

COM26-96726 : Impact of CAR-T cell preparation procedures on the hospital pharmacist workload : A three-year retrospective comparative study between axicabtagene ciloleucel and lisocabtagene maraleucel

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Two anti-CD19 CAR-T cell products are approved for diffuse large B-cell lymphoma but with different preparation procedures

INTRODUCTION

AXI-CEL

- Bag
- Thawing only

LISO-CEL

- 2 vials (CD4+/CD8+)
- Thawing + Syringe-filling step

Better safety profile
**BUT greater use of pharmacy
resources**

Study objective

To assess the impact of these differences on pharmacist workload by measuring compounding time

MATERIALS & METHODS

- ❖ A retrospective observational study conducted among patients who received either axi-cel or liso-cel between 2023 and 2025.
- ❖ Compounding times and durations extracted from batch records

- ❖ **Primary endpoint:** Total pharmaceutical time required for preparation and traceability steps on Day 0, the day of infusion.
- ❖ Comparison of mean durations using statistical tests ($\alpha = 0,05$).

RESULTS

96 preparations were analysed : 58 axi-cel and 38 liso-cel

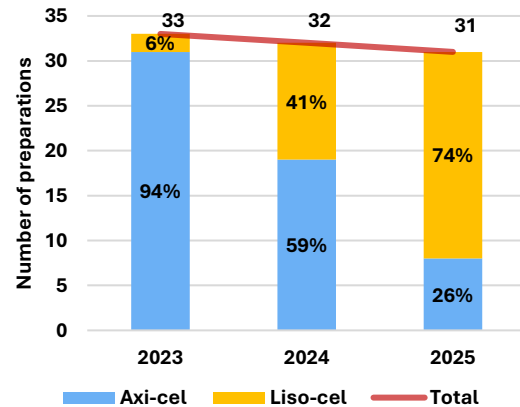


Figure 1. Evolution of activity between 2023 and 2025

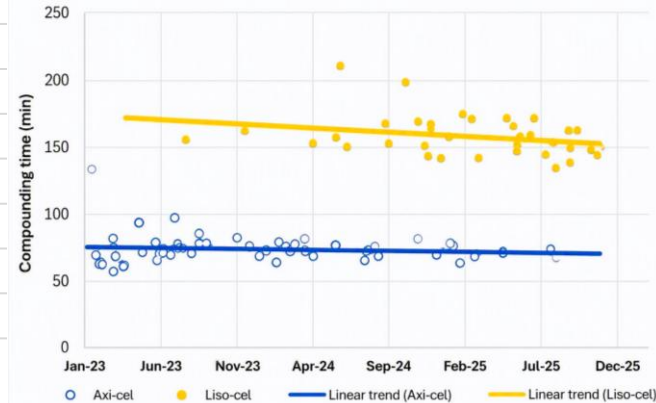


Figure 2. Three-Year Trends in Compounding Time by CAR-T Cell Product

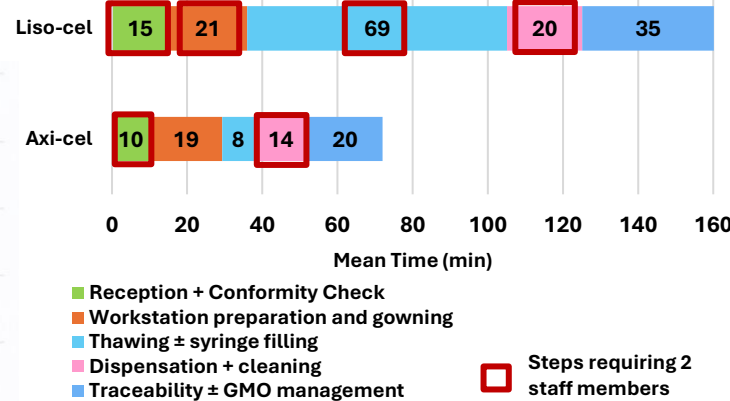


Figure 3. Distribution of pharmaceutical time by CAR-T cell product

→ 69% of the time difference related to thawing and syringe filling step

Year	Axi-cel, mean ± SD (min)	Liso-cel, mean ± SD (min)	Interpretation
2023	73,4 ± 14,3	161,0 ± 5,7	No significant difference between 2023 and 2025 for axi-cel (p=0,51) or liso-cel (p=0,31)
2024	71,3 ± 4,7	165,2 ± 20,3	
2025	68,5 ± 4,9	157,0 ± 11,6	
Overall 3-year period	72,0 ± 11,0	160,0 ± 15,2	p < 0,001

Table 1. Compounding and traceability time by CAR-T cell product and year

→ Mean difference: +88 min with liso-cel, corresponding to a 122% increase versus axi-cel.

DISCUSSION - CONCLUSION

- **The compounding time of liso-cel was more than twice that of axi-cel.** Over the three-year period, liso-cel became the predominant CAR-T cell product prepared at our center, thereby increasing the overall time devoted to CAR-T cell preparation. This workload is further increased by the fact that the compounding process requires two pharmacy staff members (not accounted for in the present results).
- The stability of compounding times indicates that experience has not led to process optimization. Only one pharmacist is currently dedicated to Advanced Therapy Medicinal Products (ATMPs) compounding, while **high turnover** among staff members acting as the second operator limited the development of sustained expertise in the preparation process.
- This study covers only a subset of ATMPs prepared at our center and excludes ancillary activities such as quality assurance, supply chain management, and implementation of new ATMP workflows. These findings highlight the need to **reassess human resource allocation** in response to the higher workload and increasing use of liso-cel. **Specific indicators of pharmacy workload** would also be necessary to better reflect this activity.