We, the administrators of some of the Nation's leading non-profit, high-acuity long-term acute care (LTACH) hospitals in the country including Shepherd Center, Gaylord Specialty Healthcare, and Henry Ford Allegiance CareLink – who are a part of a coalition of 21 independent LTCHs from across the country – have grave concerns with what appears to be a one-sided, biased report of unsupported assumptions recently reported in the NBER working paper study, "Long-Term Care Hospitals: A Case Study in Waste".

The national coverage that has resulted this week is not only sorely disappointing as we believe that it is not based on concrete facts, but also in our strong belief that it is providing a tremendous disservice to high-acuity patients and their families who are in need of the transformative, cutting-edge and highly technological care that institutions like ours provide. ***It is from this perspective that we feel it is imperative to offer a collective response to this study.***

In the outline below, you will find our assessment of the value that LTCHs deliver to patients, the weaknesses that we see in their "academic" study, as well as a completely different analysis based ***not on samples, estimates, assumptions and statistical modeling*** as was presented in the NBER working paper, but based ***entirely on concrete data from the complete Medicare population*** (not including behavioral health) from the CMS Standard Analytical Files (SAF) from 2015 (we are in the process of analyzing data from the 2016 SAF dataset).

Part I.
The Value of LTCH's on Patient Care and Outcomes
There is a much simpler and more accurate way to answer the implied question of whether long-term acute care hospitals (LTCHs) add value and improve patient care and outcomes. This approach is to use the actual Medicare database for hospital discharges and evaluate whether high acuity patients who go to LTCHs have better outcomes than those who went to a skilled nursing facility (SNF), as proposed in the NBER study mentioned above.

Unlike the NBER study, we acquired the SAF's covering the entire Medicare population, and used a widely available tool (3M APR-DRG) to group 100% of Medicare STACH discharges (not including behavioral health), into four acuity groups, ranked from highest acuity (Severity of Illness 4) to lowest acuity (Severity of Illness 1).

We also looked at other acuity indicators such as whether the patients spend three or more days in an ICU, the Risk of Mortality (the likelihood of dying), and the number of complications and conditions and major complications and conditions each patient has on average.

As can be seen below, the results are very clear. First, LTCHs take a much sicker patient population (higher percent of Severity of Illness 4 & 3 patients) than SNF's. They are sicker on every level, (Severity of Illness, Risk of Mortality, high percent with 3 or more days in an ICU, and a high number of complications and conditions (CC/MCC's)).

Second, the patient outcomes for high-acuity patients going to an LTCH vs. a Skilled Nursing Facility (SNF) are considerably better: much lower readmission rates back to the short-term acute care hospital, a much longer time on average before a patient requires readmission, and a much lower use of outpatient Emergency Room services. This equates to lower healthcare costs overtime.

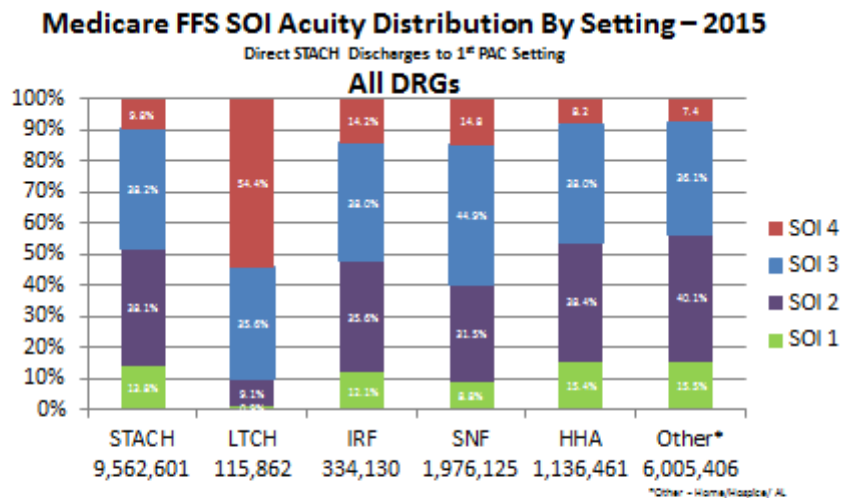**Part II.**
Weaknesses of the NBER study:

1. The NBER study uses arbitrary "outcome measures" without adjusting for the acuity of patients and/or the differences in acuity across settings.
2. Heavily reliant on assumptions, and not specific data to support their statements.
3. As a result, ***the study admits on page 3, in the Introduction, their study "doesn't allow them to conclusively reject economically meaningful improvements in health" from being in an LTCH.*** Also in the Conclusion on page 21, the authors state, **"*It is of course possible that the long run impacts of LTCH's on either spending or patient well-being are different from what we estimate here"*!**
4. NBER relies on MedPAR data as well as two other separate databases and does not apparently follow patients across settings to determine actual outcomes, as our study does.

Part III.
LTCH Result Analysis Using Medicare Population Data

For the past several years, our group of LTCH's has been researching the impact of acuity, setting and outcomes using the CMS Standard Analytic Files (SAF) from CMS. These SAFs include identifiers that allow us to track the actual outcomes and experiences of patients across both the acute and post-acute settings. In addition, we utilize the widely used 3M APR-DRG software to determine two indicators of acuity of each patient at the time of discharge from short-term acute care hospitals (STACHs). The two indicators are Severity of Illness (SOI) and Risk of Mortality (ROM). In addition, we track and utilize two other acuity indicators; percent of patients with three or more days in an ICU and the average number of CC/MCCs per patient.

We track three outcome measures that we believe are of significance to both regulators and Medicare beneficiaries; 90-Day Readmissions back to the short-term acute care hospital, Mean time to 1st Readmission back to the short-term acute care hospital, and 90-Day Outpatient Emergency Department Utilization.

Chart 1

Chart 1 shows the Medicare FFS Severity of Illness (SOI) by setting. You can clearly see that LTCHs have a much higher % of severely ill patients compared to every other setting.

Medicare FFS ROM Acuity Distribution By Setting – 2015
Direct STACH Discharges to 1st PAC Setting

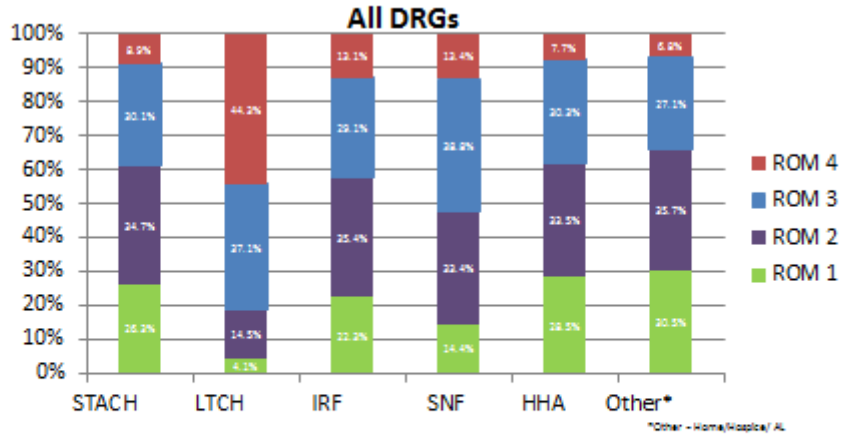LTCH's have a higher acuity patient population, especially at the ROM 4 level.

1) Based on the 100% SAF data for Medicare FFS – 2015 data
2) Using the 3M APR-DRG grouper for Severity of Illness (SOI) and Risk of Mortality (ROM)
3) Data analysis by Valcon Policy Analysis – (analysis completed 7/2017, Revised 1/2018)
4) Percentages may not total 100% due to rounding

Chart 2

Chart 2 shows the Medicare FFS Risk of Mortality (ROM) by setting. As can be seen, LTCHs have a much higher percentage of patients with a high risk of dying compared to other PAC settings.

PAC - Mix of Supplemental Acuity Indicators By Setting, Within SOI Levels- 2016

SOI Level	Key	LTCH		IRF		SNF		HHA		OTHER (Home/ Hospice/ AL)
SOI4										
	Avg # of CC/MCC'S	9.8	25.6% higher	7.8	5.4% higher	7.4	10.4% higher	6.7	1.5% higher	6.6
	% ICU8+	84.5%	NA	*	NA	59.6%	52% higher	56.6%	14.1% higher	49.6%
	% ROM 4	77.7%	1.2% higher	75.5%	6.5% higher	70.7%	10.1% higher	64.2%	0.2% higher	64.5%
	STACH - ALOS	17.2	22.9% higher	14.0	15.7% higher	12.1	13.1% higher	10.7	34.4% higher	8.6
SOI3										
	Avg # of CC/MCC'S	4.7	20.6% higher	3.6	Equal	3.6	5.9% higher	3.4	3.0% higher	3.3
	% ICU8+	49.2%	10.2% higher	40.9%	21.1% higher	51.2%	26% higher	50.4%	30.2% higher	22.6%
	% ROM 4	10.1%	23.4% higher	7.5%	14% higher	7.4%	4.2% higher	7.1%	16.4% higher	6.1%
	STACH - ALOS	9.6	29.1% higher	6.9	3.0% higher	6.7	11.7% higher	6.0	20.4% higher	4.6

Chart 3

SOI 2

	LTCH		IRF		SNF		HHA		Other
Avg # of CC/MCC'S	2.0	42.9% higher	1.4	Equal	1.4	16.7% higher	1.2	Equal	1.2
%ICU3+	25.0%	15.2% higher	21.7%	20.6% higher	18.0%	22.4% higher	14.7%	28.9% higher	11.4%
% RDM 4	0.2%	50% higher	0.3%	Equal	0.3%	200.0% higher	0.1%	Equal	0.1%
STACH - ALOS	6.5	51.2% higher	4.3	11.6% higher	4.8	26.3% higher	3.8	18.8% higher	3.2

SOI 1

	LTCH		IRF		SNF		HHA		Other
Avg # of CC/MCC'S	0.8	60.0% higher	0.5	Equal	0.5	150% higher	0.2	50.0% higher	0.3
%ICU3+	17.5%	49.6% higher	11.7%	17.0% higher	10.0%	88.7% higher	5.3%	13.2% higher	6.0%
% RDM 4	0.0%	NA	*	NA	0.0%	Equal	0.0%	Equal	0.0%
STACH - ALOS	5.4	46.0% higher	3.7	8.0% higher	4.0	48.2% higher	2.7	12.5% higher	2.4

Chart 3

Chart 3 shows the additional Acuity Indicators by Severity of Illness level, and by setting. As can be seen, by virtually every measure, LTCH patients are more acutely compromised than patients in every other PAC setting.

Charts 4-6 address the question of whether acuity and setting impact outcomes (and the answer is yes they do!).

Readmission Rates by PAC Setting at 90 Days – 2015 Data (revised 7/12/18)
All DRG's – SOI 4 Only
(Lower is Better)

SOI 4

LTCH 17.9% lower
LTCH 16.7% lower

LTCH	IRF	SNF	HHA	Other
34.4%	41.3%	41.9%	40.9%	30.7%

Readmission Rates by PAC Setting at 90 Days
All DRG's – SOI 3 Only
(Lower is Better)

SOI 3

LTCH 3.5% lower
IRF 0.3% lower

LTCH	IRF	SNF	HHA	Other
35.7%	35.6%	37.0%	36.0%	35.7%

Chart 4

Readmission Rates by PAC Setting at 90 Days – 2015 Data
All DRG's – SOI 2 Only
(Lower is Better)

SOI 2

- LTCH: 32.3%
- IRF: 24.1%
- SNF: 27.0%
- HHA: 23.5%
- Other: 27.0%

SNF 19.6% lower
IRF 25.4% lower

Readmission Rates by PAC Setting at 90 Days
All DRG's – SOI 1 Only
(Lower is Better)

SOI 1

- LTCH: 23.8%
- IRF: 17.2%
- SNF: 18.5%
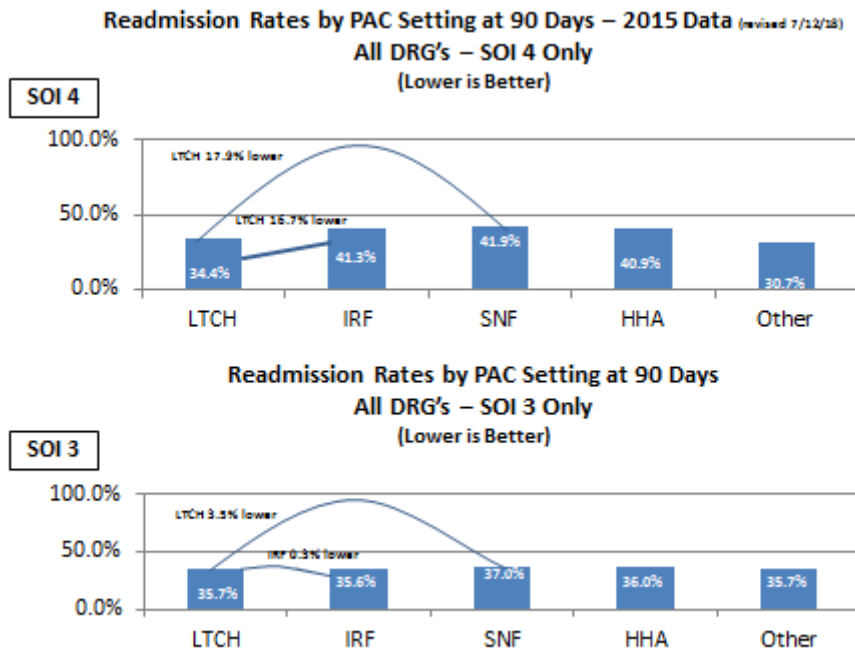- HHA: 13.0%
- Other: 17.9%

IRF 27.7% lower
SNF 22.3% lower

Chart 4

Chart 4 looks at 90 Day Readmissions rates by setting and by acuity level. For the two highest acuity levels, LTCHs have a meaningfully lower readmission rate.

Mean Time to 1st Readmission by SOI Level -2015 Data
All DRG's
(Longer is Better)

SOI 4

- LTCH: 60.2
- IRF: 48.0
- SNF: 45.1
- HHA: 49.6
- Other: 47.6

LTCH 33.5% longer
LTCH 25.4% longer

Mean Time to 1st Readmission by SOI Level – 2015 Data
All DRG's
(Longer is Better)

SOI 3

- LTCH: 64.4
- IRF: 54.5
- SNF: 53.2
- HHA: 55.3
- Other: 52.8

LTCH 21.0% Longer
LTCH 18.2% Longer

Chart 5

Mean Time to 1st Readmission by SOI Level – 2015 Data
All DRG's
(Longer is Better)

SOI 2

LTCH	IRF	SNF	HHA	Other
69.9	61.7	61.3	62.3	57.8

LTCH 14.0% Longer
LTCH 13.3% Longer

Mean Time to 1st Readmission by SOI Level – 2015 Data
All DRG's
(Longer is Better)

SOI 1

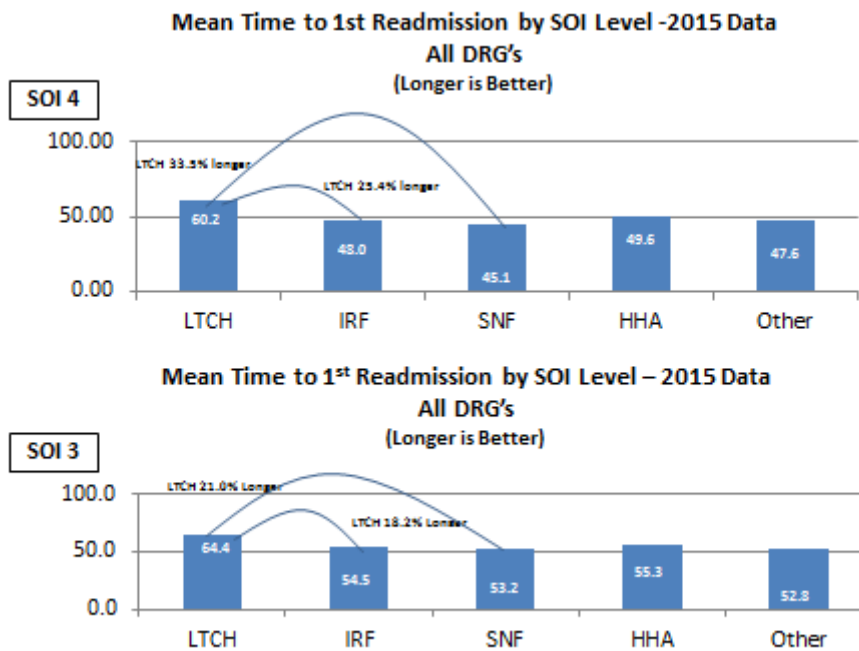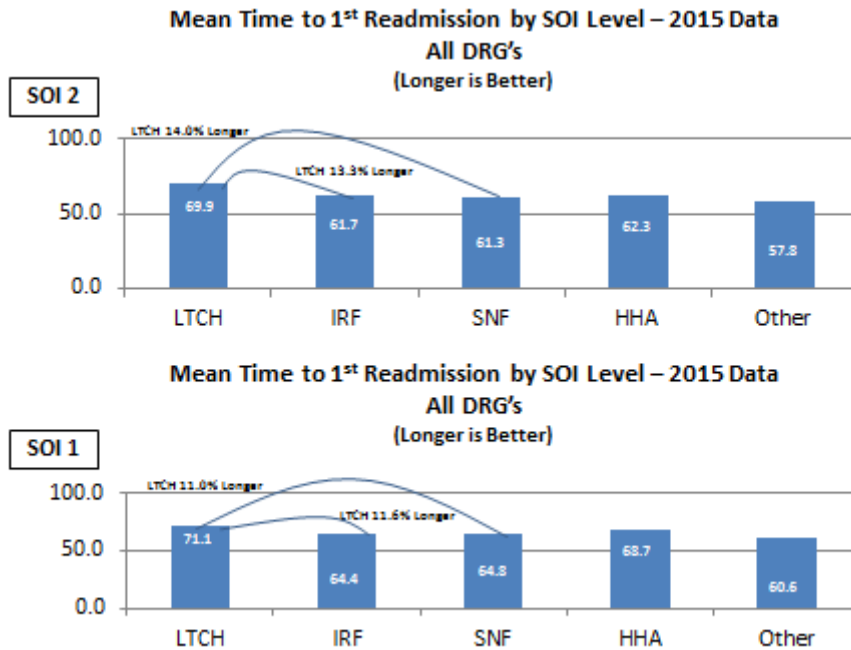| LTCH	IRF	SNF	HHA	Other
71.1	64.4	64.8	68.7	60.6

LTCH 11.0% Longer
LTCH 11.6% Longer

Chart 5

Chart 5 looks at Mean Time to 1st Readmission by setting and by acuity level. It clearly shows that LTCH patients, at all severity levels, avoid readmission for a longer period of time compared to other PAC settings.
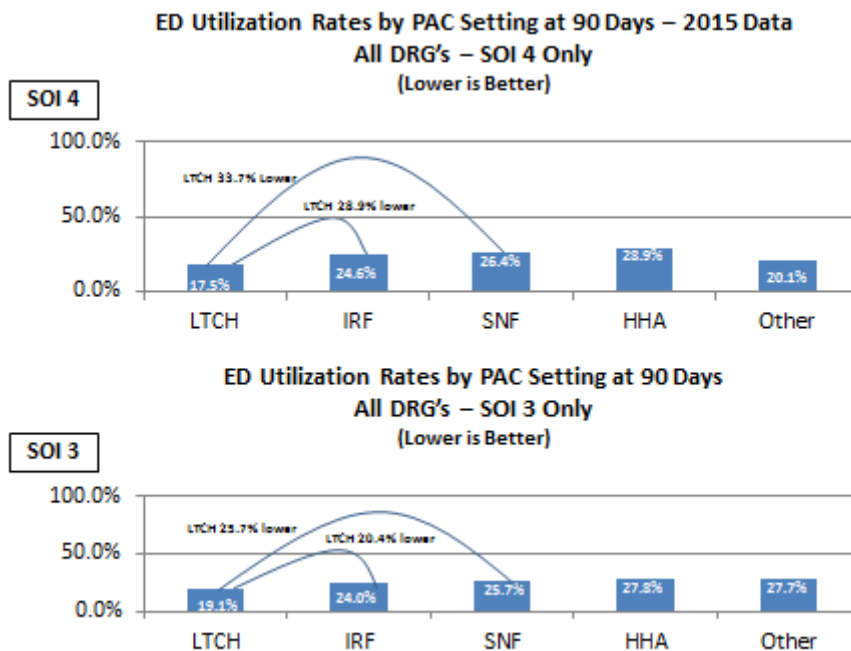
ED Utilization Rates by PAC Setting at 90 Days – 2015 Data
All DRG's – SOI 4 Only
(Lower is Better)

SOI 4

LTCH	IRF	SNF	HHA	Other
17.5%	24.6%	26.4%	28.9%	20.1%

LTCH 33.7% Lower
LTCH 28.9% lower

ED Utilization Rates by PAC Setting at 90 Days
All DRG's – SOI 3 Only
(Lower is Better)

SOI 3

LTCH	IRF	SNF	HHA	Other
19.1%	24.0%	25.7%	27.8%	27.7%

LTCH 25.7% lower
LTCH 20.4% lower

Chart 6

ED Utilization Rates by PAC Setting at 90 Days – 2015 Data
All DRG's – SOI 2 Only
(Lower is Better)

SOI 2

	LTCH	IRF	SNF	HHA	Other
	20.7%	20.7%	23.2%	23.4%	26.6%

LTCH 10.8% lower
IRF & LTCH equal

ED Utilization Rates by PAC Setting at 90 Days
All DRG's – SOI 1 Only
(Lower is Better)

SOI 1

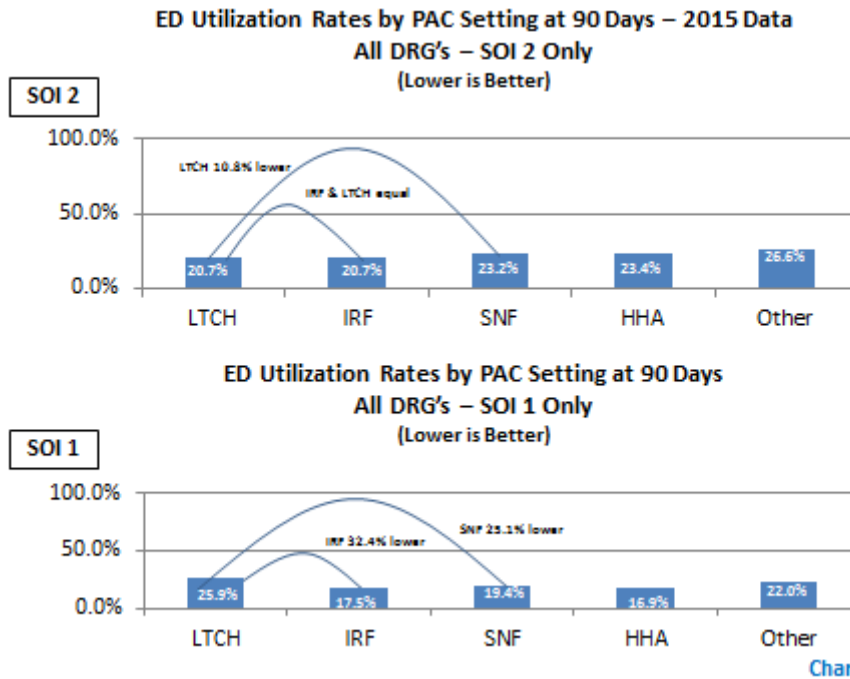|	LTCH	IRF	SNF	HHA	Other
	25.9%	17.5%	19.4%	16.9%	22.0%

IRF 32.4% lower
SNF 25.1% lower

Chart 6

Chart 6 looks at 90-Day Outpatient Emergency Department Utilizations, and it again shows that LTCHs have a much lower utilization compared to patients going to other PAC settings.

In conclusion, while we are not asserting that the data used by NBER is incorrect, we are asserting that it is incomplete when looking at those issues that impact the outcome of recovery for high acuity patients. LTCHs serve a specific segment of patients whose level of rehabilitation and recovery is directly correlated to the type of care and technology available only in the LTCH setting.

When one assesses actual Medicare data (including all patients, with no sampling or estimates), including acuity and key outcomes, it is clear that LTCHs have a significant, measurable, positive impact in providing care to higher acuity patients.