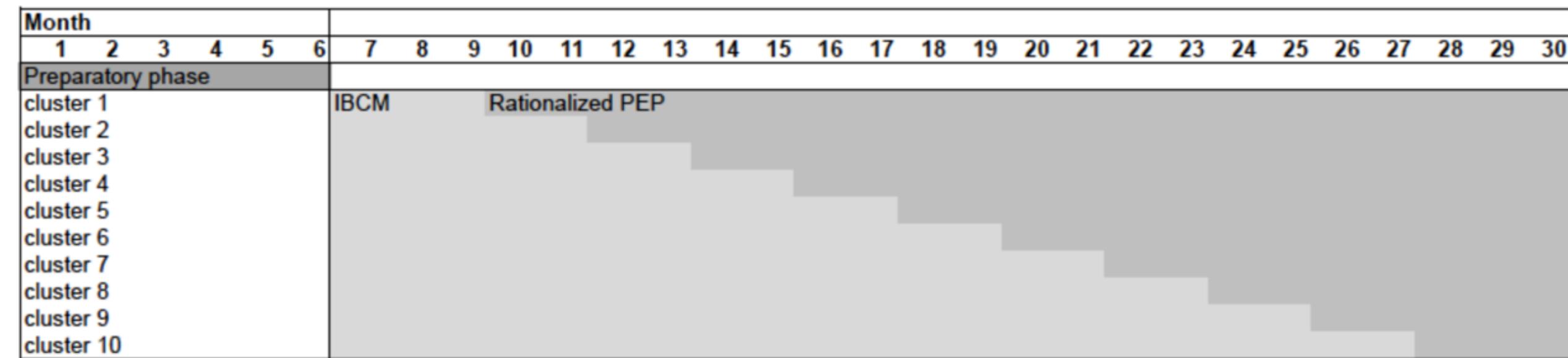


Why do a power calculation?

- What is power?
 - The probability of detecting an effect (e.g. intervention effect), given that it exists
 - Power can be thought of as “informativeness”
- Why do a power calculation?
 - An **underpowered** (= uninformative) trial is worse than useless
 - Wasteful, harmful and potentially misleading
 - **Overpowering** is also wasteful and harmful
 - A **well powered** trial is likely to be informative and efficient

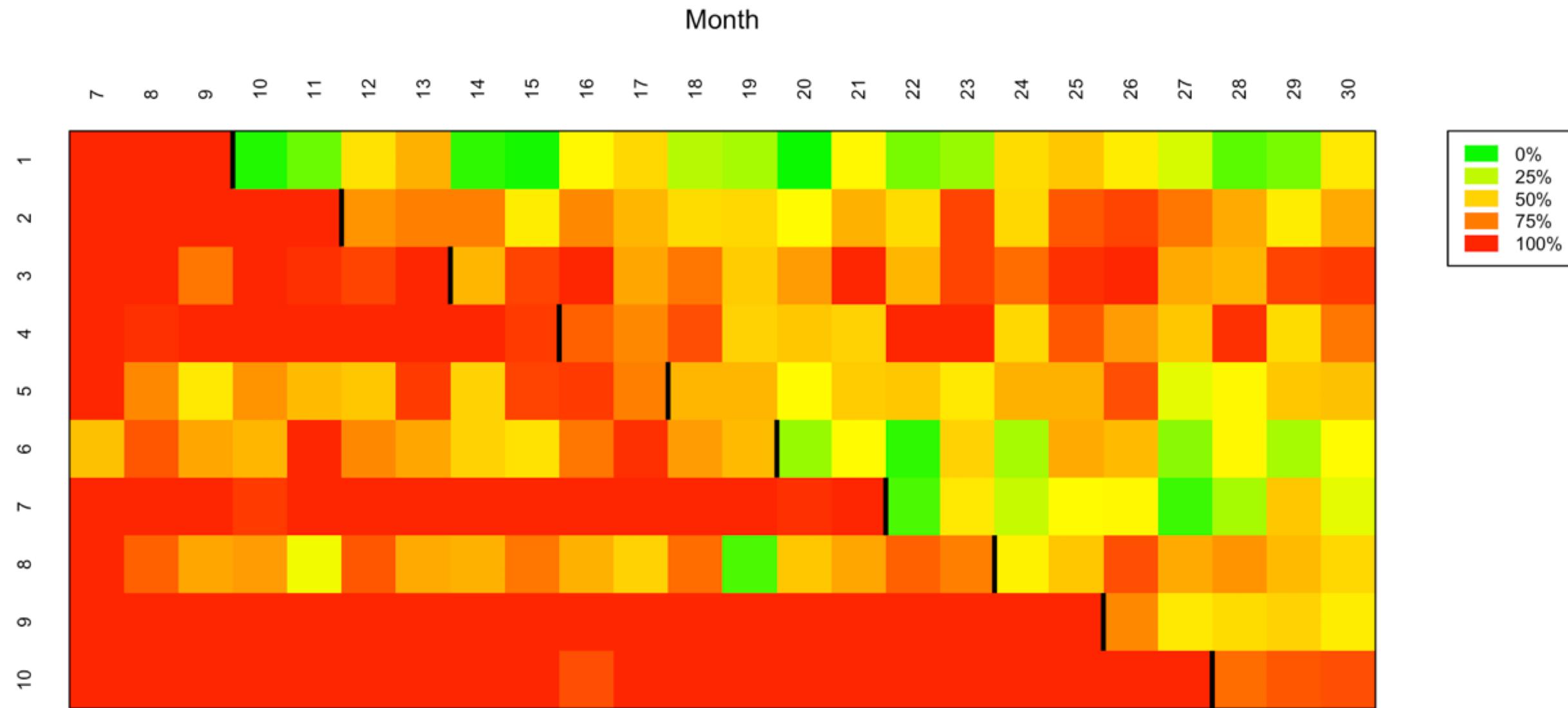
Can SPEEDIER substantially reduce the proportion of bite patients receiving PEP?

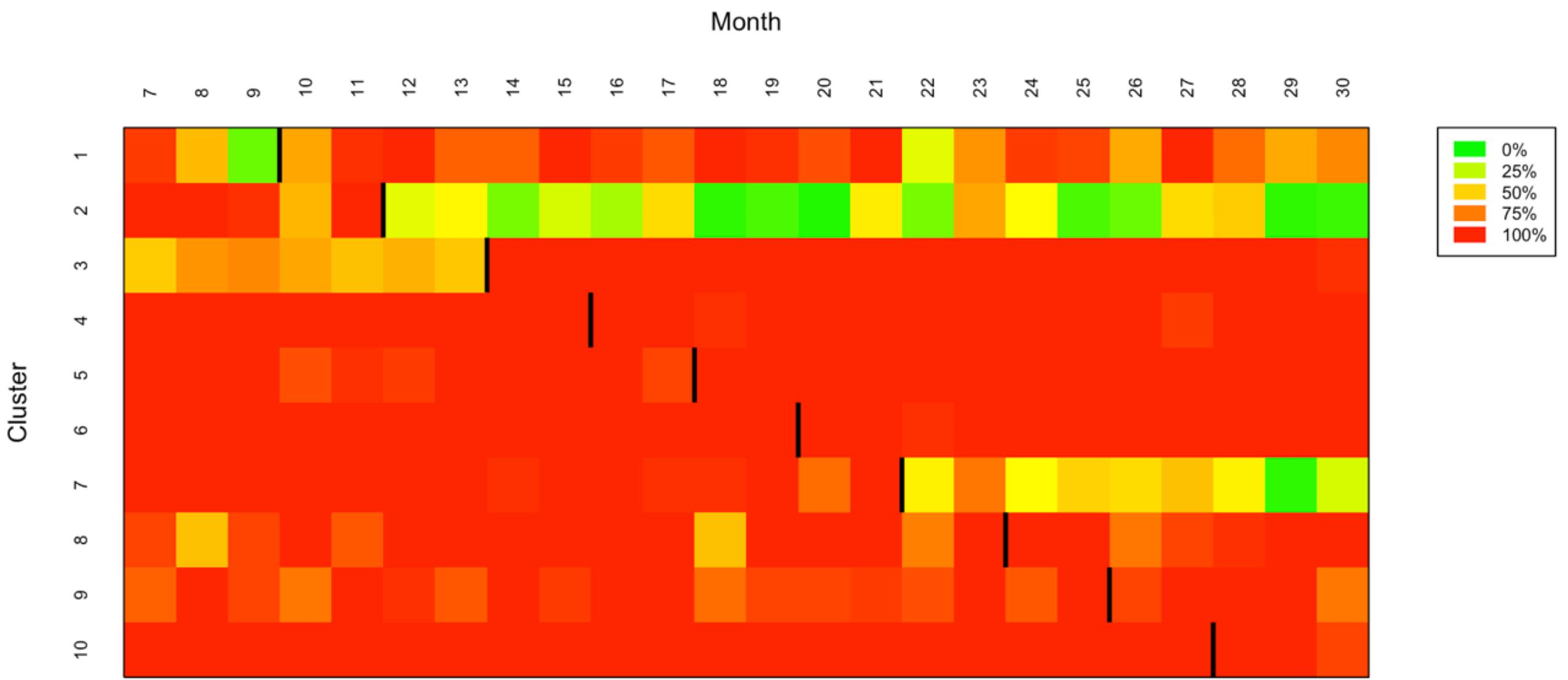
Figure 2. Stepped-wedge design and timeline.

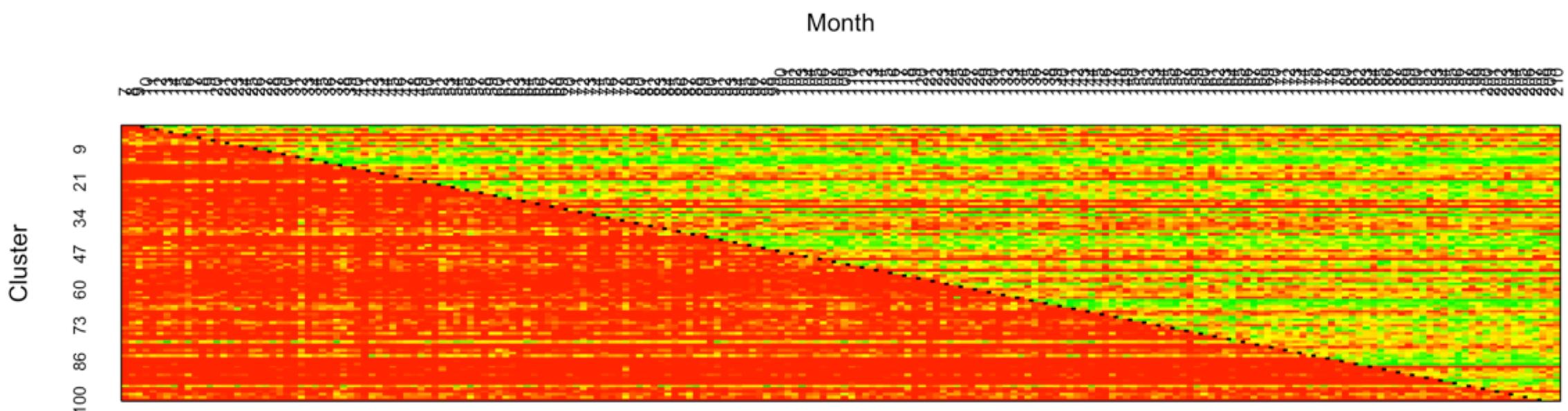
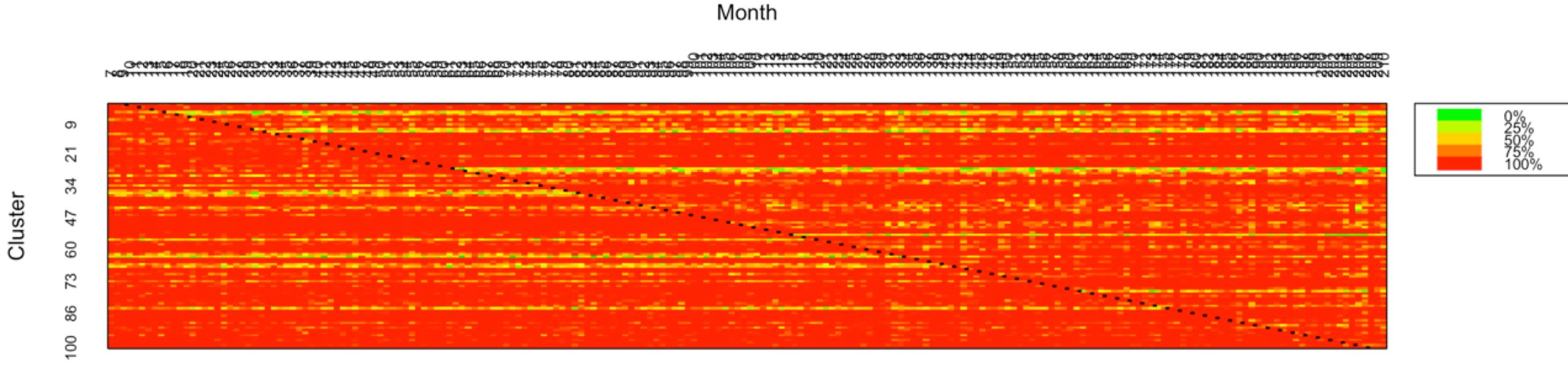


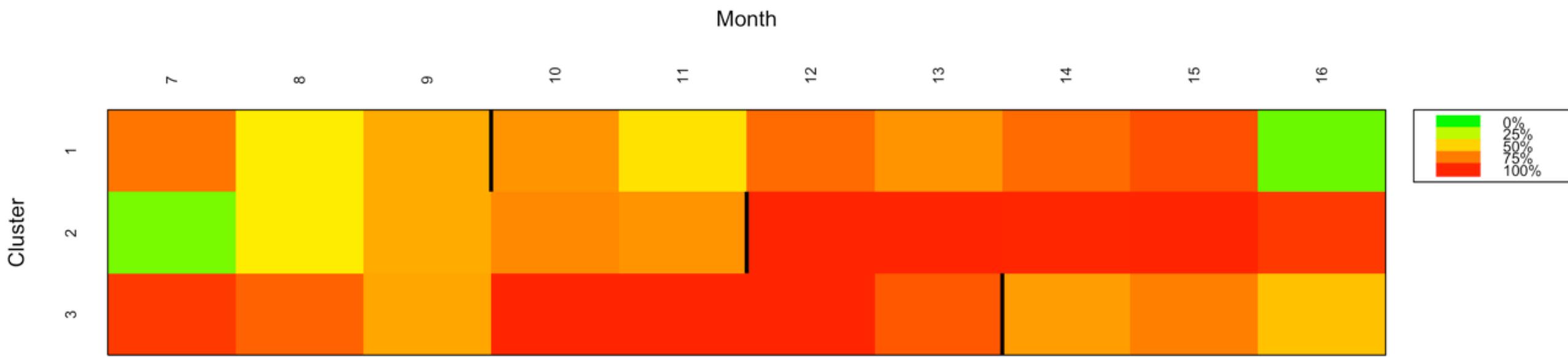
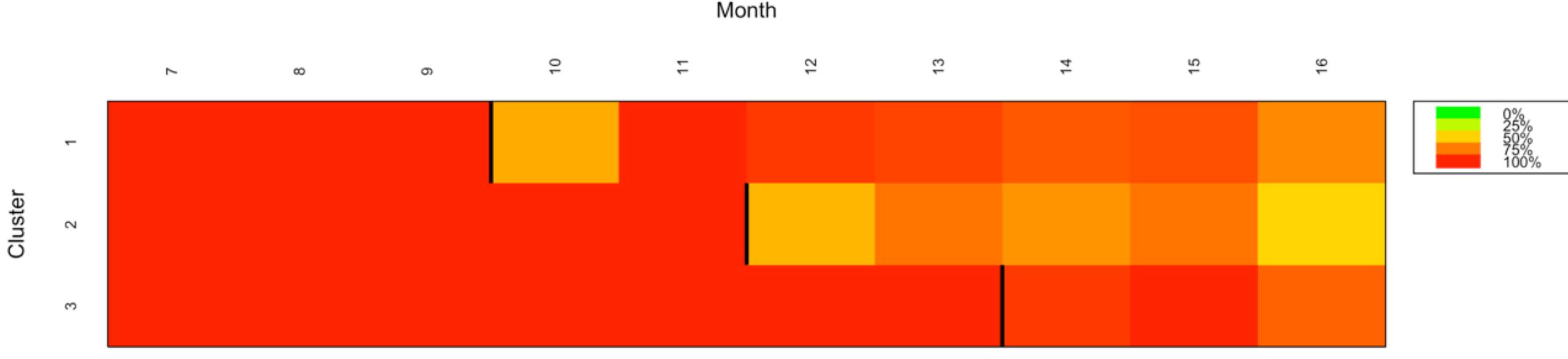
Statistical analysis

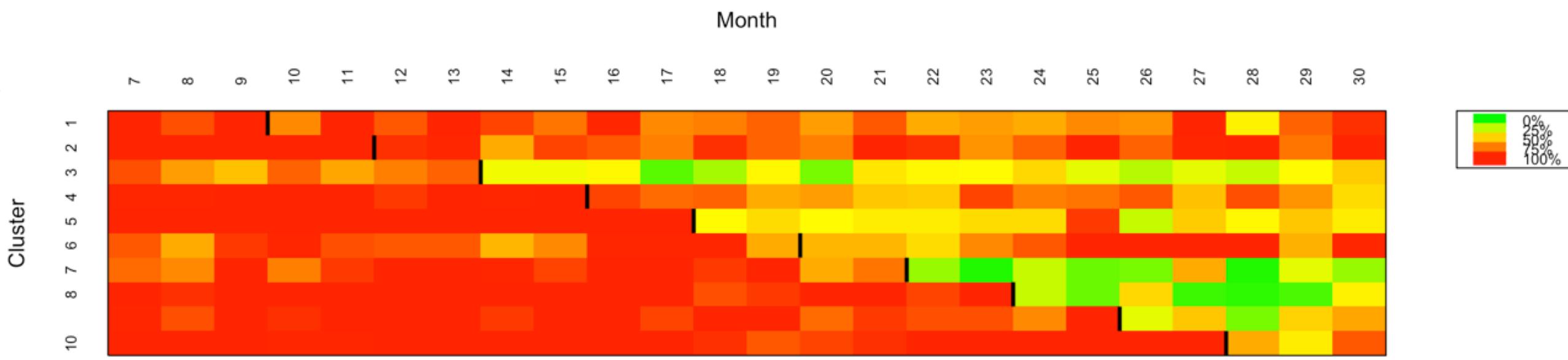
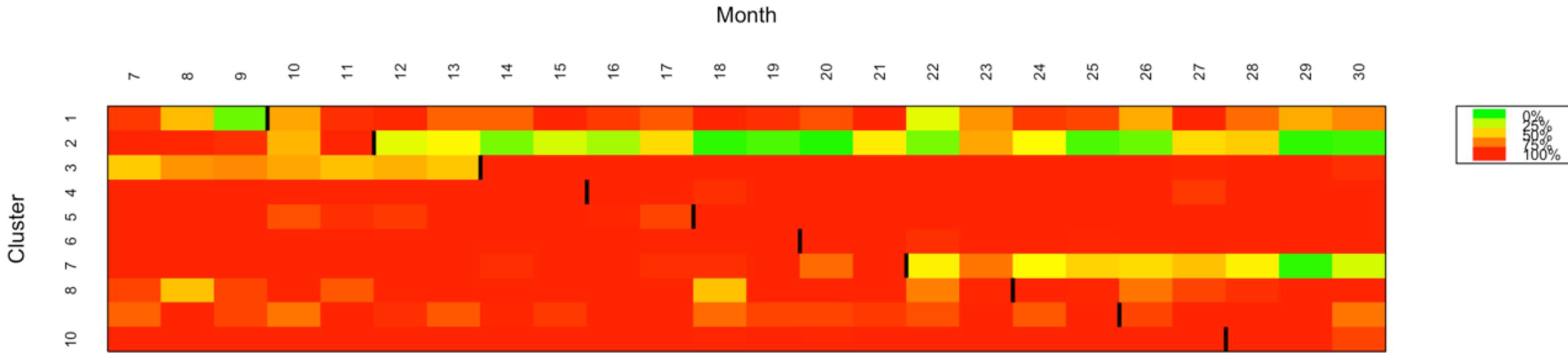
- The statistical analysis aims to separate signal from noise
 - **Signal:** the intervention effect
 - **Noise:** other sources of variation
 - Pre-intervention PEP proportion (between clusters)
 - Intervention effect (between clusters)
 - Over time
 - Between observations











Sample size calculation

- Assumptions
 - **Design:** 10 clusters X 24 month = 240 observations
 - **Bite frequency:** 50 bite victims per cluster per month
 - **Intervention effect size (signal):** proportion receiving PEP falls from 95% to 50% (“endgame”).
 - **Variation (noise):**
 - In PEP proportion pre-intervention between clusters
 - In intervention effect between clusters
 - Over time
 - Between observations
- Result: power = 99%

Sample size calculation

- Assumptions
 - Design: 1:1
 - Bite frequency
 - Intervention: 95% to 50%
 - Variation
 - In PEP
 - In intervention effect between clusters
 - Over time
 - Between observations
 - Result: power = 99%

ASSUMPTIONS UNDERLYING SAMPLE SIZE ARE GUESSES.

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ters

Sample size calculation

- Assumptions
 - **Design:** 10 clusters X 24 month = 240 observations
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 - **Intervention effect size (signal):** proportion receiving PEP falls from 95% to 50% (“endgame”).
 - **Variation (noise):**
 - In PEP proportion pre-intervention between clusters
 - In intervention effect between clusters
 - Over time
 - Between observations
- Result: power = 99%

“We are therefore confident not only that the trial will be adequately powered to detect an intervention effect, but that the intervention effect estimate will be sufficiently precise to inform secondary analyses such as associated costs and benefits, and analyses of MHO referral rates, PEP completion rates and delays to PEP initiation.”