

Distributional cost-effectiveness analysis: a promising tool?

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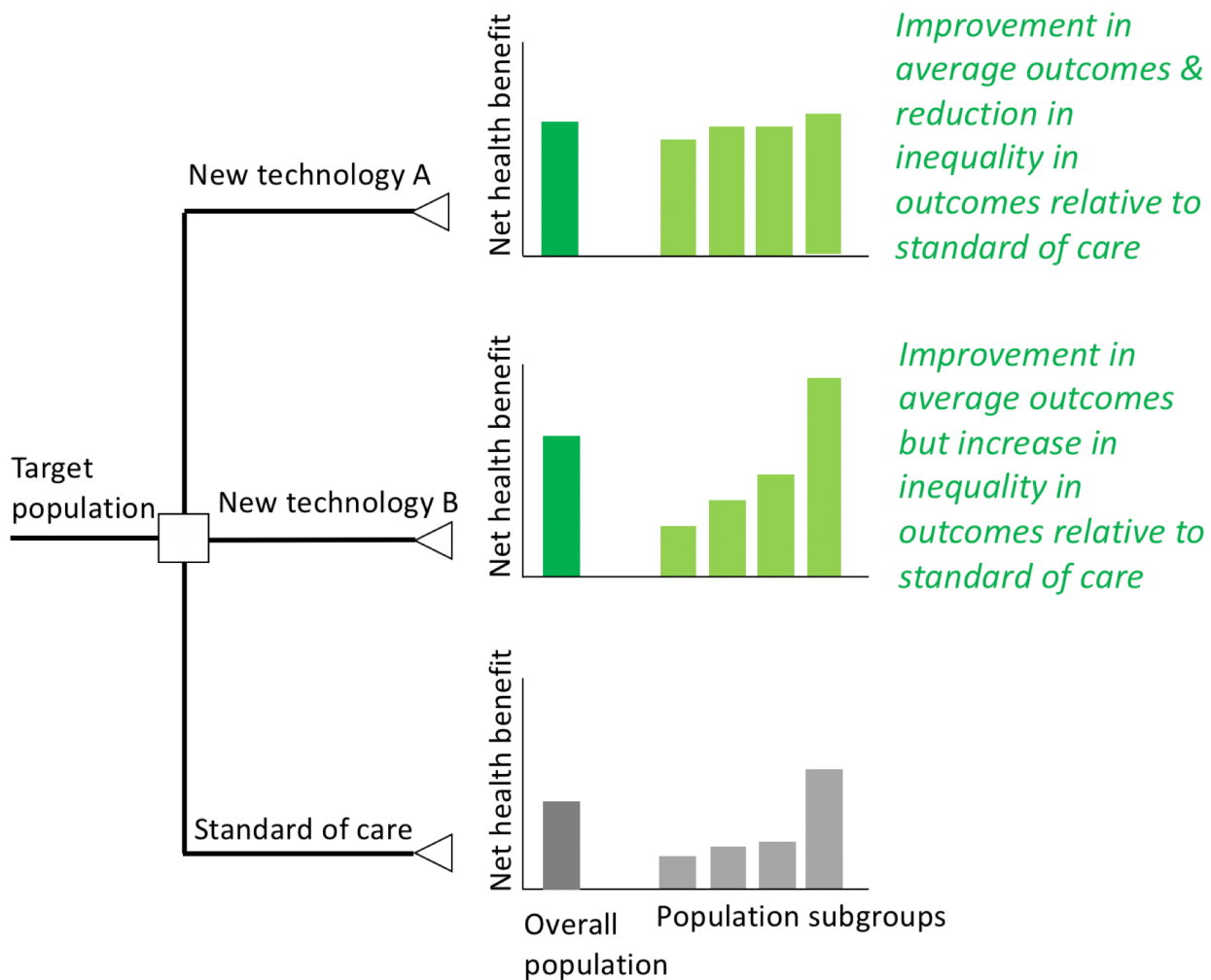
Quantify health equity impacts of genome sequencing

- Equity-relevant dimensions
 - Individual and non-individual factors such as race/ethnicity, socioeconomic status, geography, or a combination of factors
- Quantify the potential impact on disparities in health outcomes
- Equity-efficiency trade-off
- Quantify value factoring in equity concerns
- Identify important factors
- Identify key data gaps

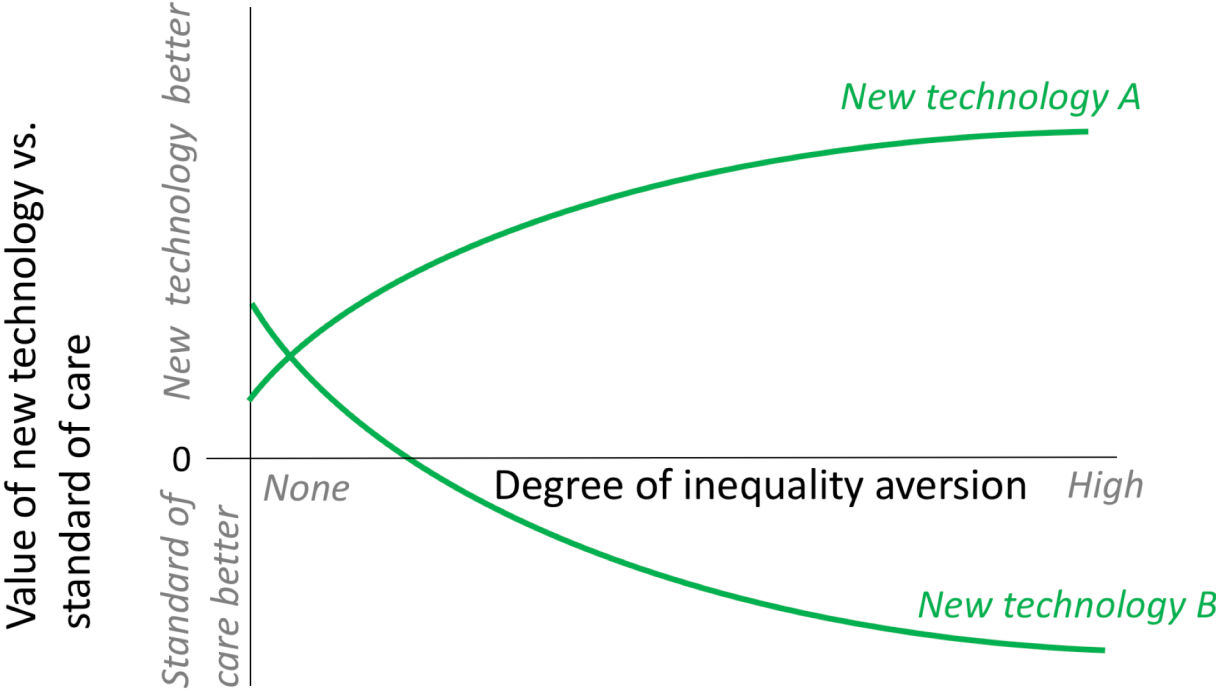
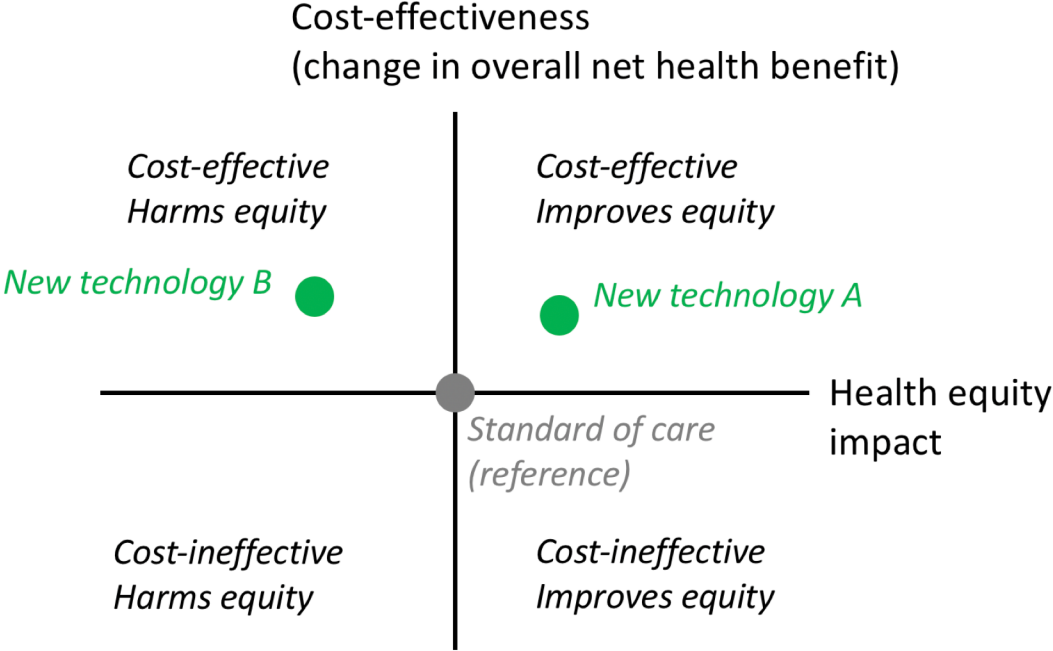
Evaluate potential strategies to address health equity concerns in genome sequencing

- Addressing gaps in the evidence base
- Reducing disparities in access and uptake to genomic services
- Expanding infrastructure
- ...

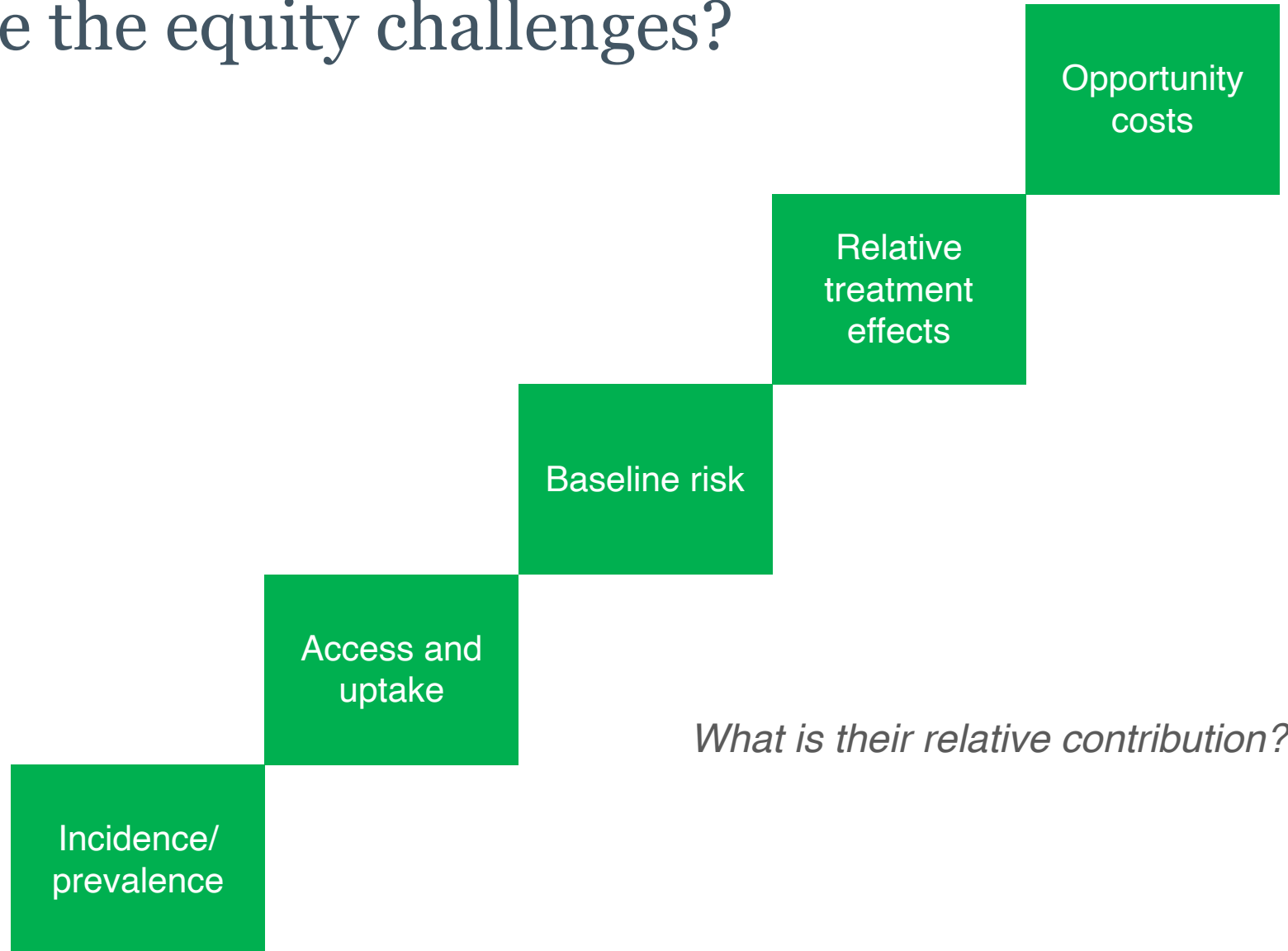
Compare distributions of health outcomes in terms of total health and inequality, taking opportunity costs into account



Equity-efficiency trade-off

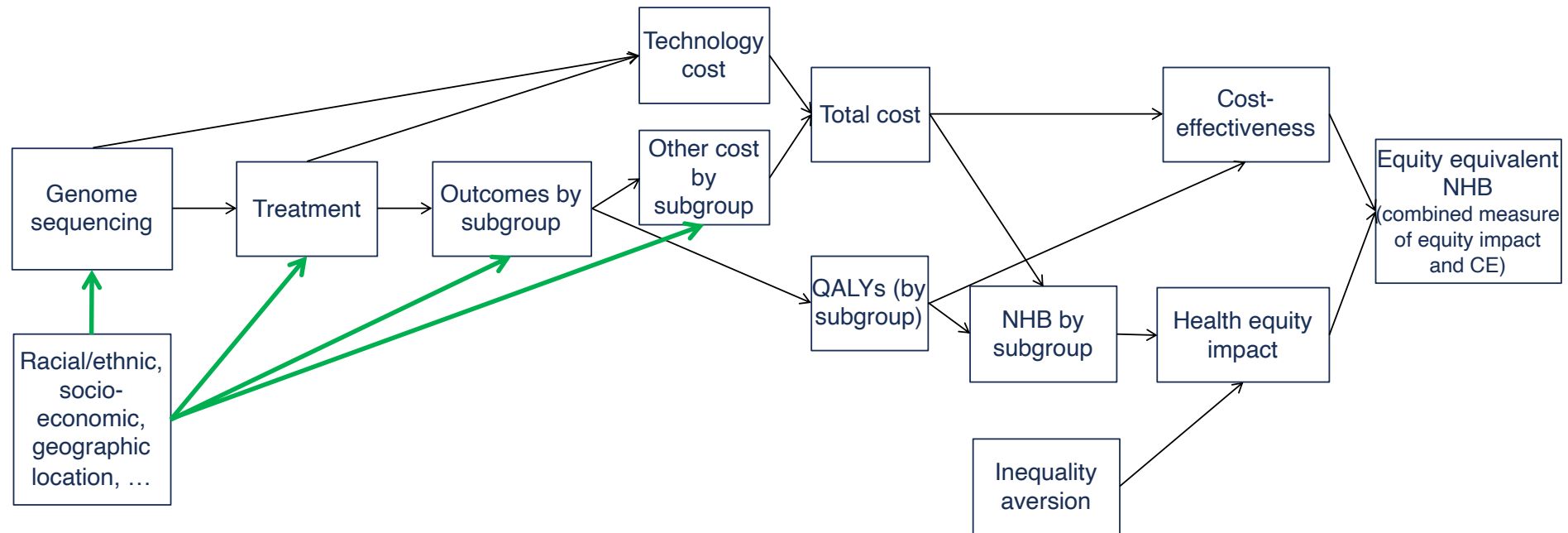


Where are the equity challenges?



Model-based approach

- Decision analysis based on mathematical modeling to make informed choices under uncertainty, organize and examine the impact of different factors, facilitate communication to stakeholders, and structure stakeholders' deliberations.

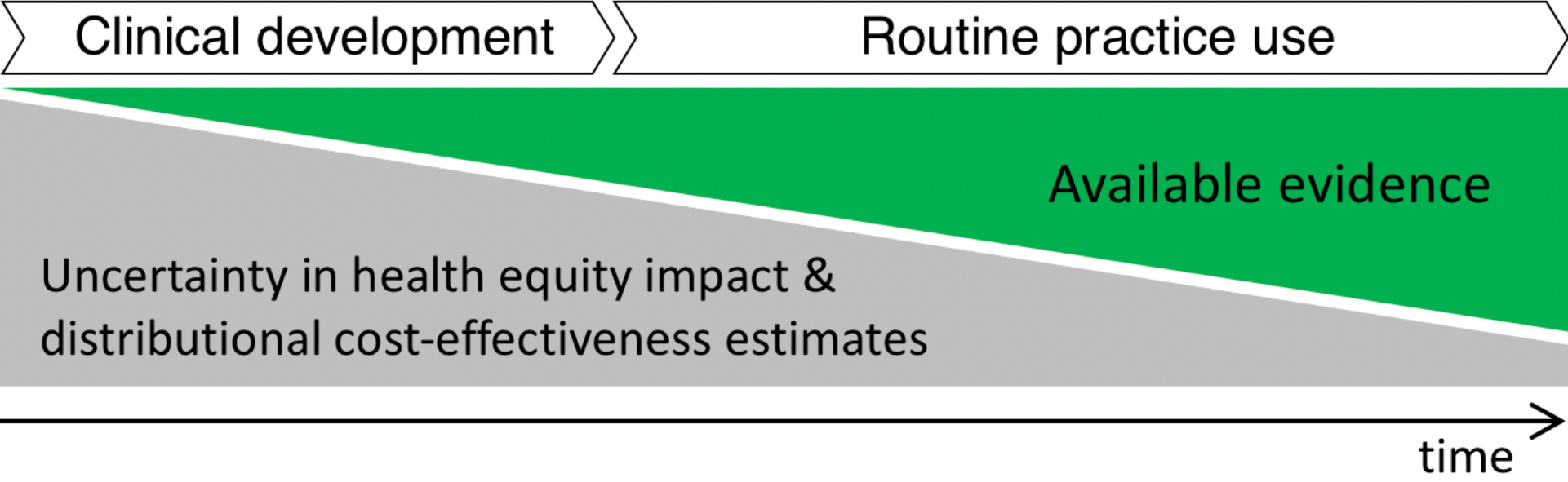


Evidence gaps

- Limited genomic information from diverse populations
- Uncertainty in clinical utility in diverse populations
- ...

- Methods to help overcome gaps
 - Advanced evidence synthesis methods
 - Transferability methods

- Value of information methods to inform research prioritization



Summary

- DCEA is an intuitively appealing extension of conventional CEA
 - Quantify health equity impact of genome sequencing
 - Identify relative contribution of different factors
 - Evaluate alternative strategies to mitigate equity concerns
 - Approaches to address evidence gaps
 - Reduce barriers to access and uptake
 - Infrastructure
 - ...
- Gaps in the evidence base do not preclude a DCEA
- Understanding uncertainties has implications for decision-making and future research

References

- Asaria M, Griffin S, Cookson R. Distributional cost-effectiveness analysis: a tutorial. *Medical Decision Making*. 2016;36(1):8-19.
- Cookson R, Mirelman AJ, Griffin S, Asaria M, Dawkins B, Norheim OF, Verguet S, Culyer AJ. Using cost-effectiveness analysis to address health equity concerns. *Value in Health*. 2017;20(2):206-12.
- Jansen JP, Trikalinos TA, Phillips KA. Assessments of the Value of New Interventions Should Include Health Equity Impact. *Pharmacoeconomics*. 2022 May;40(5):489-495.
- Jooma S, Hahn MJ, Hindorff LA, Bonham VL. Defining and Achieving Health Equity in Genomic Medicine. *Ethn Dis*. 2019 Feb 21;29(Suppl 1):173-178.
- Khoury MJ, Bowen S, Dotson WD, Drzymalla E, Green RF, Goldstein R, Kolor K, Liburd LC, Sperling LS, Bunnell R. Health equity in the implementation of genomics and precision medicine: A public health imperative. *Genet Med*. 2022 Aug;24(8):1630-1639.

Thank you

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