

Cancer Therapy and Its Impact on the Heart

Cardiology 2023

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Disclosures

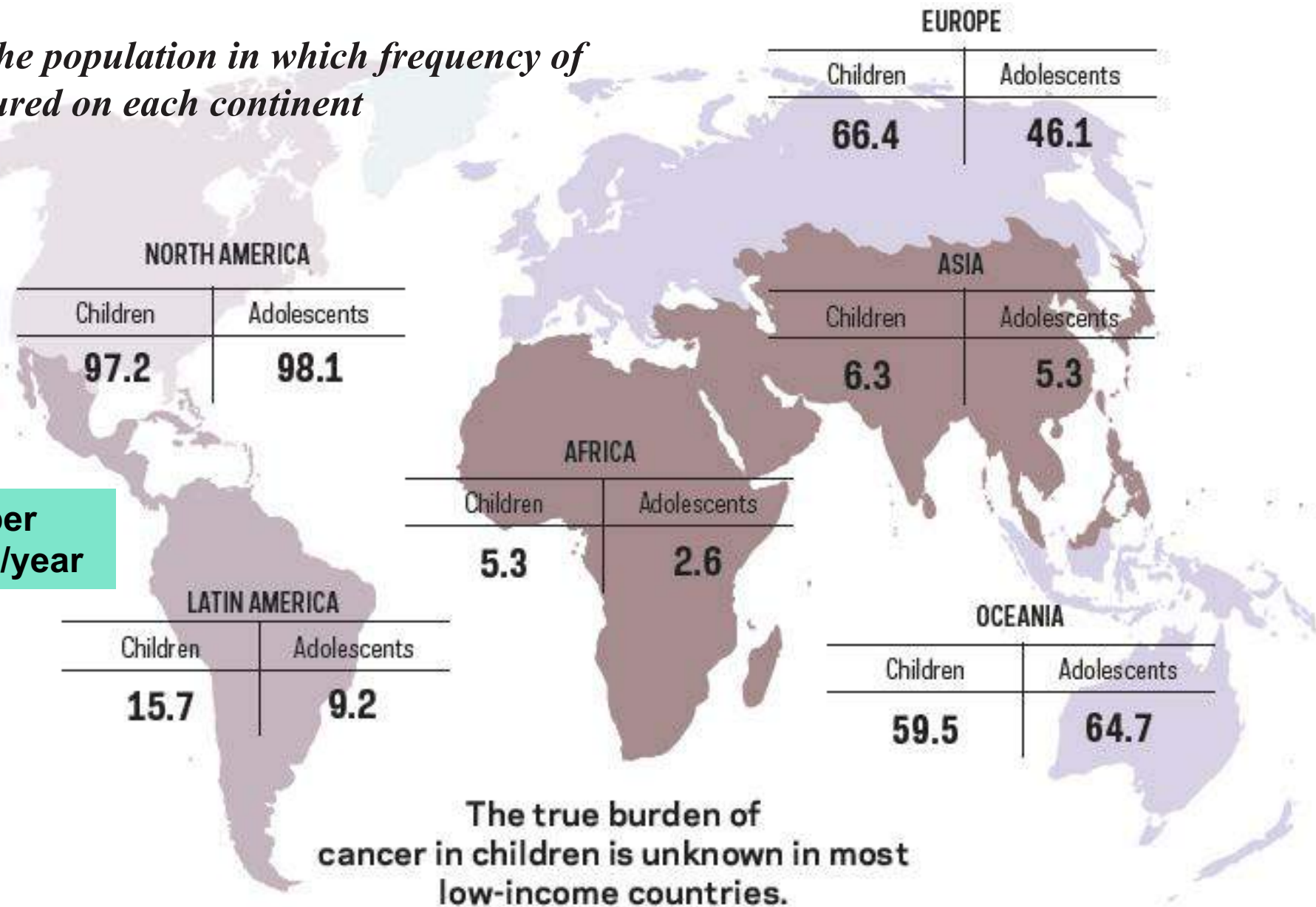
- None

Objectives

- Review incidence of childhood cancer and incidence of cardiotoxicity
- Discuss risk factors
- Review recent data on prevention and risk prediction

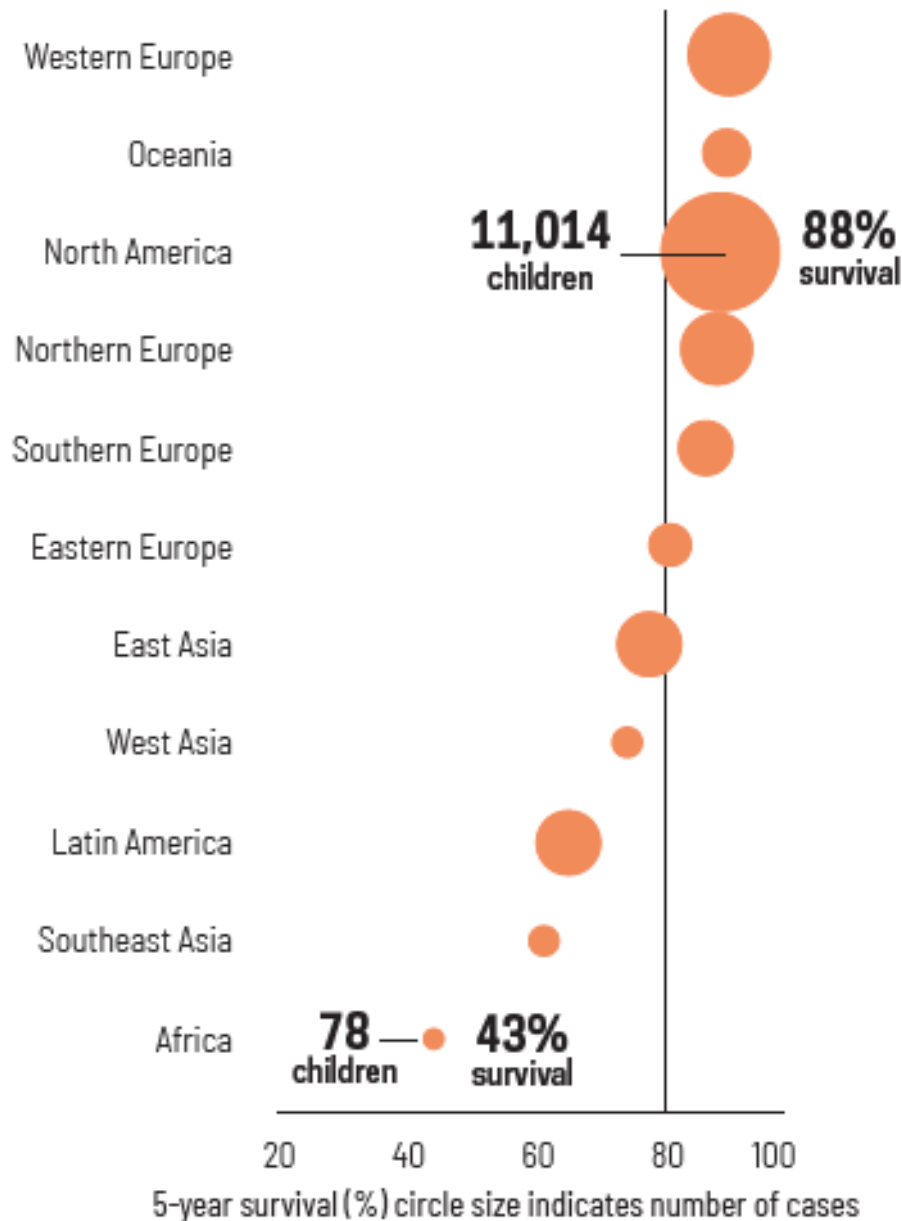
Percentage of the population in which frequency of cancer is measured on each continent

**~15 new cases per
100,000 children/year**



Primary Cancer	Anthracycline Dose (mg/m ²)*
ALL	75–225
AML	450
HL	250
ES	375
OS	450
NBL	300

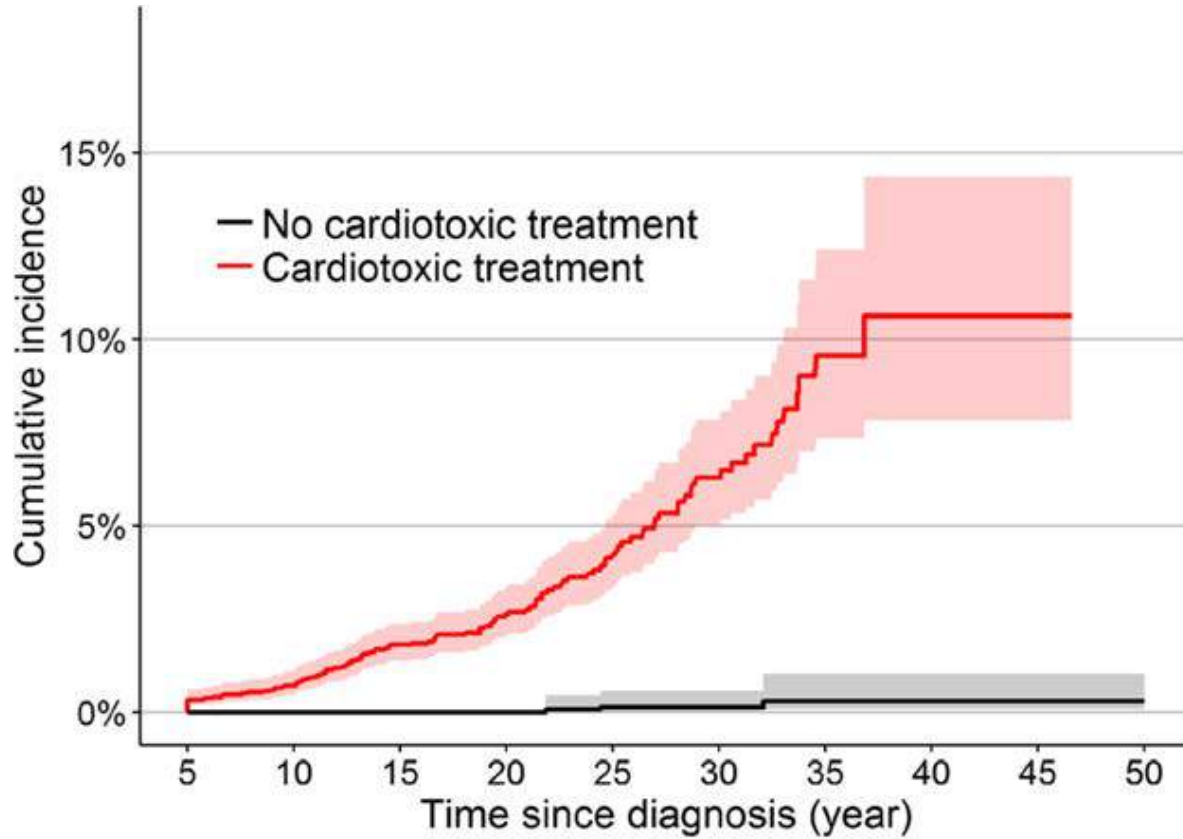
Doxorubicin $\geq 250\text{mg/m}^2$
at highest risk





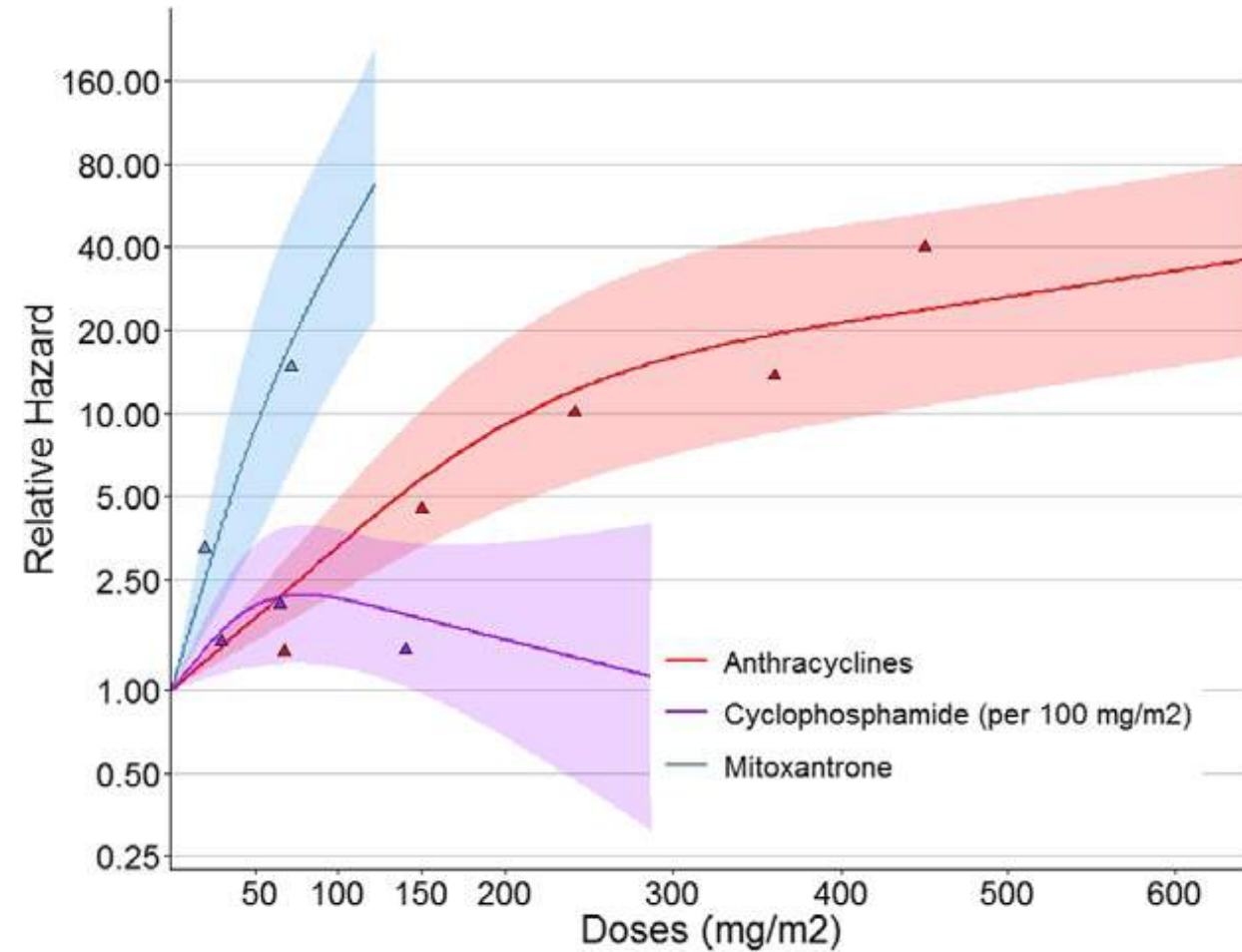
Cardiovascular Screening

- Echo
- Start no more than 2 years after completion of therapy then q 5 years
- Exercise recommended
- Cardiology consultation recommended prior to pregnancy and for survivors with asymptomatic cardiomyopathy

- Acute cardiotoxicity → 1st week
- Early onset progressive → within 1 year of treatment completion
- Late onset → >1 year after treatment completion



	2888	2672	1554	693	126	3
	2957	2692	1361	432	29	0

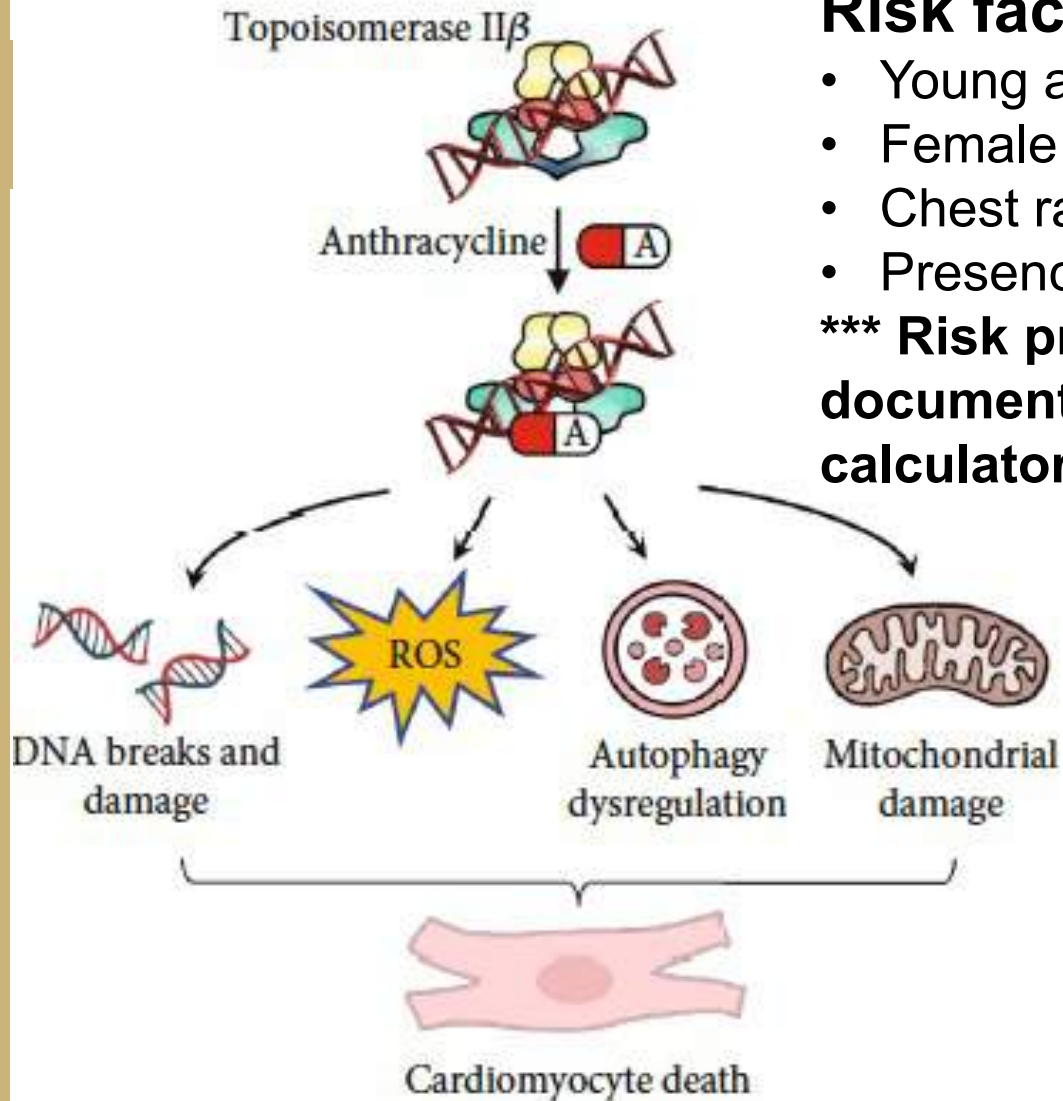


Risk factors for anthracycline associated cardiotoxicity

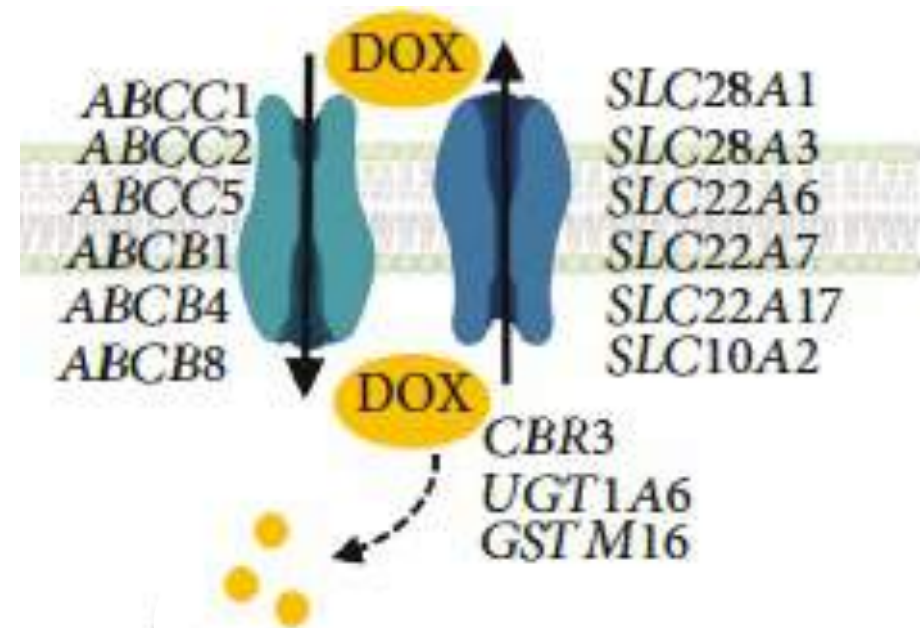
- Young age (<5 years) at time of diagnosis of primary cancer
- Female
- Chest radiation
- Presence of other CV risk factors

*** Risk prediction calculator: <https://ccss.stjude.org/tools-documents/calculators-other-tools/ccss-cardiovascular-risk-calculator.html>

Chow et al, *J Clin Oncol* 2015

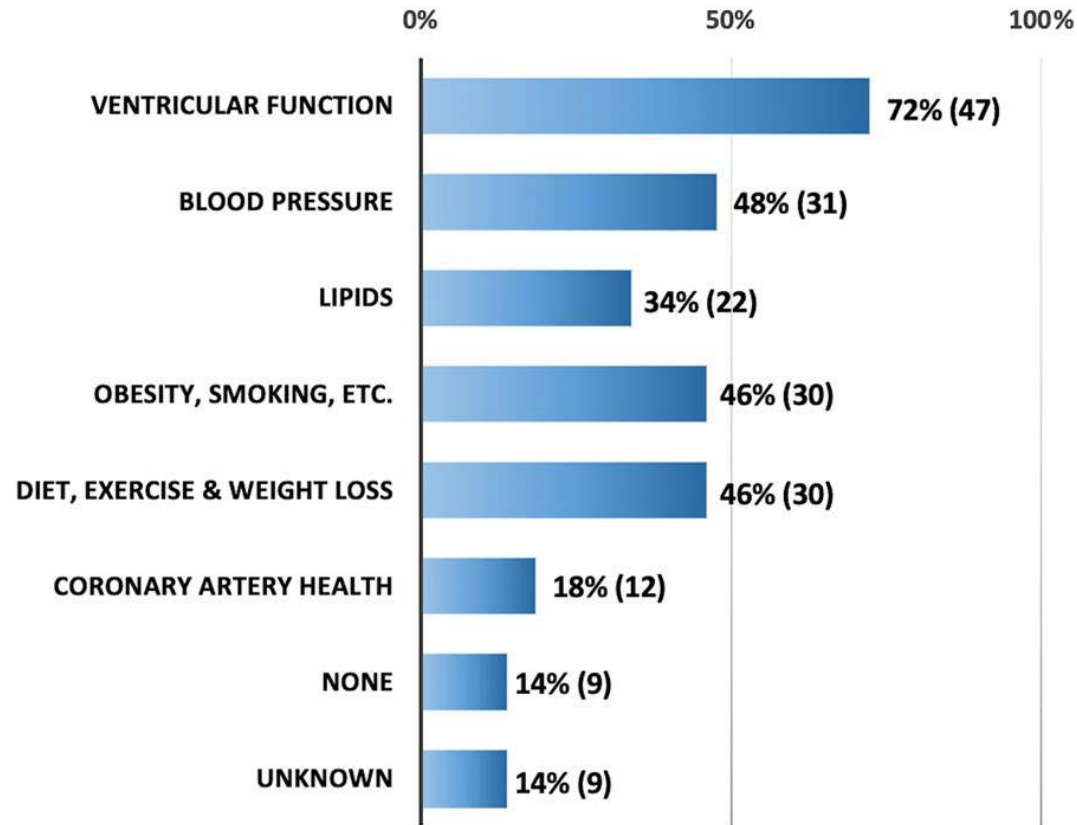


Ding et al, *Oxidative medicine and cellular longevity* 2022



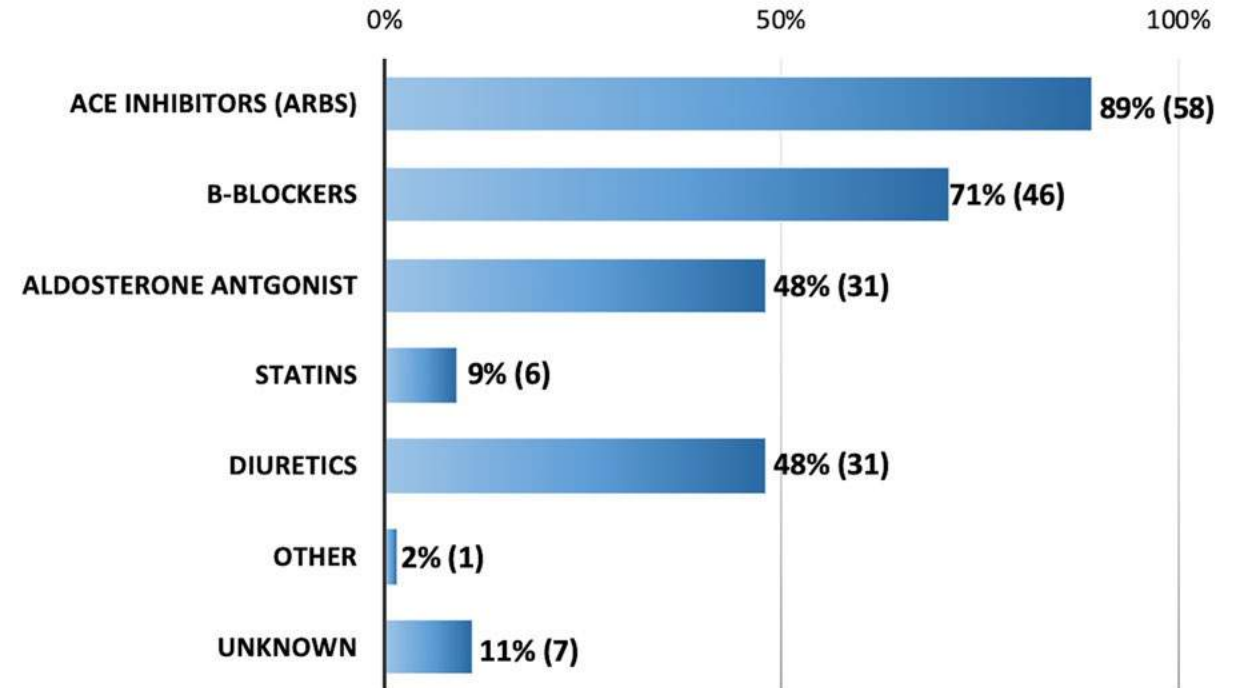
Issues Addressed by Cardiologists after Cancer Treatment

(Total Respondents: 65)



Medications prescribed for ventricular dysfunction before, during, or after cancer therapy

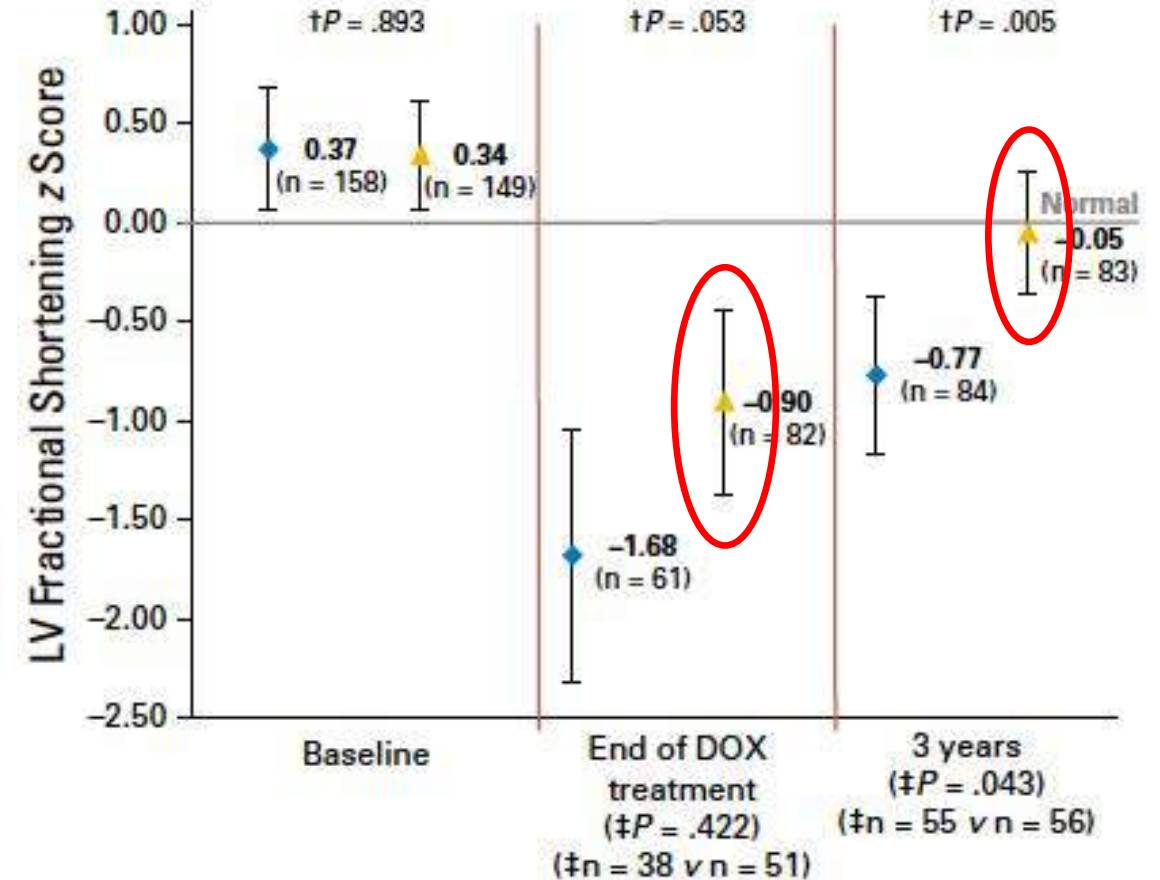
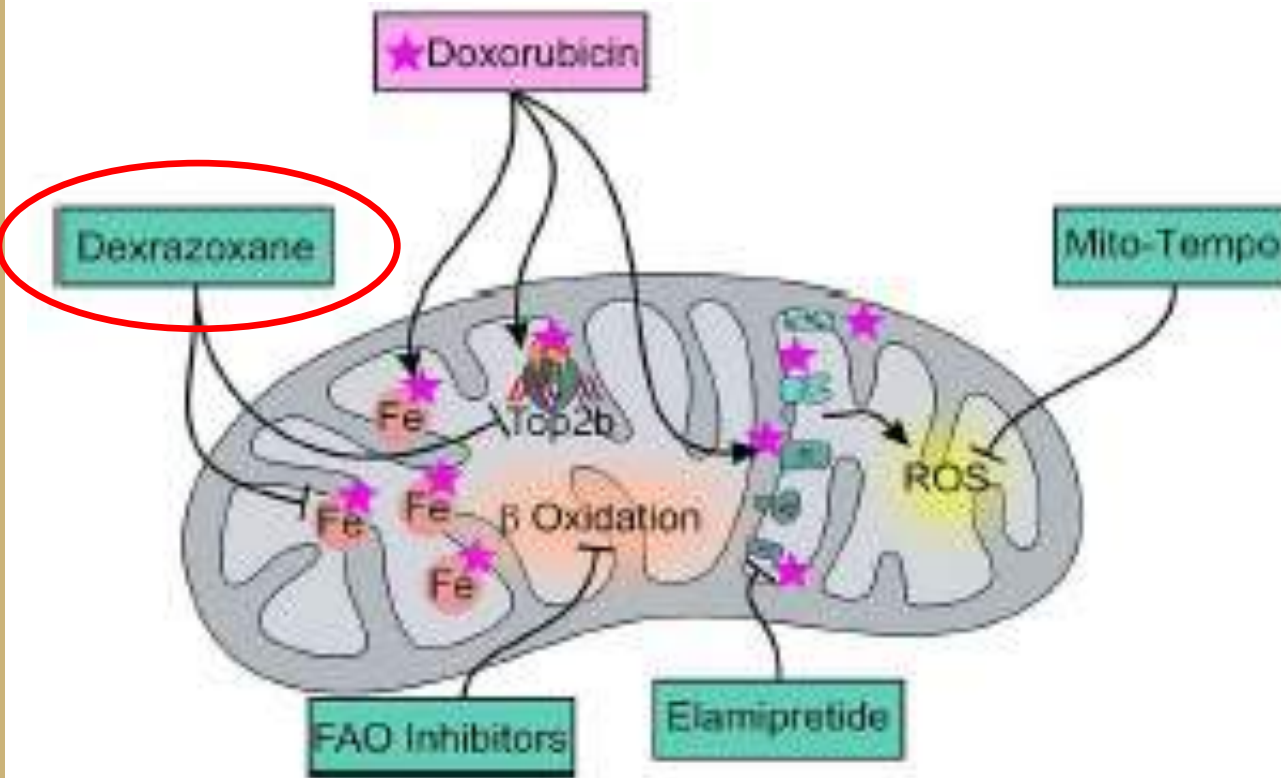
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Prevention

- Liposomal encapsulation
- Deliver over ≥ 1 hour



Conclusions

- Childhood cancer survivors are at significantly increased risk for late cardiovascular disease
- Cardiovascular screening essential for early detection
- Ongoing identification of modifiable risk factors and preventive measures are needed

Thank you!



