**Background**

- In randomized clinical trials (RCTs) for oncology, individuals assigned female at birth have historically been underrepresented.  
- However, the significance of this variance and extent to which it impacts the representativeness of cancer research data sets have not been established.  

**Objective**

- To assess female sex representation across corresponding RWE, RCT, and SEER cohorts from a parallel time period.

**Methods**

- From RWE studies assessing first-line (1L) cancer treatment, we selected tumor types on which recent RCTs had also been conducted in the 1L setting and built SEER patient cohorts around their eligibility criteria.

**Table 1. Selected studies**

<table>
<thead>
<tr>
<th>Tumor Type</th>
<th>RWE Study</th>
<th>Corresponding RCT Study(ies)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced Non-small Cell Lung Cancer</strong></td>
<td>Real-World Observational Study of Current Treatment Patterns and Outcomes in Recurrent or Locally Advanced/Metastatic NSCLC</td>
<td>Keynote 407</td>
</tr>
<tr>
<td><strong>Advanced Hepaticoportal Carcinoma</strong></td>
<td>Comparative Effectiveness and Safety of Atezolizumab plus Bevacizumab in First-Line or Alternative Treatments for Advanced Hepatocellular Carcinoma</td>
<td>IMBrave 150</td>
</tr>
<tr>
<td><strong>Advanced Melanoma</strong></td>
<td>Treatment Patterns and Outcomes of Advanced Melanoma Patients</td>
<td>Checkmate O67</td>
</tr>
<tr>
<td><strong>Advanced Renal Cell Carcinoma</strong></td>
<td>Treatment Patterns and Outcomes of Advanced Renal Cell Carcinoma (aRCC) Patients</td>
<td>Checkmate 214, Keynote 426</td>
</tr>
</tbody>
</table>

**Results**

- Sex at birth was collected for 26,325 patients (RWE: n=2,120, 8.1%; RCT: n=3,962, 15.1%; SEER: n=20,238, 76.9%).
- Aggregated across the populations studied, female representation was 37.6% in RWE, 26.4% in RCT, and 29.6% in SEER studies (Figure 1).  
- Female representation was significantly higher in RWE than RCT (P<0.001) and in RWE than SEER studies (P<0.001) (Figure 1).  
- Within advanced renal cell carcinoma, female representation was significantly higher in RWE (36.4%) compared with RCT (26.6%, P<0.001) and SEER (29.2%, P=0.001) studies (Figure 2).  
- Female representation was also significantly higher in non-small cell lung cancer RWE studies (40.5%) than in RCTs (18.6%, P<0.001) and in advanced melanoma RWE studies (44.9%) than in RCTs (35.4%, P<0.001) (Figure 2).

**Conclusions**

- Participants assigned female at birth remain underrepresented in RCTs, which drive biases about the safety and efficacy of treatments, clinical decision-making, and payer reimbursement.  
- Despite limitations including different study periods and unique sex distributions associated with some cancer types, female representation was highest in RWE studies and lowest in RCTs.  
- Well-conducted RWE studies may fit gaps left by RCTs for improving representation and generalizability to female patients with cancer.

**Acknowledgment**

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**References**


**Abbreviations**

- 1L, First-line; RCT, randomized clinical trial; RWE, real-world evidence; SEER, Surveillance, Epidemiology, and End Results.