Poster
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# Clinical and Economic Outcomes of Inpatient and Outpatient Chimeric Antigen Receptor T-Cell Therapy in Newly Authorized Treatment Centers in the United States

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## BACKGROUND

- Chimeric antigen receptor T-cell therapy (CAR T) has transformed the treatment landscape for hematologic malignancies; however, despite its clinical success, access remains limited, and treatment is typically administered at specialized treatment centers frequently located in large urban areas.[1,2]
- In the US, most CAR T administrations occur in the inpatient setting, though outpatient treatment is becoming more common – especially as more sites become authorized for CAR T.[3,4]
- Outpatient administration can facilitate greater CAR T access by enabling closer proximity to care and lowering healthcare resource requirements.[4]
- There is a paucity of evidence on the outcomes of patients treated at newly authorized treatment centers (ATCs) in the US, particularly those in community settings or more rural areas.

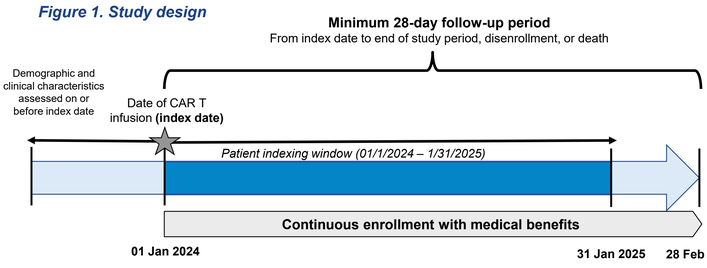
## Plain Language Summary

- Though CAR T is effective at treating blood cancers, it is traditionally administered at special centers and requires a hospital stay, which limits patients' access to treatment.
- More cancer treatment centers are becoming authorized to administer CAR T, including in the outpatient setting; thus, this study analyzed the short-term clinical outcomes of CAR T patients treated at newly authorized sites.
- We found that CAR T administration was feasible in both inpatient and outpatient settings at these new sites, with clinical and cost outcomes consistent with those observed in large academic and urban-located treatment centers.

## METHODS

- This was a retrospective database analysis using nationally representative administrative claims data covering Medicare Fee-For-Service, managed Medicaid, Medicare Advantage, and commercial payers (**Figure 1**).

***Figure 1. Study design***




### Inclusion Criteria

- Receipt of any CAR T product between 1/1/2024 and 1/31/2025
- CAR T administered at a site newly authorized on or after 1/1/2024 (8 total sites), without Foundation for the Accreditation of Cellular Therapy (FACT) accreditation during the analysis period
- Age ≥18 at time of CAR T
- Continuous enrollment with medical benefits for ≥28 days post-CAR T infusion

### Clinical outcomes[1]

- Length of hospital stay (LOS) and subsequent inpatient admissions
- Intensive care unit (ICU) utilization
- Emergency room (ER) visits
- Cytokine release syndrome (CRS)
- Immune effector cell-associated neurotoxicity syndrome (ICANS)
- All-cause medical costs
- Death[2]

[1]All outcomes measured from index date (CAR T infusion) through a fixed 28-day follow-up period.
[2]Death during follow-up could only be evaluated among Medicare Fee-For Service patients.

## RESULTS

### *Patient characteristics (Table 1)*

- 38 patients were included, with a mean (SD) age of 66.1 (14.0); over half (58%) were Male, 85% with known race/ethnicity were White, and 76% were insured by Medicare Fee-For-Service
- More than half (55%) had large B-cell lymphoma as their primary CAR T indication

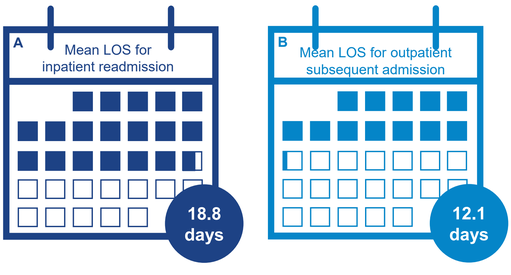
***Table 1. Characteristics of included CAR T patients (N=38)***

| Characteristic | N or Mean | % or SD |
|---|---|---|
| **Age (mean, SD)** | 66.1 | 14.0 |
| **Sex (n, %)** | | |
| Male | 22 | 57.9% |
| Female | 16 | 42.1% |
| **Race/Ethnicity (n, %)** | | |
| Known Race/Ethnicity | 34 | 89.5% |
| White | 29 | 85.3% |
| Other | <11* | n/a |
| **Payer (n, %)** | | |
| Medicare FFS | 29 | 76.3% |
| Commercial | <11* | n/a |
| Medicaid | <11* | n/a |
| Medicare Advantage | 0 | 0.0% |
| **Primary diagnosis (n, %)** | | |
| LBCL | 21 | 55.3% |
| MM | 11 | 28.9% |
| Other | <11* | n/a |
| **# of comorbidities from NCI-CI (mean, SD)** | 1.32 | 1.47 |
| **Site of CAR T administration (n, %)** | | |
| Inpatient | 20 | 52.6% |
| Outpatient | 18 | 47.4% |

LBCL, large B-cell lymphoma; FFS, Fee-for-Service; MM, multiple myeloma; NCI-CI, National Cancer Institute Comorbidity Index; SD, standard deviation.
*Patient counts <11 are suppressed to protect patient privacy.

- Of the 53% of patients who received CAR T in the inpatient setting, mean (SD) LOS for the CAR T stay was 19.1 (9.2) days
- Less than 30% (<11 patients ) who received CAR T inpatient were readmitted; among those who were, mean (SD) LOS for the readmission was 18.8 (6.4) days (**Figure 3A**)
- Less than 45% (<11 patients) who received CAR T outpatient were subsequently admitted; among those who were, mean (SD) LOS for the subsequent admission was 12.1 (6.6) days (**Figure 3B**)

***Figure 3. Mean LOS for (A) original inpatients who were readmitted and (B) original outpatients with a subsequent admission***




### *Clinical outcomes*

- 40% of CAR T patients were admitted to the ICU during or post-CAR T
- Less than 20% (<11 patients) had an ER visit post-CAR T
- 68% of patients had observed CRS, of which <15% (<11 patients) had grade 3-5 (**Figure 2**)
- 47% of patients had observed ICANS, of which <60% (<11 patients) had grade 3-5 (**Figure 2**)
- No patients died during follow-up

***Figure 2. CRS and ICANS during and 28 days post-CAR T***



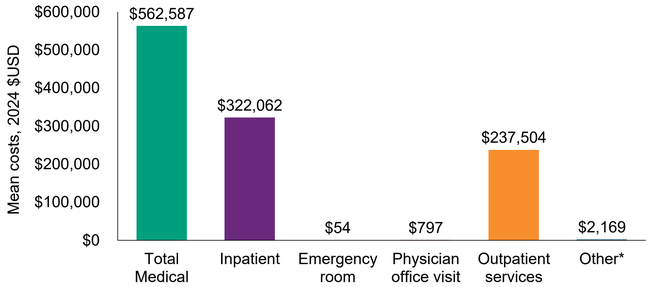
**68%** of patients had observed CRS of any grade

**47%** of patients had observed ICANS of any grade

### *Healthcare costs*

- Mean (SD) all-cause medical costs per patient, for CAR T and the 28 days following, were $562,587 ($167,471) (**Figure 4**)
- Inpatient costs comprised 57% of the total costs, followed by outpatient services (42%)

***Figure 4. All-cause mean medical[1] costs per patient, inclusive of CAR T and 28 days post-infusion***




[1]Pharmacy costs (i.e., Medicare Part D) were not available for the included patients at the time of the analysis and thus are not included in the costs.
*Other costs comprise durable medical equipment and post-acute care (e.g., skilled nursing facility, home health)

### *Limitations*

- Limitations of this study include those inherent to administrative claims data (e.g., potentially incomplete diagnosis information). Pharmacy claims data (Medicare Part D) were also unavailable for included patients at the time of this analysis and thus could not be reported in the cost outcomes. Additionally, >75% of patients in this study were insured by Medicare FFS, thereby limiting generalizability of results to the non-Medicare population.
- These early findings should be interpreted with caution given the small sample size (N=38), mix of CAR T indications represented in the analysis, limited follow-up, and variations in treatment management practices and care models for CAR T administration in these new ATCs.

## CONCLUSIONS

- This analysis provides initial insight into the clinical and economic outcomes of patients treated with CAR T in inpatient and outpatient settings at newly established ATCs without FACT accreditation during the analysis period.
- We found that CAR T administration was feasible in both inpatient and outpatient settings at these new sites, with clinical and economic outcomes consistent with those observed in large academic and urban-located treatment centers.[5,6]

### *References*

**1.** Ahmed N, et al. *Transplant Cell Ther.* 2024; 30(7): 714-725. **2.** Snyder S, et al. *Adv Ther.* 2021; 38(9): 4659-4674. **3.** Wu J, et al. *Adv Ther.* 2024; 41(8): 3232-3246. **4.** Oluwole O, et al. Transplant Cell Ther. 2024; 30(2): 131-142. **5.** Bansal R, et al. P1191. European Hematology Association Annual Congress; June 13-16, 2024; Madrid, Spain. **6.** Riedell PA, et al. *Transplant Cell Ther.* 2022; 28(10): 669-676.

### *Disclosures*

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**OO:** Consulting/advisory roles with Pfizer, Kite, Gilead, AbbVie, Janssen, TGR Therapeutics, ADC, Novartis, Epizyme, Curio Science, Nektar, Cargo, Caribou, Autolus, Bioheng, Allogene, and BMS; honoraria from Gilead and ADC; research funding from Gilead. **HH, GB, CL, MR:** Employment and stockholder of – Kite, a Gilead company. **KK, KB, CT, KS:** Consulting or advisory role – Inovalon. **GM:** Consulting or advisory role – Aesara.

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