

The Conditional Power in Survival Time Analysis

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- 1 Clinical Trial
- 2 Conditional Power
- 3 Problem
- 4 Solution
- 5 Calculations
- 6 Example
- 7 Prospect and Alternatives

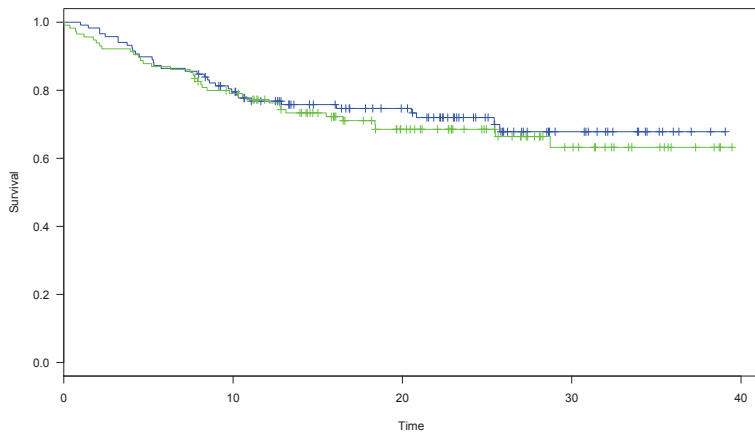
Clinical Trial: Generally

- 2 treatments
- randomised trial
- survival as endpoint
- superiority trial

- number of patients n
- significance level α ($= 0.05$)
- effect (clinically relevant) hazard ratio θ
- power $1 - \beta$ ($= 0.8$)

- interim analyses
- observed data
- observed effect smaller than expected effect
- conditional power

Clinical Trial: Kaplan-Meier Curves



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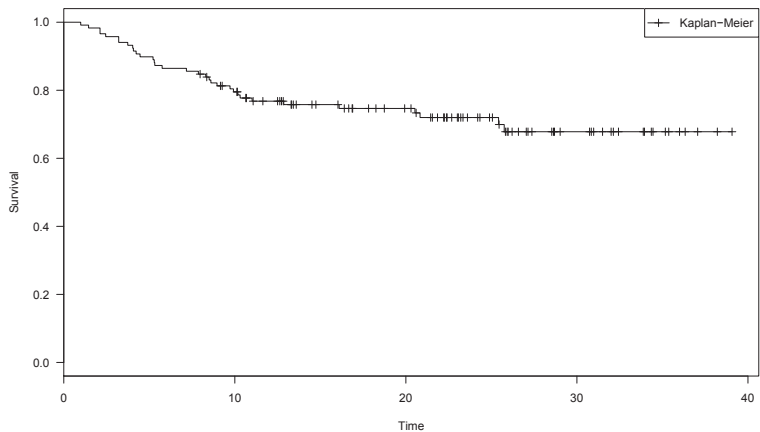
*Probability of achieving a **significant** result
at the **end** of study,
given the **data** from interim analysis.*

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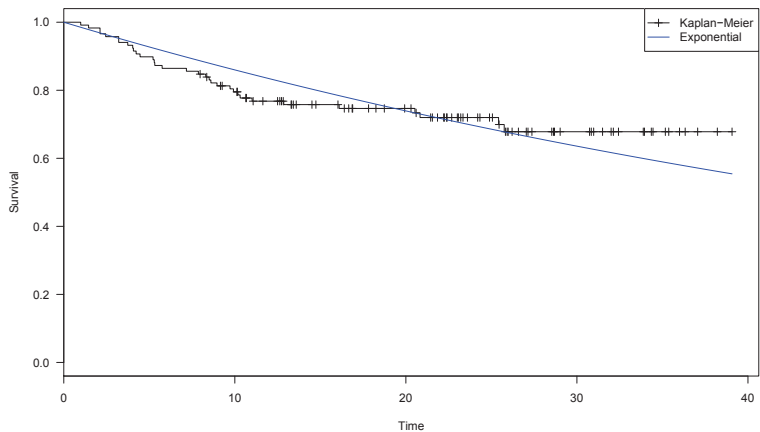
Problem: Occurance of Cure

- Kaplan-Meier curves
- survival fractions
- standard models do not fit

Problem: Survival Functions



Problem: Survival Functions



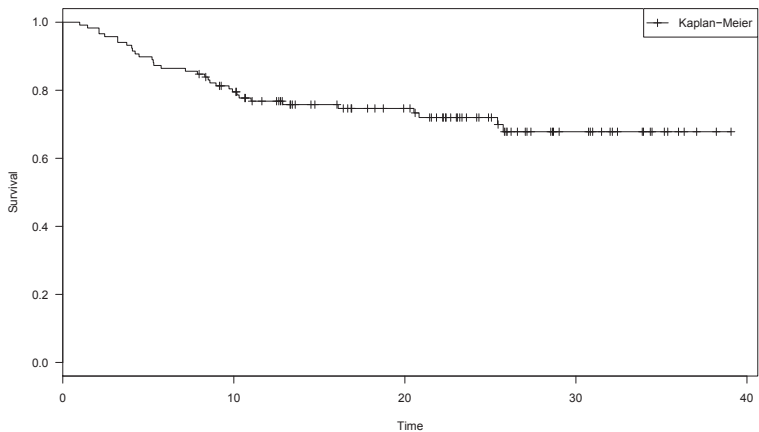
Overview

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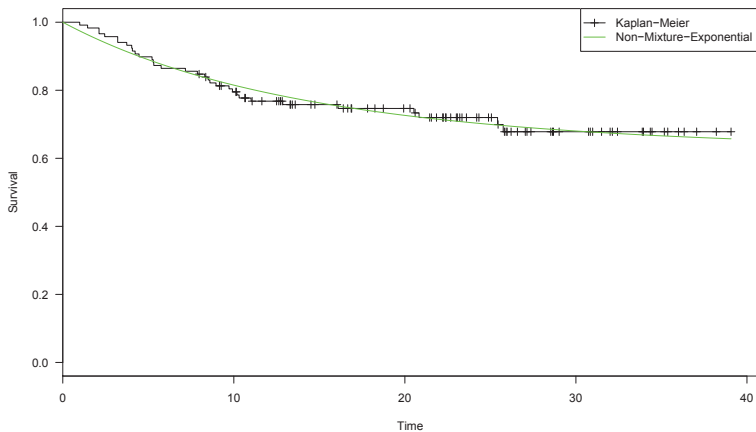
Solution: Allowing for Cure

- non-mixture models consider survival fractions
- proportional hazard assumption

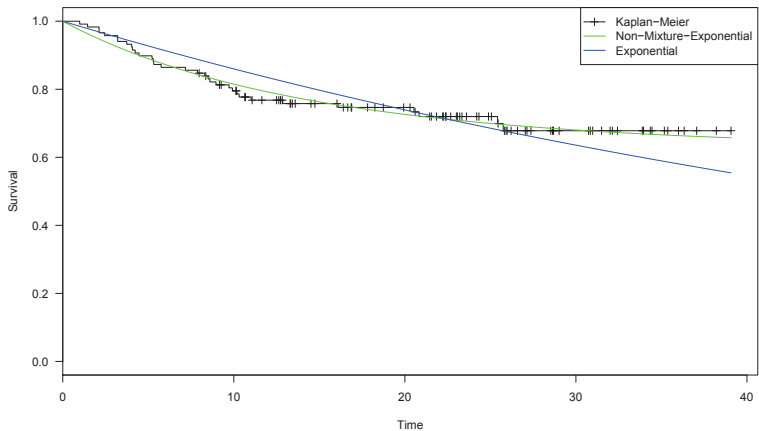
Solution: Survival Functions



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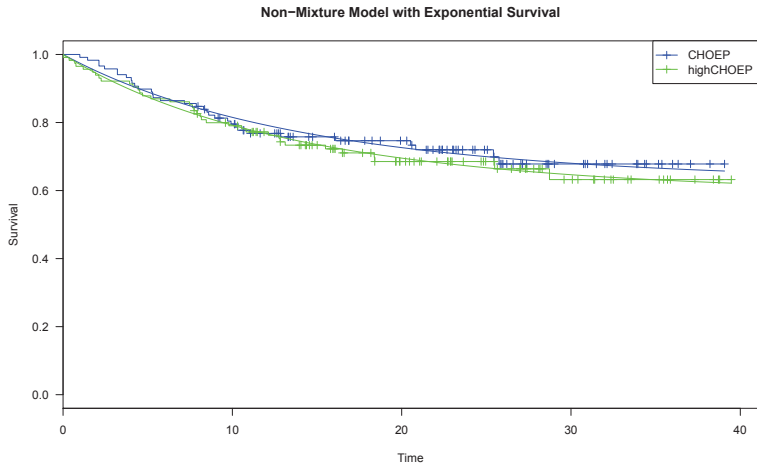
- based on non-mixture models
- exponential, Weibull type and Gamma type survival
- derivation of conditional power functions

Overview

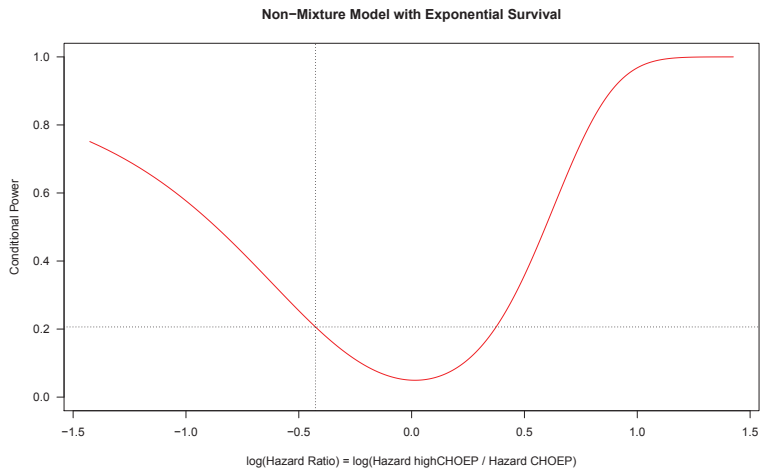
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*Is there any difference in view of the treatment effect
between standard dosage (CHOEP)
and some moderate increase in dosage (highCHOEP)?*

Example: Interim Analysis



Example: Conditional Power Function



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- non-inferiority trials
- Cox model
- Bayesian approach