Association between hyperkalemia and cardiovascular outcomes in patients with stage 3b/4 chronic kidney disease:
REVOLUTIONIZE II study

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table1

<table>
<thead>
<tr>
<th>Year</th>
<th>Patients</th>
<th>Patients with CV outcome, % (95% CI)</th>
<th>Patients with MACE+, % (95% CI)</th>
<th>Patients with MACE+ and IP heart failure, % (95% CI)</th>
<th>Patients with MACE+ and IP arrhythmia, % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>3,702</td>
<td>(22.6, 24.8)</td>
<td>(3.4, 4.7)</td>
<td>(0.9, 3.3)</td>
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<td>Year 2</td>
<td>3,541</td>
<td>(21.7, 23.5)</td>
<td>(3.3, 4.6)</td>
<td>(0.9, 3.4)</td>
<td></td>
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<td>Year 3</td>
<td>3,443</td>
<td>(21.5, 23.2)</td>
<td>(3.4, 4.6)</td>
<td>(0.9, 3.4)</td>
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<td>Year 4</td>
<td>3,461</td>
<td>(21.7, 23.3)</td>
<td>(3.4, 4.7)</td>
<td>(0.9, 3.4)</td>
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</tr>
<tr>
<td>Year 5</td>
<td>3,443</td>
<td>(21.9, 23.4)</td>
<td>(3.3, 4.6)</td>
<td>(0.9, 3.4)</td>
<td></td>
</tr>
</tbody>
</table>


Figure 1. Hazard ratios of CV outcomes in patients with versus without HK.

CV outcome:
- Patients with HK: 1.32 (1.23–1.40)
- Patients without HK: 1.00 (1.00–1.00)

MACE+ (yes/no), and baseline IP cardiac arrhythmia (yes/no).

Study limitations and strengths
- Several study limitations include residual confounding from unobserved variables, and the inability to examine CV risk related mortality due to the absence of cause-specific mortality data.
- Study strengths include tight matching on observable covariates and the utilization of a large, adjudicated, closed, and integrated claim and EMR database.

Conclusions
- Among patients with HK, even a 15% increased risk for MACE, 32% increased risk for MACE+ and 66% increased risk for IP heart failure in the MACE+ subset, and 56% increased risk for IP arrhythmia versus matched patients without HK were observed [Figures 1 and 2].
- These results are consistent with the REVOLUTIONIZE II study that examined the long-term consequences of any HK that remained untreated with any OP potassium binder therapies.

Methods
- REVOLUTIONIZE II was a retrospective, observational, matched-cohort study that used medical and pharmacy claims data integrated with electronic health records (EHRs) from Optum Clinical and Market Café data between January 1, 2016 and August 31, 2022.
- Eligible patients aged ≥18 years were included in the cohort if they had ≥1 diagnosis code for hyperkalemia (35.6) and ≥1 diagnosis code for hyperkalemia (35.6) in their records during baseline period. The index date for the HK cohort was the first date of diagnosis of ≥35.6 code in the baseline period. The index date for the non-HK cohort was an index date among patients with ≥35.6 code in their records who had no diagnosis of ≥35.6 code in the baseline period.