents to the release of work product to such third party.

The American Academy of Actuaries requires its members to identify their qualifications in communications. Tia Goss Sawhney and Bruce Pyenson are actuaries employed by Milliman and meet the Academy's qualifications to issue this communication.

EXHIBITS

HOSPITAL INPATIENT CARE

Exhibit 1. Inpatient Discharges for Patients Residing in E-CT

Source: CT CHIME Data; does not include out-of-state discharges.

	Discharges			FY2014 - 2016	
	FY2014	FY2015	FY2016	Δ in %	CAGR
Total Discharges	**51,337**	**51,900**	**51,037**	**-0.6%**	**-0.3%**
% L+MH	26.0%	25.5%	24.9%	-4.0%	-2.0%
% Other E-CT Hospitals	41.0%	39.3%	37.4%	-8.8%	-4.5%
% E-CT Hospitals (incl. L+MH)	67.0%	64.8%	62.3%	-6.9%	-3.5%
% Non-E-CT Hospitals	33.0%	35.2%	37.7%	+14.1%	+6.8%
Market Basket MS-DRGs	**25,338**	**26,164**	**25,417**	**+0.3%**	**+0.2%**
% L+MH	29.8%	28.6%	27.2%	-8.5%	-4.4%
% Other E-CT Hospitals	42.8%	41.8%	40.7%	-4.9%	-2.5%
% E-CT Hospitals (incl. L+MH)	72.6%	70.4%	67.9%	-6.4%	-3.2%
% Non-E-CT Hospitals	27.4%	29.6%	32.1%	+16.9%	+8.1%
Non-Market Basket MS-DRGs	**25,999**	**25,736**	**25,620**	**-1.5%**	**-0.7%**
% L+MH	22.3%	22.3%	22.7%	+1.7%	+0.9%
% Other E-CT Hospitals	39.2%	36.8%	34.1%	-13.1%	-6.8%
% E-CT Hospitals (incl. L+MH)	61.5%	59.1%	56.8%	-7.7%	-3.9%
% Non-E-CT Hospitals	38.5%	40.9%	43.2%	+12.4%	+6.0%

Exhibit 2A. Inpatient Market Basket MS-DRG Discharges by Payer for Patients Residing in E-CT
Source: CT CHIME Data; does not include out-of-state discharges.

	Discharges			Distribution by Payer		
	FY2014	FY2015	FY2016	FY2014	FY2015	FY2016
Total Market Basket MS-DRG Discharges	**25,338**	**26,164**	**25,417**	**100.0%**	**100.0%**	**100.0%**
Medicare	9,827	10,525	10,069	38.8%	40.2%	39.6%
Medicaid	5,407	5,896	5,720	21.3%	22.5%	22.5%
Commercial	9,474	9,161	9,091	37.4%	35.0%	35.8%
L+MH Market Basket MS-DRG Discharges	**7,539**	**7,490**	**6,916**	**100.0%**	**100.0%**	**100.0%**
Medicare	2,991	3,061	2,698	39.7%	40.9%	39.0%
Medicaid	1,734	1,763	1,666	23.0%	23.5%	24.1%
Commercial	2,666	2,524	2,437	35.4%	33.7%	35.2%
Other E-CT Market Basket MS-DRG Discharges	**10,849**	**10,935**	**10,351**	**100.0%**	**100.0%**	**100.0%**
Medicare	4,687	5,031	4,693	43.2%	46.0%	45.3%
Medicaid	2,530	2,703	2,505	23.3%	24.7%	24.2%
Commercial	3,233	2,884	2,860	29.8%	26.4%	27.6%
E-CT Market Basket MS-DRG Discharges	**18,388**	**18,425**	**17,267**	**100.0%**	**100.0%**	**100.0%**
Medicare	7,678	8,092	7,391	41.8%	43.9%	42.8%
Medicaid	4,264	4,466	4,171	23.2%	24.2%	24.2%
Commercial	5,899	5,408	5,297	32.1%	29.4%	30.7%
Non-E-CT Market Basket MS-DRG Discharges	**6,950**	**7,739**	**8,150**	**100.0%**	**100.0%**	**100.0%**
Medicare	2,149	2,433	2,678	30.9%	31.4%	32.9%
Medicaid	1,143	1,430	1,549	16.4%	18.5%	19.0%
Commercial	3,575	3,753	3,794	51.4%	48.5%	46.6%

Note: Totals include Uninsured and Other payer (not shown).

Exhibit 2B. Inpatient Market Basket MS-DRG Discharges by Payer for Patients Residing in E-CT

Source: CT CHIME Data; does not include out-of-state discharges.

	Discharges					Distribution by Payer and Provider				
	FY2014	FY2015	FY2016	FY14-16 Δ in %	FY14-16 CAGR	FY2014	FY2015	FY2016	FY14-16 Δ in %	FY14-16 CAGR
Total Market Basket MS-DRG Discharges	**25,338**	**26,164**	**25,417**	**+0.3%**	**+0.2%**	**100.0%**	**100.0%**	**100.0%**	**-**	**-**
Medicare	9,827	10,525	10,069	+2.5%	+1.2%	38.8%	40.2%	39.6%	+2.1%	+1.1%
Medicaid	5,407	5,896	5,720	+5.8%	+2.9%	21.3%	22.5%	22.5%	+5.5%	+2.7%
Commercial	9,474	9,161	9,091	-4.0%	-2.0%	37.4%	35.0%	35.8%	-4.3%	-2.2%
L+MH Market Basket MS-DRG Discharges	**7,539**	**7,490**	**6,916**	**-8.3%**	**-4.2%**	**29.8%**	**28.6%**	**27.2%**	**-8.5%**	**-4.4%**
Medicare	2,991	3,061	2,698	-9.8%	-5.0%	11.8%	11.7%	10.6%	-10.1%	-5.2%
Medicaid	1,734	1,763	1,666	-3.9%	-2.0%	6.8%	6.7%	6.6%	-4.2%	-2.1%
Commercial	2,666	2,524	2,437	-8.6%	-4.4%	10.5%	9.6%	9.6%	-8.9%	-4.5%
Other E-CT Market Basket MS-DRG Discharges	**10,849**	**10,935**	**10,351**	**-4.6%**	**-2.3%**	**42.8%**	**41.8%**	**40.7%**	**-4.9%**	**-2.5%**
Medicare	4,687	5,031	4,693	+0.1%	+0.1%	18.5%	19.2%	18.5%	-0.2%	-0.1%
Medicaid	2,530	2,703	2,505	-1.0%	-0.5%	10.0%	10.3%	9.9%	-1.3%	-0.7%
Commercial	3,233	2,884	2,860	-11.5%	-5.9%	12.8%	11.0%	11.3%	-11.8%	-6.1%
E-CT Market Basket MS-DRG Discharges	**18,388**	**18,425**	**17,267**	**-6.1%**	**-3.1%**	**72.6%**	**70.4%**	**67.9%**	**-6.4%**	**-3.2%**
Medicare	7,678	8,092	7,391	-3.7%	-1.9%	30.3%	30.9%	29.1%	-4.0%	-2.0%
Medicaid	4,264	4,466	4,171	-2.2%	-1.1%	16.8%	17.1%	16.4%	-2.5%	-1.3%
Commercial	5,899	5,408	5,297	-10.2%	-5.2%	23.3%	20.7%	20.8%	-10.5%	-5.4%
Non-E-CT Market Basket MS-DRG Discharges	**6,950**	**7,739**	**8,150**	**+17.3%**	**+8.3%**	**27.4%**	**29.6%**	**32.1%**	**+16.9%**	**+8.1%**
Medicare	2,149	2,433	2,678	+24.6%	+11.6%	8.5%	9.3%	10.5%	+24.2%	+11.5%
Medicaid	1,143	1,430	1,549	+35.5%	+16.4%	4.5%	5.5%	6.1%	+35.1%	+16.2%
Commercial	3,575	3,753	3,794	+6.1%	+3.0%	14.1%	14.3%	14.9%	+5.8%	+2.9%

Note: Totals include Uninsured and Other payer (not shown).

Exhibit 2C. Inpatient Behavioral Health MS-DRG Discharges by Payer for Patients Residing in E-CT

Source: CT CHIME Data; does not include out-of-state discharges.

	Discharges					Distribution by Payer and Provider				
	FY2014	FY2015	FY2016	FY14-16 Δ in %	FY14-16 CAGR	FY2014	FY2015	FY2016	FY14-16 Δ in %	FY14-16 CAGR
Total Market Basket MS-DRG Discharges	**3,479**	**3,485**	**3,609**	**+3.7%**	**+1.9%**	**100.0%**	**100.0%**	**100.0%**	**-**	**-**
Medicare	858	839	835	-2.7%	-1.3%	24.7%	24.1%	23.1%	-6.2%	-3.1%
Medicaid	1,521	1,655	1,760	+15.7%	+7.6%	43.7%	47.5%	48.8%	+11.5%	+5.6%
Commercial	959	898	909	-5.2%	-2.6%	27.6%	25.8%	25.2%	-8.6%	-4.4%
L+MH Market Basket MS-DRG Discharges	**757**	**746**	**796**	**+5.2%**	**+2.5%**	**21.8%**	**21.4%**	**22.1%**	**+1.4%**	**+0.7%**
Medicare	204	174	186	-8.8%	-4.5%	5.9%	5.0%	5.2%	-12.1%	-6.2%
Medicaid	362	388	389	+7.5%	+3.7%	10.4%	11.1%	10.8%	+3.6%	+1.8%
Commercial	177	171	208	+17.5%	+8.4%	5.1%	4.9%	5.8%	+13.3%	+6.4%
Other E-CT Market Basket MS-DRG Discharges	**1,509**	**1,466**	**1,515**	**+0.4%**	**+0.2%**	**43.4%**	**42.1%**	**42.0%**	**-3.2%**	**-1.6%**
Medicare	428	419	389	-9.1%	-4.7%	12.3%	12.0%	10.8%	-12.4%	-6.4%
Medicaid	640	688	783	+22.3%	+10.6%	18.4%	19.7%	21.7%	+17.9%	+8.6%
Commercial	369	312	300	-18.7%	-9.8%	10.6%	9.0%	8.3%	-21.6%	-11.5%
E-CT Market Basket MS-DRG Discharges	**2,266**	**2,212**	**2,311**	**+2.0%**	**+1.0%**	**65.1%**	**63.5%**	**64.0%**	**-1.7%**	**-0.8%**
Medicare	632	593	575	-9.0%	-4.6%	18.2%	17.0%	15.9%	-12.3%	-6.3%
Medicaid	1,002	1,076	1,172	+17.0%	+8.2%	28.8%	30.9%	32.5%	+12.8%	+6.2%
Commercial	546	483	508	-7.0%	-3.5%	15.7%	13.9%	14.1%	-10.3%	-5.3%
Non-E-CT Market Basket MS-DRG Discharges	**1,213**	**1,273**	**1,298**	**+7.0%**	**+3.4%**	**34.9%**	**36.5%**	**36.0%**	**+3.2%**	**+1.6%**
Medicare	226	246	260	+15.0%	+7.3%	6.5%	7.1%	7.2%	+10.9%	+5.3%
Medicaid	519	579	588	+13.3%	+6.4%	14.9%	16.6%	16.3%	+9.2%	+4.5%
Commercial	413	415	401	-2.9%	-1.5%	11.9%	11.9%	11.1%	-6.4%	-3.3%

Note: Totals include Uninsured and Other payer (not shown).

Exhibit 3. Case Mix per Inpatient Market Basket MS-DRG Discharge for Patients Residing in E-CT

Source: Reports 165 and 185 filed with OHCA weighted across market basket hospitals and payers using CT CHIME E-CT patient market basket discharges; does not include out-of-state discharges.

	Case Mix per Discharge			FY2014 - 2016	
	FY2014	FY2015	FY2016	Δ in %	CAGR
Total Market Basket MS-DRG Discharges	**1.22**	**1.27**	**1.30**	**+6.6%**	**+3.3%**
Medicare	1.51	1.54	1.56	+3.3%	+1.6%
Medicaid	0.94	1.01	1.06	+12.6%	+6.1%
Commercial	1.09	1.15	1.18	+7.6%	+3.8%
L+MH Market Basket MS-DRG Discharges	**1.17**	**1.20**	**1.23**	**+5.7%**	**+2.8%**
Medicare	1.46	1.46	1.48	+1.2%	+0.6%
Medicaid	0.92	1.02	1.07	+15.4%	+7.4%
Commercial	1.00	1.02	1.08	+7.6%	+3.7%
Other E-CT Market Basket MS-DRG Discharges	**1.18**	**1.25**	**1.26**	**+7.0%**	**+3.4%**
Medicare	1.44	1.49	1.49	+3.0%	+1.5%
Medicaid	0.88	0.94	0.97	+10.0%	+4.9%
Commercial	1.05	1.14	1.16	+11.2%	+5.4%
E-CT Market Basket MS-DRG Discharges	**1.17**	**1.23**	**1.25**	**+6.5%**	**+3.2%**
Medicare	1.45	1.48	1.48	+2.3%	+1.2%
Medicaid	0.90	0.97	1.01	+12.2%	+5.9%
Commercial	1.03	1.08	1.12	+9.5%	+4.6%
Non-E-CT Market Basket MS-DRG Discharges	**1.35**	**1.38**	**1.42**	**+4.9%**	**+2.4%**
Medicare	1.73	1.73	1.77	+2.7%	+1.3%
Medicaid	1.11	1.12	1.21	+8.8%	+4.3%
Commercial	1.20	1.24	1.25	+3.9%	+1.9%

Note: Totals include Uninsured and Other payer (not shown); hospital inpatient Medicaid Modernization occurred in 2015.

Exhibit 4A. Estimated Fee per Market Basket MS-DRG per CMAD for Patients Residing in E-CT

Source: Reports 165 and 185 filed with OHCA weighted across market basket hospitals and payers using CT CHIME E-CT patient market basket discharges; does not include out-of-state discharges.

	Fee per CMAD			FY2014 - 2016	
	FY2014	FY2015	FY2016	Δ in %	CAGR
Total Market Basket MS-DRG Discharges	**$8,858**	**$8,640**	**$8,751**	**-1.2%**	**-0.6%**
Medicare	$8,411	$7,849	$7,717	-8.2%	-4.2%
Medicaid	$5,524	$5,200	$5,359	-3.0%	-1.5%
Commercial	$11,460	$12,132	$12,467	+8.8%	+4.3%
L+MH Market Basket MS-DRG Discharges	**$8,281**	**$7,961**	**$8,210**	**-0.9%**	**-0.4%**
Medicare	$8,088	$7,475	$7,755	-4.1%	-2.1%
Medicaid	$4,925	$4,878	$5,067	+2.9%	+1.4%
Commercial	$10,881	$11,065	$11,380	+4.6%	+2.3%
Other E-CT Market Basket MS-DRG Discharges	**$8,151**	**$7,760**	**$7,788**	**-4.5%**	**-2.3%**
Medicare	$8,155	$7,547	$7,368	-9.6%	-4.9%
Medicaid	$5,489	$4,819	$4,896	-10.8%	-5.6%
Commercial	$10,344	$11,121	$11,291	+9.1%	+4.5%
E-CT Market Basket MS-DRG Discharges	**$8,204**	**$7,840**	**$7,955**	**-3.0%**	**-1.5%**
Medicare	$8,129	$7,520	$7,509	-7.6%	-3.9%
Medicaid	$5,253	$4,843	$4,968	-5.4%	-2.7%
Commercial	$10,581	$11,096	$11,330	+7.1%	+3.5%
Non-E-CT Market Basket MS-DRG Discharges	**$10,359**	**$10,340**	**$10,239**	**-1.2%**	**-0.6%**
Medicare	$9,258	$8,783	$8,200	-11.4%	-5.9%
Medicaid	$6,341	$6,164	$6,238	-1.6%	-0.8%
Commercial	$12,695	$13,434	$13,891	+9.4%	+4.6%

Note: Totals include Uninsured and Other payer (not shown); hospital inpatient Medicaid Modernization occurred in 2015.

Exhibit 4B. Estimated Fee per Market Basket MS-DRG per CMAD for Patients Residing in E-CT

Source: Reports 165 and 185 filed with OHCA weighted across market basket hospitals and payers using CT CHIME E-CT patient market basket discharges; does not include out-of-state discharges.

	Fee per CMAD vs. All E-CT			Fee per CMAD vs. Total		
	FY2014	FY2015	FY2016	FY2014	FY2015	FY2016
L+MH Market Basket MS-DRG Discharges	**+100.9%**	**+101.5%**	**+103.2%**	**+93.5%**	**+92.1%**	**+93.8%**
Medicare	+99.5%	+99.4%	+103.3%	+96.2%	+95.2%	+100.5%
Medicaid	+93.8%	+100.7%	+102.0%	+89.2%	+93.8%	+94.5%
Commercial	+102.8%	+99.7%	+100.4%	+94.9%	+91.2%	+91.3%
Other E-CT Market Basket MS-DRG Discharges	**+99.4%**	**+99.0%**	**+97.9%**	**+92.0%**	**+89.8%**	**+89.0%**
Medicare	+100.3%	+100.4%	+98.1%	+97.0%	+96.2%	+95.5%
Medicaid	+104.5%	+99.5%	+98.5%	+99.4%	+92.7%	+91.4%
Commercial	+97.8%	+100.2%	+99.7%	+90.3%	+91.7%	+90.6%
E-CT Market Basket MS-DRG Discharges	**+100.0%**	**+100.0%**	**+100.0%**	**+92.6%**	**+90.7%**	**+90.9%**
Medicare	+100.0%	+100.0%	+100.0%	+96.6%	+95.8%	+97.3%
Medicaid	+100.0%	+100.0%	+100.0%	+95.1%	+93.1%	+92.7%
Commercial	+100.0%	+100.0%	+100.0%	+92.3%	+91.5%	+90.9%
Non-E-CT Market Basket MS-DRG Discharges	**+126.3%**	**+131.9%**	**+128.7%**	**+116.9%**	**+119.7%**	**+117.0%**
Medicare	+113.9%	+116.8%	+109.2%	+110.1%	+111.9%	+106.2%
Medicaid	+120.7%	+127.3%	+125.6%	+114.8%	+118.5%	+116.4%
Commercial	+120.0%	+121.1%	+122.6%	+110.8%	+110.7%	+111.4%

Note: Totals include Uninsured and Other payer (not shown); inpatient hospital Medicaid Modernization occurred in 2015.

Exhibit 5A. Change in CT Medicaid Fees per Market Basket MS-DRG per CMAD

Source: DSS Website, weighted across market basket hospitals using CT CHIME E-CT patient market basket discharges.

	FY16-CY18 Δ in %	FY16-CY18 CAGR
Total Market	**-9.2%**	**-4.2%**
L+MH	-12.8%	-5.9%
Other E-CT	-8.4%	-3.8%
E-CT	-10.4%	-4.8%
Non-E-CT	-6.8%	-3.1%

Notes: These are the combined changes of the January 1, 2017 fee change and the planned January 1, 2018 fee change.

Exhibit 5B. Change in Medicare Fees per CMAD

Source: CMS 2015, 2016, 2017, and 2018 IPPS Final Rule; Milliman Analysis.

	CY15-CY16 Δ in %	CY16-CY17 Δ in %	CY17-CY18 Δ in %	FY16-CY18 Δ in %	FY16-CY18 CAGR
Total Market	**-0.6%**	**+1.2%**	**+2.1%**	**+3.2%**	**+1.4%**
L+MH	+3.8%	+0.4%	-0.0%	+1.3%	+0.6%
Other E-CT	-2.2%	+1.0%	+5.9%	+6.4%	+2.8%
E-CT	+0.3%	+0.8%	+3.4%	+4.2%	+1.9%
Non-E-CT	-3.2%	+1.9%	-0.2%	+0.9%	+0.4%

HOSPITAL OUTPATIENT CARE

Exhibit 6. Distribution of Net Revenue for CT Hospitals by Service Line and Payer

Source: Report 165 filed with OHCA.

	FY2015 Net Revenue by Service Line			
	L+MH	Other E-CT	Total E-CT	Non-E-CT
Net Revenue (%)	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Inpatient	41.7%	38.5%	39.6%	57.2%
Outpatient	58.3%	61.5%	60.4%	42.8%

	FY2015 Net Revenue by Payer			
	L+MH	Other E-CT	Total E-CT	Non-E-CT
Outpatient Net Revenue (%)	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Medicare	26.3%	24.6%	25.2%	23.3%
Medicaid	11.8%	13.4%	12.9%	12.9%
Commercial	61.4%	61.3%	61.3%	62.6%

Note: Totals include Uninsured and Other payer (not shown)

Exhibit 7. Hospital Outpatient Market Basket Services by Payer for Patients Residing in E-CT

Source: CT Medicaid OP FOIA request, Medicare 5% sample, and CHIME data; excludes out of state services

	FY2016 Distribution of Discharges by Payer			
	L + MH	Other E-CT	Non-E-CT	Total E-CT
ED Visits - All[1]	**29.5%**	**58.5%**	**11.9%**	**88.1%**
Medicare	28.1%	61.2%	10.7%	89.3%
Medicaid	29.4%	62.5%	8.1%	91.9%
Commercial	30.5%	52.5%	17.0%	83.0%
ED Visits - Behavioral Health[1]	**29.6%**	**58.9%**	**11.5%**	**88.5%**
Medicare	32.6%	60.8%	6.6%	93.4%
Medicaid	29.5%	60.1%	10.4%	89.6%
Commercial	27.6%	54.7%	17.7%	82.3%
OP Surgeries[1]	**20.1%**	**44.3%**	**35.5%**	**64.5%**
Medicare	18.3%	46.2%	35.4%	64.6%
Medicaid	24.8%	45.9%	29.3%	70.7%
Commercial	20.0%	42.2%	37.9%	62.1%
Market Basket Services[2]				
Medicare[2]	21.0%	53.9%	25.1%	74.9%
Medicaid[2]	21.6%	58.8%	19.5%	80.5%
Commercial	22.9%	77.1%		

Notes:
1) Calculated from CT CHIME data, 2) Medicare and Medicaid market basket services are calculated from their respective data sources, 2) commercial is estimated (by Milliman) using Medicare and Medicaid market basket data and CHIME data

Exhibit 8. Medicaid APC Service Fee Changes

Source: CMS OPPS fee schedules and Milliman analysis.

	Medicaid APC Service Fee Changes by Hospital			
	L+MH	Other E-CT	Non-E-CT	Total
July 1, 2016				
Minimum, any hospital		-0.9%	-32.1%	-32.1%
Maximum, any hospital		+23.0%	+6.9%	+23.0%
Average	**-11.0%**	**+10.0%**	**-6.2%**	**+1.4%**
January 1, 2017				
Minimum, any hospital		-1.2%	-1.3%	-1.3%
Maximum, any hospital		+2.3%	+2.3%	+2.3%
Average	**-1.2%**	**-0.2%**	**+2.0%**	**0.0%**

Note: average values are weighted across hospitals using estimated volume of market basket services for E-CT patients.

Exhibit 9. Medicare APC Service Fee Changes by Calendar Year

Source: Medicare 5% sample data and CMS wage tables.

	Fee Changes by Medicare Calendar Year		
Area	2016	2017	2018
L+MH	+3.8%	+1.1%	-0.2%
Other E-CT	-2.7%	+2.3%	+3.6%
Non-E-CT	-2.6%	+3.3%	-0.5%
Market Basket	-1.3%	+2.3%	+1.7%
APC Base Fee	**-0.6%**	**+1.7%**	**+0.5%**

Note: 2018 is based on the CMS corrected final rule for geographical assignments, wage indices, and an assumed +0.5% increase in the APC base fee.

PHYSICIAN CARE

Exhibit 10. Count and Distribution of LMMG Market Basket Services by Payer

Source: LMMG billing data for physician services provided in October 2014 - May 2016.

Payer	FY2015		FY2016*	
	Services	% of Total	Services	% of Total
Total	**230,182**	**100.0%**	**230,760**	**100.0%**
Medicare	100,361	43.6%	101,783	44.1%
Medicaid	31,947	13.9%	32,897	14.3%
Commercial	95,636	41.5%	94,119	40.8%
Other	2,238	1.0%	1,962	0.9%

Note: Due to an accounting system change, FY2016 is estimated from 8 months of data.

Exhibit 11. Distribution of Market Basket Services for E-CT Patients with Medicaid and Medicare

Source: Medicare 5% sample, CT Medicaid FOIA Request, LMMG data.

Area	Distribution of Market Basket Services	
	CY2016	CY2014
	Medicaid	Medicare
Total	**100.0%**	**100.0%**
Non-E-CT	**32.2%**	**33.5%**
Total E-CT	**67.8%**	**66.5%**
LMMG	7.1%	12.0%
Other E-CT	60.7%	54.4%

Exhibit 12. Medicare Fee Trend

Source: CMS Fee Schedules for 2015, 2016, and 2017 for market basket services, weighted using LMMG billing data for physician services provided in October 2014 - May 2016.

Year	Average Fee
CY 2015	$77.59
CY 2016	$77.31
CY 2017	$77.37
CY2015-CY2017 Trend	**-0.3%**

Note: the average fee was weighted using LMMG's service mix.

APPENDIX – REFERENCE TABLES

Table 1. Summary of Inpatient Discharges

By MS-DRG for Patients Residing in CT for FY2014-FY2015

Source: CHIME, FY2014 and FY2015, IC9-CM Diagnosis and Procedure Codes were used in identification.

Order	MS-DRG	Description	ALL CHIME Inpatient Discharges	CT DOI Identified	
				Inpatient Discharges	% of ALL CHIME Inpatient Discharges
Total			**796,569**	**422,337**	**53.0%**
1	795	Normal newborn	47,772	38,821	81.3%
2	775	Vaginal delivery w/o complicating diagnoses	39,033	37,697	96.6%
3	470	Major joint replacement or reattachment of lower extremity w/o MCC	25,352	25,352	100.0%
4	766	Cesarean section w/o CC/MCC	15,509	15,509	100.0%
5	794	Neonate w other significant problems	16,491	12,351	74.9%
6	765	Cesarean section w CC/MCC	9,798	9,798	100.0%
7	871	Septicemia or severe sepsis w/o MV 96+ hours w MCC	22,408	8,831	39.4%
8	897	Alcohol/drug abuse or dependence w/o rehabilitation therapy w/o MCC	11,410	7,190	63.0%
9	392	Esophagitis, gastroent & misc digest disorders w/o MCC	16,848	7,074	42.0%
10	774	Vaginal delivery w complicating diagnoses	7,097	6,726	94.8%
11	291	Heart failure & shock w MCC	9,003	6,630	73.6%
12	189	Pulmonary edema & respiratory failure	6,289	6,148	97.8%
13	292	Heart failure & shock w CC	8,421	6,131	72.8%
14	378	G.I. hemorrhage w CC	7,580	5,339	70.4%
15	460	Spinal fusion except cervical w/o MCC	4,830	4,830	100.0%
16	247	Perc cardiovasc proc w drug-eluting stent w/o MCC	4,794	4,794	100.0%
17	190	Chronic obstructive pulmonary disease w MCC	5,775	4,274	74.0%
18	621	O.R. procedures for obesity w/o CC/MCC	4,068	4,068	100.0%
19	743	Uterine & adnexa proc for non-malignancy w/o CC/MCC	3,946	3,946	100.0%
20	330	Major small & large bowel procedures w CC	3,658	3,658	100.0%
21	481	Hip & femur procedures except major joint w CC	3,603	3,603	100.0%
22	310	Cardiac arrhythmia & conduction disorders w/o CC/MCC	4,802	3,428	71.4%
23	309	Cardiac arrhythmia & conduction disorders w CC	5,185	3,363	64.9%
24	287	Circulatory disorders except AMI, w card cath w/o MCC	3,807	3,305	86.8%
25	191	Chronic obstructive pulmonary disease w CC	5,282	3,241	61.4%
26	065	Intracranial Hemorrhage Or Cerebral Infarction w CC or TPA In 24 Hrs	4,705	3,217	68.4%
27	792	Prematurity w/o major problems	4,009	3,164	78.9%
28	945	Rehabilitation w CC/MCC	2,995	2,992	99.9%
29	208	Respiratory system diagnosis w ventilator support <96 hours	2,927	2,927	100.0%
30	853	Infectious & parasitic diseases w O.R. procedure w MCC	2,892	2,892	100.0%
31	847	Chemotherapy w/o acute leukemia as secondary diagnosis w CC	2,894	2,867	99.1%
32	812	Red blood cell disorders w/o MCC	5,401	2,640	48.9%
33	308	Cardiac arrhythmia & conduction disorders w MCC	3,233	2,624	81.2%

Order	MS-DRG	Description	ALL CHIME Inpatient Discharges	CT DOI Identified	
				Inpatient Discharges	% of ALL CHIME Inpatient Discharges
34	280	Acute myocardial infarction, discharged alive w MCC	2,884	2,624	91.0%
35	331	Major small & large bowel procedures w/o CC/MCC	2,608	2,608	100.0%
36	419	Laparoscopic cholecystectomy w/o c.d.e. w/o CC/MCC	2,607	2,607	100.0%
37	793	Full term neonate w major problems	3,654	2,600	71.2%
38	603	Cellulitis w/o MCC	11,065	2,560	23.1%
39	473	Cervical spinal fusion w/o CC/MCC	2,253	2,253	100.0%
40	494	Lower extrem & humer proc except hip,foot,femur w/o CC/MCC	2,248	2,248	100.0%
41	066	Intracranial hemorrhage or cerebral infarction w/o CC/MCC	2,942	2,125	72.2%
42	064	Intracranial hemorrhage or cerebral infarction w MCC	3,341	2,123	63.5%
43	377	G.I. hemorrhage w MCC	2,726	2,060	75.6%
44	329	Major small & large bowel procedures w MCC	1,961	1,961	100.0%
45	281	Acute myocardial infarction, discharged alive w CC	2,028	1,822	89.8%
46	192	Chronic obstructive pulmonary disease w/o CC/MCC	3,121	1,807	57.9%
47	872	Septicemia or severe sepsis w/o MV 96+ hours w/o MCC	8,894	1,803	20.3%
48	343	Appendectomy w/o complicated principal diag w/o CC/MCC	1,722	1,722	100.0%
49	253	Other vascular procedures w CC	1,712	1,712	100.0%
50	682	Renal failure w MCC	4,741	1,683	35.5%

Table 2. Zip Code to County Mappings

Source: YNH, verified by Milliman.

Zip Code	County
06249	New London, CT
06254	New London, CT
06320	New London, CT
06330	New London, CT
06333	New London, CT
06334	New London, CT
06335	New London, CT
06336	New London, CT
06338	New London, CT
06339	New London, CT
06340	New London, CT
06349	New London, CT
06350	New London, CT
06351	New London, CT
06353	New London, CT
06355	New London, CT
06357	New London, CT
06359	New London, CT
06360	New London, CT
06365	New London, CT
06370	New London, CT
06371	New London, CT
06372	New London, CT
06375	New London, CT
06376	New London, CT
06378	New London, CT
06379	New London, CT
06380	New London, CT
06382	New London, CT
06383	New London, CT
06384	New London, CT
06385	New London, CT
06388	New London, CT
06389	New London, CT
06415	New London, CT
06420	New London, CT
06439	New London, CT
06474	New London, CT
06029	Tolland, CT
06043	Tolland, CT
06066	Tolland, CT
06071	Tolland, CT
06072	Tolland, CT
06075	Tolland, CT
06076	Tolland, CT
06077	Tolland, CT
06084	Tolland, CT

Zip Code	County
06231	Tolland, CT
06232	Tolland, CT
06237	Tolland, CT
06238	Tolland, CT
06248	Tolland, CT
06250	Tolland, CT
06251	Tolland, CT
06265	Tolland, CT
06268	Tolland, CT
06269	Tolland, CT
06279	Tolland, CT
06226	Windham, CT
06230	Windham, CT
06233	Windham, CT
06234	Windham, CT
06235	Windham, CT
06239	Windham, CT
06241	Windham, CT
06242	Windham, CT
06243	Windham, CT
06244	Windham, CT
06245	Windham, CT
06246	Windham, CT
06247	Windham, CT
06255	Windham, CT
06256	Windham, CT
06258	Windham, CT
06259	Windham, CT
06260	Windham, CT
06262	Windham, CT
06263	Windham, CT
06264	Windham, CT
06266	Windham, CT
06267	Windham, CT
06277	Windham, CT
06278	Windham, CT
06280	Windham, CT
06281	Windham, CT
06282	Windham, CT
06331	Windham, CT
06332	Windham, CT
06354	Windham, CT
06373	Windham, CT
06374	Windham, CT
06377	Windham, CT
06387	Windham, CT

Table 3. Market Basket MS-DRG Discharges

By Facility for Patients Residing in E-CT for FY2014-FY2015
Source: CHIME, FY2014 and FY2015

Facility Name	Region	Hospital County	Market Basket MS-DRG Discharges
Total Market Basket MS-DRG Discharges			**51,837**
Hospitals of Serving the Majority of E-CT Patients			**51,502 / 99.4%**
Lawrence + Memorial Hospital	E-CT	New London, CT	15,029
The William W. Backus Hospital	E-CT	New London, CT	11,067
Hartford Hospital	Non-E-CT	Hartford, CT	4,106
Day Kimball Hospital	E-CT	Windham, CT	4,584
Saint Francis Hospital and Med. Center	Non-E-CT	Hartford, CT	3,215
Yale-New Haven Hospital	Non-E-CT	New Haven, CT	1,949
Windham Hospital	E-CT	Windham, CT	3,299
Manchester Memorial Hospital	Non-E-CT	Hartford, CT	3,369
Rockville General Hospital	E-CT	Tolland, CT	1,695
Middlesex Hospital	Non-E-CT	Middlesex, CT	1,250
Johnson Memorial Hospital	E-CT	Tolland, CT	1,139
Connecticut Children's Medical Center	Non-E-CT	Hartford, CT	403
John Dempsey Hospital	Non-E-CT	Hartford, CT	397
Other CT Hospitals Serving E-CT Patients			**335 / 0.6%**
The Hospital of Central Connecticut	Non-E-CT	Hartford, CT	117
St. Vincent's Medical Center	Non-E-CT	Fairfield, CT	47
Bridgeport Hospital	Non-E-CT	Fairfield, CT	22
MidState Medical Center	Non-E-CT	New Haven, CT	39
Norwalk Hospital	Non-E-CT	Fairfield, CT	12
Saint Mary's Hospital	Non-E-CT	New Haven, CT	20
Danbury Hospital	Non-E-CT	Fairfield, CT	18
Bristol Hospital	Non-E-CT	Hartford, CT	19
Milford Hospital	Non-E-CT	New Haven, CT	14
Waterbury Hospital	Non-E-CT	New Haven, CT	11
Stamford Hospital	Non-E-CT	Fairfield, CT	6
Griffin Hospital	Non-E-CT	New Haven, CT	8
Greenwich Hospital	Non-E-CT	Fairfield, CT	2

Table 4A. CHIME Payer Mappings to Payer Categories

Source: CHIME; Milliman categories

Payer Name in CHIME	Payer Category
Blue Cross	Commercial
Champus/Tricare	Commercial
Charter Oak	Other
Commercial Insur	Commercial
HMO	Commercial
Medicaid	Medicaid
Medicare	Medicare
Medicare Advantage	Medicare
No Charge	Other
Other	Other
Other Fed Prog	Other
PPO	Commercial
Self-Pay	Uninsured
Workers Comp	Commercial
Blank	Other

Table 4B. Twelve Month Actual Filings from OHCA Payer Mappings to Payer Categories

Source: Twelve Month Actual Filings from OHCA; Milliman categories

Payer Name in Report 165	Payer Category
Medicare Traditional	Medicare
Medicare Managed Care	Medicare
Medicaid	Medicaid
Medicaid Managed Care	Medicaid
Champus/Tricare	Commercial
Commercial Insurance	Commercial
Non-Government Managed Care	Commercial
Worker's Compensation	Commercial
Self-Pay/Uninsured	Uninsured
SAGA	Other
Other	Other

Payer Name in Report 185	Payer Category
Non-Government (Including Self Pay / Uninsured)	Commercial
Medicare	Medicare
Medical Assistance	N/A
Medicaid	Medicaid
Other Medical Assistance	Other
Champus / Tricare	Commercial
Uninsured (Included In Non-Government)	Uninsured
Non-Government (Excluding Self Pay / Uninsured)	Commercial

Table 5. Market Basket APCs and HCPCS for Outpatient Services

Source: Compiled from CT Department of Insurance (DOI) Top Outpatient Services Lists

Market Basket APCs for Outpatient Services		
2017	2016	2016 Name
5025	5025	Level 5 Type A ED Visits
5051	5051	Level 1 Skin Procedures
5052	5052	Level 2 Skin Procedures
5112	5112	Level 2 Closed Treatment Fracture and Related Services
5113	5113	Level 3 Closed Treatment Fracture and Related Services
5114	5123	Level 3 Musculoskeletal Procedures
5161	5161	Level 1 ENT Procedures
5163	5163	Level 3 ENT Procedures
5182	5182	Level 2 Vascular Procedures
5301	5301	Level 1 Upper GI Procedures
5311	5311	Level 1 Lower GI Procedures
5312	5312	Level 2 Lower GI Procedures
5361	5361	Level 1 Laparoscopy
5414	5414	Level 4 Gynecologic Procedures
5431	5431	Level 1 Nerve Procedures
5442	5442	Level 2 Nerve Injections
5443	5443	Level 3 Nerve Injections
5481	5481	Laser Eye Procedures
5491	5491	Level 1 Intraocular Procedures
5521	5521	Level 1 X-Ray and Related Services
5522	5522	Level 2 X-Ray and Related Services
5523	5523	Level 3 X-Ray and Related Services
5571	5571	Level 1 Computed Tomography with Contrast and Computed Tomography Angiography
5572	5572	Level 2 Computed Tomography with Contrast and Computed Tomography Angiography
5671	5671	Level 1 Pathology
5673	5673	Level 3 Pathology
5732	5732	Level 2 Minor Procedures
5733	5733	Level 3 Minor Procedures

Market Basket HCPCS for Outpatient Services			
2017	2017 Name	2016	2016 Name
G0202	Screening mammography, bilateral (2-view study of each breast), including computer-aided detection (CAD) when performed	G0202	Digital Mammography Screening
G0204	Diagnostic mammography, including computer-aided detection (CAD) when performed; bilateral	G0204	Diagnostic Mammogram, Digital, All Views , bilateral
G0206	Diagnostic mammography, including computer-aided detection (CAD) when performed; unilateral	G0206	Diagnostic Mammogram, Digital, All Views
77065	Diagnostic mammography, including computer-aided detection (CAD) when performed; unilateral	77051	Computer-Aided Diagnostic Mammography Add-On
77066	Diagnostic mammography, including computer-aided detection (CAD) when performed; bilateral	77052	Computer Screen Mammography Add-On
77067	Screening mammography, bilateral (2-view study of each breast), including computer-aided detection (CAD) when performed		

Table 6. Market Basket HCPCS for Physician Services

Source: Market basket was developed from LMMG billing data for physician services provided in June 2016.

HCPCS	Description
11042	Deb subq tissue 20 sq cm/<
36415	Routine venipuncture
81003	Urinalysis auto w/o scope
83036	Glycosylated hemoglobin test
85610	Prothrombin time
90471	Immunization admin
90833	Psytx pt&/fam w/e&m 30 min
93000	Electrocardiogram complete
93010	Electrocardiogram report
93306	Tte w/doppler complete
97597	Rmvl devital tis 20 cm/<
99183	Hyperbaric oxygen therapy
99202	Office/outpatient visit new
99203	Office/outpatient visit new
99204	Office/outpatient visit new
99205	Office/outpatient visit new
99211	Office/outpatient visit est
99212	Office/outpatient visit est
99213	Office/outpatient visit est
99214	Office/outpatient visit est
99215	Office/outpatient visit est
99232	Subsequent hospital care
99395	Prev visit est age 18-39
99396	Prev visit est age 40-64
G0439	PPPS, subseq visit

Table 7. LMMG Billing Data Payer Mappings to Payer Categories

Financial Class in LMMG Billing Data	Financial Class Description	Payer Category
AN	Aetna	Commercial
BA	Business Accounts	Commercial
BH	Behavioral Health	Commercial
BS	Blue Cross/Blue Shield	Commercial
CA	Collection Agency	Commercial
CB	Consolidated Billing	Commercial
CC	Connecticare	Commercial
CG	Cigna	Commercial
CH	Charity/Free Care	Other
CI	Commercial Insurance	Commercial
CP	Contracted Payor	Commercial
GA	Grant Billing	Commercial
GC	Grant Billing	Commercial
GR	Grant Billing	Commercial
HN	Health Net Of Ct	Commercial
LC	Liability Charity Care	Other
LI	Liability Insurance	Other
MA	Medicaid	Medicaid
MC	Medicare	Medicare
OC	Outside Collection Agency	Commercial
OX	Oxford Health Plans	Commercial
SI	Self Pay After Insurance	Other
SP	Self Pay	Other
TR	Tricare	Commercial
UH	United Healthcare	Commercial
WC	Workers Compensation	Other

Table 8. LMMG Location Mappings to CMS Location Type

Source: LMMG billing system.

Location Code	Facility Name	CMS Location Type Code	CMS Location Type Description
8U	Apple Rehab Clipper	31	Skilled Nursing Facility
8W	Apple Rehab Watch Hill	31	Skilled Nursing Facility
9P	Asc Pequot	24	Ambulatory Surgical Center
4B	Backus Hospital	21	Inpatient Hospital
8B	Bayview Health Care Center	32	Nursing Facility
8I	Bridebrook Rehab Center	32	Nursing Facility
8D	Bucks Hill Nursing And Rehabil	32	Nursing Facility
8N	Cheshire House	31	Skilled Nursing Facility
8F	Fairview Nursing Home	32	Nursing Facility
6S	L&M Op Sleep Ctr At Hilton	19	Unassigned
1C	L&M Physician Association	11	Office
7C	Lawrence & Memorial ER Crisis	23	Emergency Room - Hospital
4L	Lawrence & Memorial Hospital	21	Inpatient Hospital
5A	LM Physicians Westerly Bldg 46	11	Office
6W	LM Waterfall	19	Unassigned
7I	LMPA ER Cardiology Waterford	23	Emergency Room - Hospital
7Z	LMPA ER NL Medical Off Bldg	23	Emergency Room - Hospital
1E	LMPA General Surgery	11	Office
1G	LMPA Groton	11	Office
13	LMPA Infectious Disease	11	Office
4I	LMPA IP Cardiology Waterford	21	Inpatient Hospital
4Z	LMPA IP NL Medical Off Bldg	21	Inpatient Hospital
1Z	LMPA Mob	11	Office
12	LMPA Mystic	11	Office
1U	LMPA Neurosurgery	11	Office
1W	LMPA New London	11	Office
1J	LMPA New London Neuro & Ortho	11	Office
1N	LMPA Niantic	11	Office
1O	LMPA Old Lyme	11	Office
6H	LMPA Op Cariology Waterford	19	Unassigned
6T	LMPA Op NL Medical Off Bldg	19	Unassigned
1T	LMPA Physiatry	11	Office
1B	LMPA Physiatry Backus	11	Office
1D	LMPA Physiatry Day Kimball	11	Office
1H	LMPA Shaw General Surgery	11	Office
1P	LMPA Stonington	11	Office
1Q	LMPA Stonington Walkin	11	Office
5K	LMPA Wakefield	11	Office
1I	LMPA Waterford Crossroads	11	Office
5B	LMPA Westerly Morgan Bldg 45	11	Office
3J	Office Joslin New London	11	Office
8C	Paradigm Healthcare	31	Skilled Nursing Facility
8T	Paradigm Healthcare Waterbury	31	Skilled Nursing Facility
2H	Patient's Home CT	12	Home
2I	Patient's Home RI	12	Home
8P	Pendleton Health & Rehab Cntr	32	Nursing Facility
6P	Pequot Health Center	19	Unassigned
1F	Sound Medical Associates	11	Office
8V	Village Green Of Waterbury	31	Skilled Nursing Facility
8Z	Westerly Health Center	31	Skilled Nursing Facility

Location Code	Facility Name	CMS Location Type Code	CMS Location Type Description
7M	Westerly Hospital Emer Room	23	Emergency Room - Hospital
4M	Westerly Hospital Inpatient	21	Inpatient Hospital
6M	Westerly Hospital Outpatient	22	Outpatient Hospital
8Y	Westerly Nursing Home	31	Skilled Nursing Facility
6Y	Yale New Haven Outpatient	22	Outpatient Hospital