

## IGHG Recommendations for cardiac dysfunction risk equivalence ratios for anthracycline and anthraquinone agents after childhood cancer 2025

<b>Daunorubicin versus doxorubicin</b>
Evidence supports that the risk of CTRCD after childhood cancer treatment with daunorubicin is lower than with doxorubicin (moderate-quality evidence, strong recommendation).
It is reasonable to use a ratio of approximately 0.6 to calculate the daunorubicin-to-doxorubicin equivalent dose with respect to CTRCD risk (low-quality evidence, moderate recommendation). Estimates vary depending by cumulative dose.*
<b>Mitoxantrone versus doxorubicin</b>
Evidence supports that the risk of CTRCD after childhood cancer treatment with mitoxantrone is higher than with doxorubicin (moderate-quality evidence, strong recommendation).
It is reasonable to use a ratio of approximately 10.5 to calculate the mitoxantrone-to-doxorubicin equivalent dose with respect to CTRCD risk (low-quality evidence, moderate recommendation). Estimates vary depending on cumulative dose.†
<b>Epirubicin versus doxorubicin</b>
No recommendation can be made to use a ratio other than 1 when estimating CTRCD risk of epirubicin compared with doxorubicin (low-quality evidence).‡
<b>Idarubicin versus doxorubicin</b>
No recommendation can be made for an idarubicin-to-doxorubicin equivalence ratio with respect to CTRCD risk, as no eligible studies were identified.

Abbreviations: CTRCD, cancer therapy–related cardiac dysfunction.

\* 95% CI 0.4-1.0, range depending on dose category: <150mg/m<sup>2</sup> 0.8, 150-299mg/m<sup>2</sup> 0.6, ≥300mg/m<sup>2</sup> 0.5.

† 95% CI 6.2-19.1, range depending on dose category: <150mg/m<sup>2</sup> 11.2, 150-299mg/m<sup>2</sup> 4.0, ≥300mg/m<sup>2</sup> 16.8.

‡ 95% CI 0.5-2.8, range depending on dose category: <150mg/m<sup>2</sup> 1.3, 150-299mg/m<sup>2</sup> 0.6, ≥300mg/m<sup>2</sup> 0.5.

### Publication

Kouwenberg TW, van Dalen EC, Mulder RL, Armenian S, Feijen EAM, Chow EJ, Kosmidis H, Vormoor-Bürger BJ, Kiyotani C, Nathan PC, Kapusta L, Grotenhuis HB, Engels FK, Teske AJ, Tragiannidis A, Sliker MG, Ozono S, Nohria A, Sláma T, Skinner R, Hudson MM, Kremer LCM, Ehrhardt MJ, Mavinkurve-Groothuis AMC. IGHG Recommendations for Anthracycline and Anthraquinone Cardiac Dysfunction Equivalence Ratios After Childhood Cancer: JACC: CardioOncology Expert Panel. JACC CardioOncol. 2025 Jun 11:S2666-0873(25)00234-0.