2301P Comprehensive characterization of evolving immune checkpoint inhibitor (ICI) indications and outcomes

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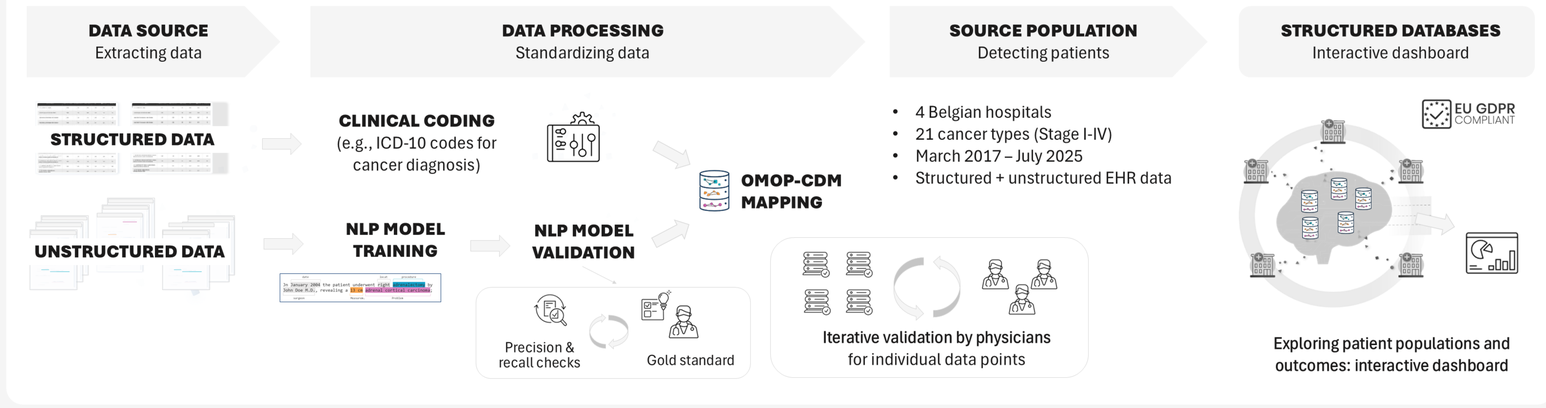
BACKGROUND & AIMS

- **Immune checkpoint inhibitors (ICI)** form a backbone of curative and non-curative treatment across cancer types.
- We lack **real-world data on their use and outcomes across cancer types and settings (early or st IV)** to guide evidence-based policymaking and clinical biomarker research.
- The **Observational Medical Outcomes Partnership Common Data Model** (OMOP CDM) is designed for analysis of cross-domain observational health data.
- This information can easily be explored through an **interactive dashboard**.

METHODS

- **Longitudinal routinely collected data** from 4 Belgian hospitals (2 academic, 2 community).
- Processed anonymized **electronic health records** (EHR) using **natural language processing** (NLP) and machine learning.
- We developed a **rule-based stage classifier**:
  - Used UICC TNM
  - Priority of **pTNM over cTNM**
- Cancer considered **metastatic** if stage IV or metastasis detected before ICI start
- **Non-metastatic** if stage I-III within 6mo before and no metastasis ≤ 2mo after.



RESULTS

Figure 1. Demographics tab

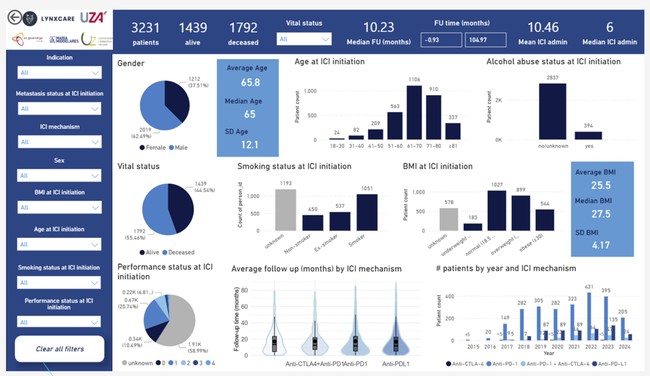


Figure 3. Focus on melanoma

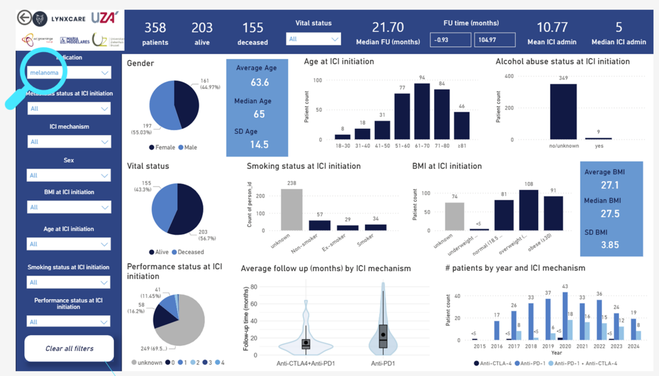
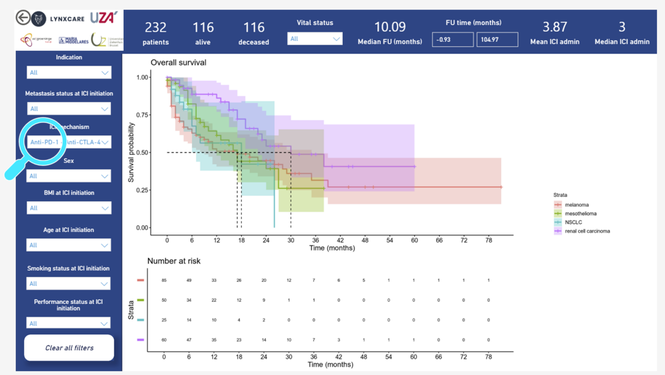
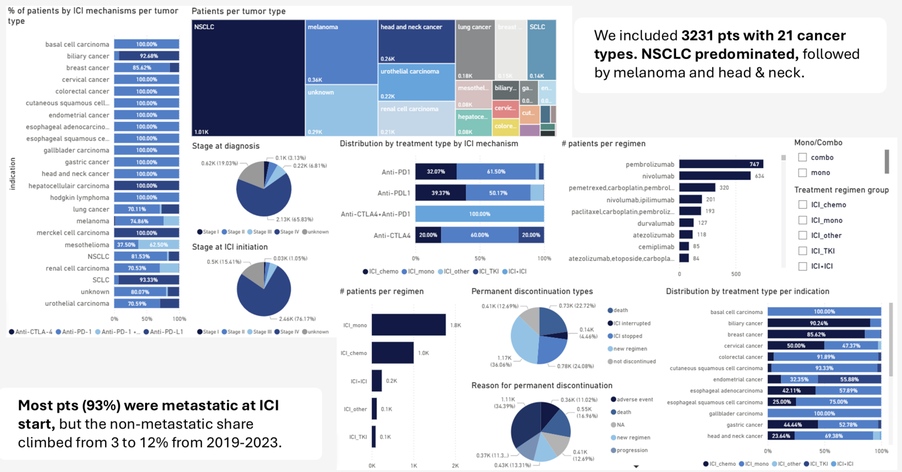


Figure 4. Focus on ipilimumab + nivolumab



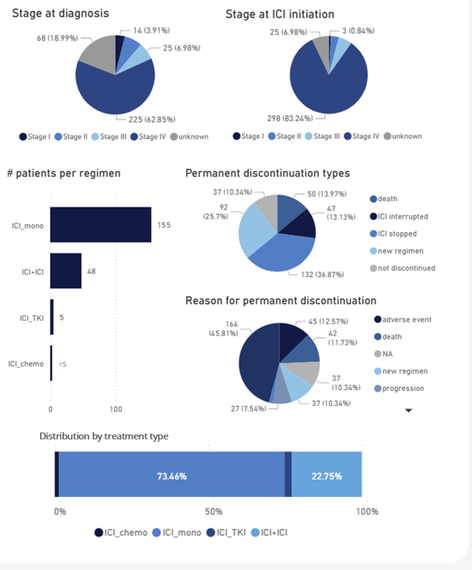
Filters allow users to focus on populations of interest according to indication, metastasis status, ICI mechanism, sex, BMI, age, smoking status, and performance status at ICI initiation.

Figure 2. Tumor characteristics and treatment details tabs



We included **3231 pts with 21 cancer types. NSCLC predominated,** followed by melanoma & head & neck.

Most pts (93%) were metastatic at ICI start, but the non-metastatic share climbed from 3 to 12% from 2019-2023.



Ipi-nivo was given in 7%, with OS in comparison to registration trials respectively:
- mOS 17mo in mesothelioma (n=50, 18mo in Checkmate743)
- 1-yr OS 87% in RCC (n=60, 74% in Checkmate214),
- mOS 17mo in melanoma (n=85, 72mo in Checkmate067 but our population not restricted to 1st line).

CONCLUSIONS

- We provide a unique **granular characterization of evolving real-world ICI usage and outcomes**.
- At 45% of pts, **lung cancer was the predominant ICI indication** between 2017-2024.
- Use of ICI in non-metastatic pts is sharply increasing, warranting attention for potential long-term toxicities.
- Results will be presented in **dashboard format** allowing the reader to define and explore subgroups.
- We developed a **classifier to calculate tumor stage based on fragmented TNM values,** Code will be made open access.
- Characterization of comorbidities, adverse events, and therapy regimens is ongoing.

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Disclosures: A.V. declares speaker fees (Novartis, Ipsen) and advisory board and congress fees (Ipsen), all paid directly to UZA. Spouse works freelance at LynxCare Health Informatics (IT development, no customer contact).