A WEB-BASED CALCULATOR TO QUANTIFY THE IMPACT OF OPIOID AGONIST THERAPY ON DRUG-RELATED DEATHS: APPLICATIONS ACROSS GLOBAL SETTINGS

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Background
Opioid agonist therapy (OAT) reduces drug-related deaths (DRDs), but its effectiveness varies across settings because retention, coverage and mortality risk differ among opioid-dependent populations. Accessible tools that translate local data into estimates of potential public health impact are lacking.

Methods
We developed a web-based calculator, with feedback from people with lived experience, that estimates the impact of OAT on DRDs. It requires three inputs: retention (percentage retained on OAT at specified time points after initiation); coverage (percentage of opioid-dependent population receiving OAT); and mortality risk ratios across four periods (first four weeks in treatment, remaining time in treatment, first four weeks after leaving treatment, and remaining time out of treatment). The calculator estimates minimum treatment duration needed to reduce DRD risk, proportion of treatment episodes long enough to reduce DRD risk, average DRD risk reduction, and proportion of deaths averted. We applied the calculator using estimates from global systematic reviews, mostly based on studies from high-income countries (median retention: 261 days; coverage: 18.0%), and data from Scotland (retention: 131 days; coverage: 49.0%), New South Wales (Australia-NSW; retention: 124 days; coverage: 36.3%), and USA (retention: 56 days; coverage: 18.0%).

Results
Globally, treatment episodes must exceed 66 days (95% confidence interval [CI]:13-175) to reduce DRD risk, with 69.9% (95%CI:55.7-90.4%) of treatment episodes long enough to reduce risk. Accounting for treatment duration and period-specific risks, OAT reduced DRD risk by 55.0% (95%CI:39.1-67.0%) and averted 9.9% of DRDs (95%CI:7.0-12.1%). Impacts varied across settings, with larger effects where retention and coverage were higher (Figure 1): Australia-NSW averted 25.2% (95%CI:23.8-26.5%) deaths, Scotland 21.2% (95%CI:14.3-27.2%), and USA 6.3% (95%CI:0.9-10.2%).

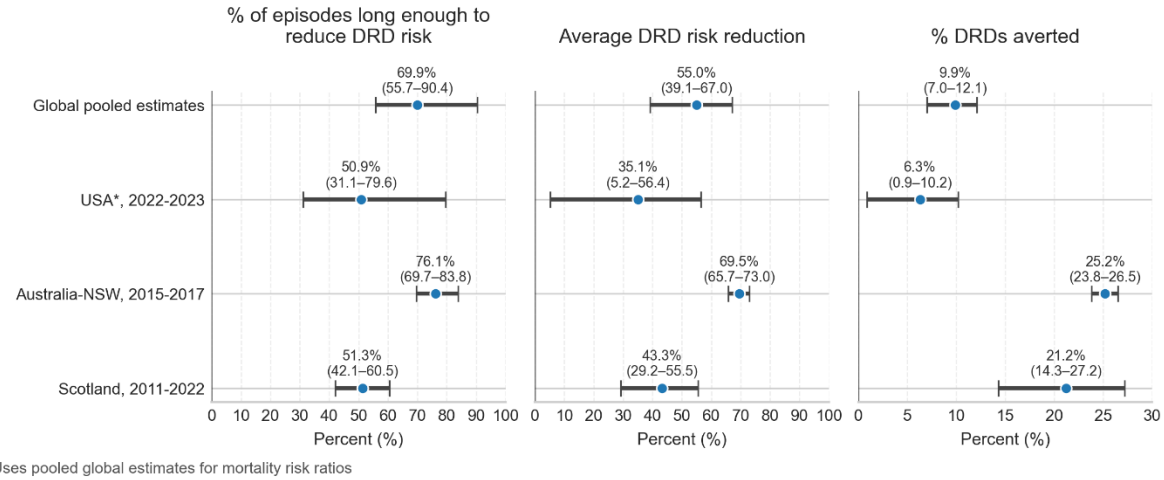

Figure 1. Impact of OAT on DRDs across different settings. Dot-and-whisker plots show medians (dots) with 95% confidence intervals (whiskers) for (i) the percentage of treatment episodes long enough to reduce DRD risk, (ii) average DRD risk reduction, and (iii) the percentage of DRDs averted. Data are shown for Scotland (2011–2022), Australia–NSW (2015–2017), USA (2022–2023), and global pooled estimates.

Conclusion

The calculator highlights substantial variation in OAT's population-level impact and provides a tool for people with lived experience, service providers and policymakers to quantify local OAT impact and explore how improving retention and coverage could further reduce mortality.

Disclosure of Interest Statement

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