Equivalence of test on Relative Risk and test on proportion

I found out the following:

1. incidence rates can be approximated by Poisson distributions (one in each arm)
2. The sum of two (one for each arm) Poisson distributions is Poisson and conditioning on this sum, the number events in one arm is binomially distributed: [Conditioning and a sum of Poisson random variables – Aleph Zero Categorical (jpolak.org)](https://blog.jpolak.org/?p=1924)
3. From this (see section 2.3 in the attached paper) the test on the RR can be cast as a test on the proportion of evens in one arm.
4. Using this equivalence to formulate a test on the RR as a test on a proportion, one can plan the total sample size and information fractions for interim analyses.

See below, the relevant section 2.3 from the paper

Sample size and power for prospective analysis of relative risk

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