

2019

What exactly makes
rare disease clinical
trials successful?

ALEXION DATA ANALYTICS CHALLENGE



THE BIG QUESTION

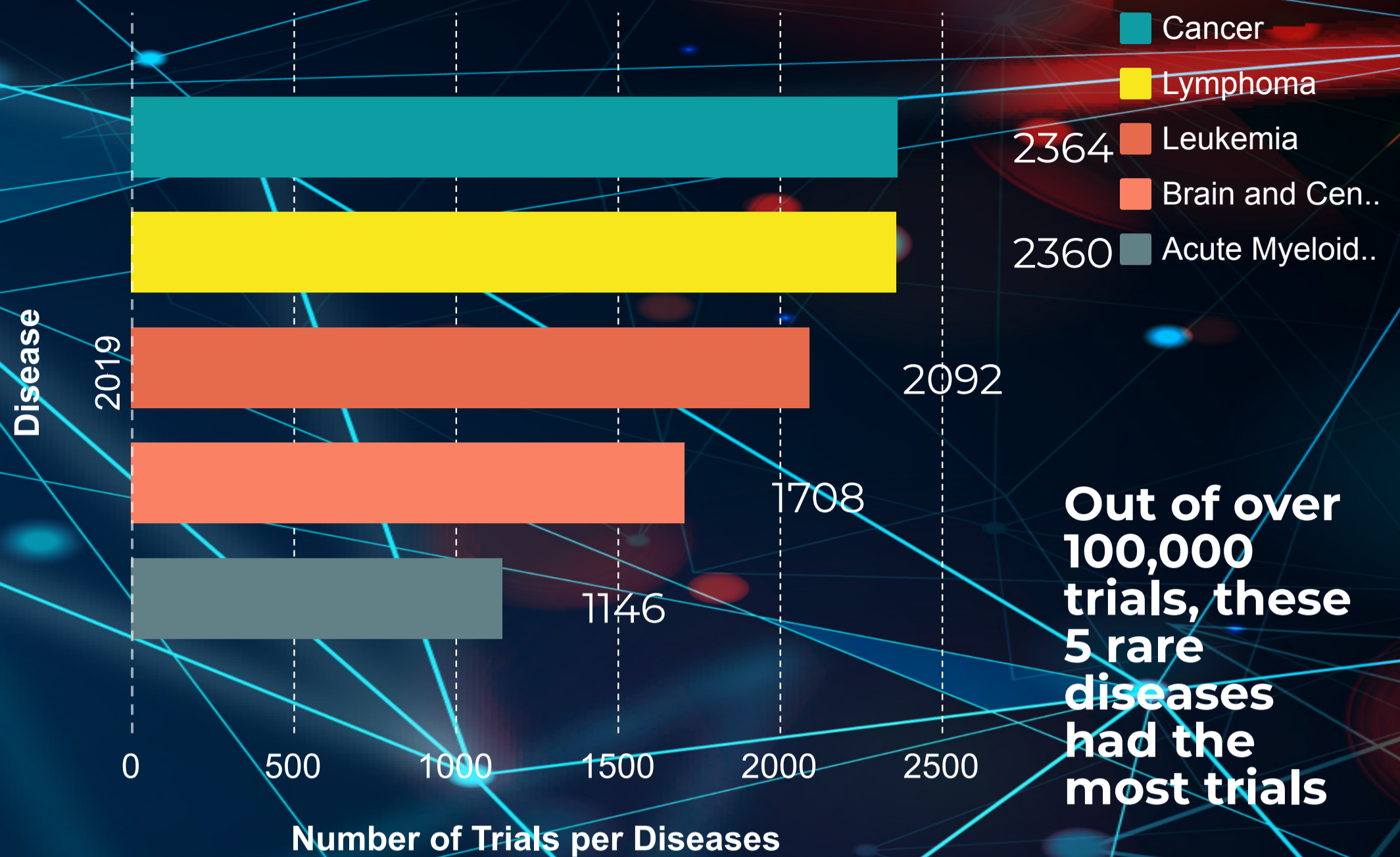
How Does Sampling Affects
Success.

But, how did we
define success?

We have defined successful trials; as trials which have been noted as "having results" in their Study Result category. The Study Results which have results, show the finalized information on participation flow, baseline characteristics, and outcome measures which include any plausible adverse outcomes. The Study Results which resulted in having "No Results" were considered inconclusive and a failure.

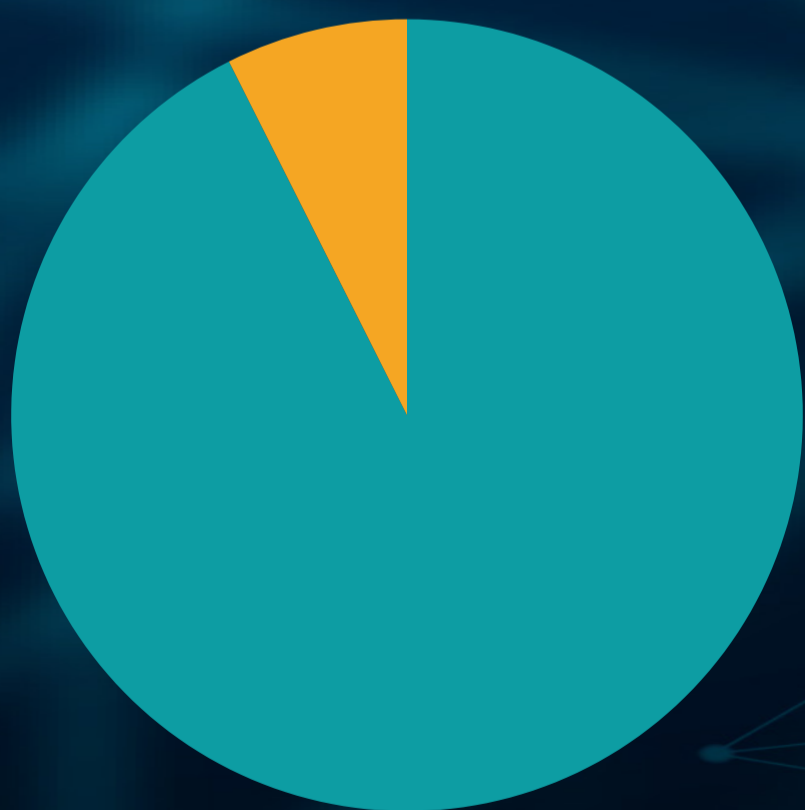
Diseases With The Most Trials

01
WHICH RARE DISEASES HAD THE MOST TRIALS



Out of over 100,000 trials, these 5 rare diseases had the most trials

Status of Successful Trials | 01



The status of the trials display the current progress made in the clinical trial. Our analysis proved that roughly 93% of the successful trials had a completed status and roughly 7% were active in their trial, but not accepting of new patients.

Therefore, in order to find studies which result in a greater chance of success, a status of either completed or active, and not recruiting should be examined.

Completed (92.57%) Active, Not Recruiting (7.43%)

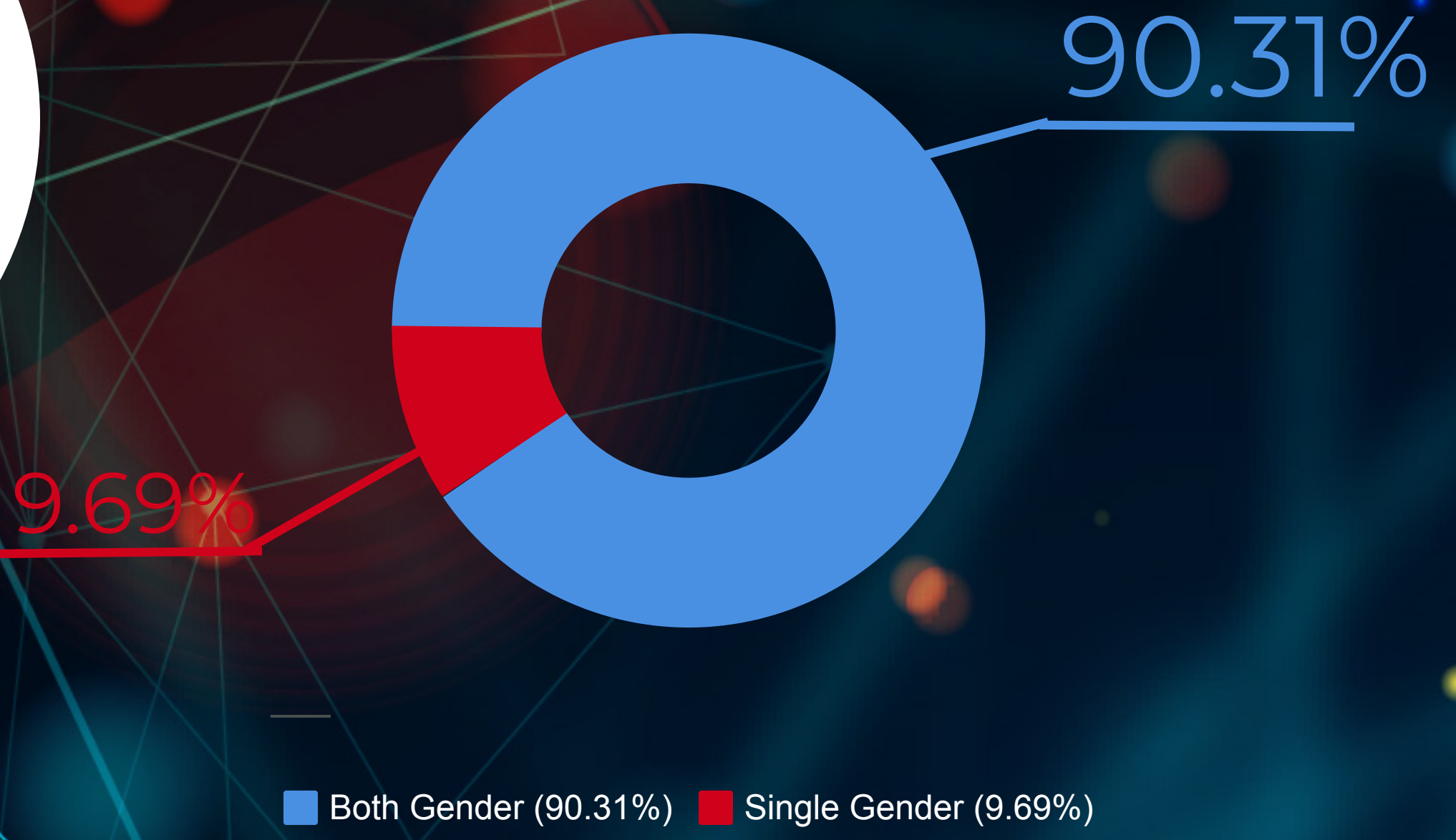
Sampling

From our data analysis, we have determined that when sampling; using an age group between (18-65), utilizing both genders, and (greater or lesser) enrollment sizes result in a higher success rate

02

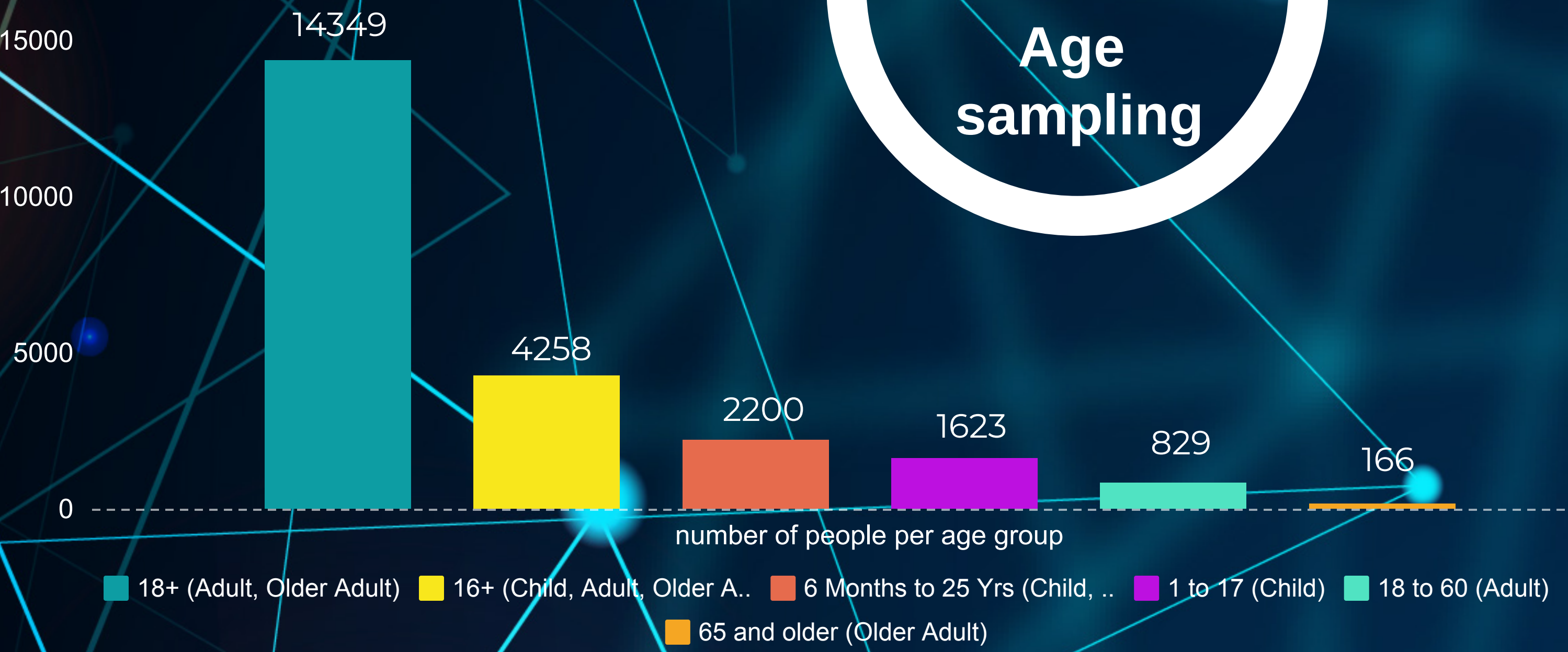
Gender Sampling

Upon analyzing the demographics of the trial populations, our team made the analysis that nearly 90% of the trials which ended in success were from clinical trials which utilized both males and females. While using either males or females did result in roughly 10% of the trial success--more success comes from utilizing both sexes in the same trial.



03

Age sampling

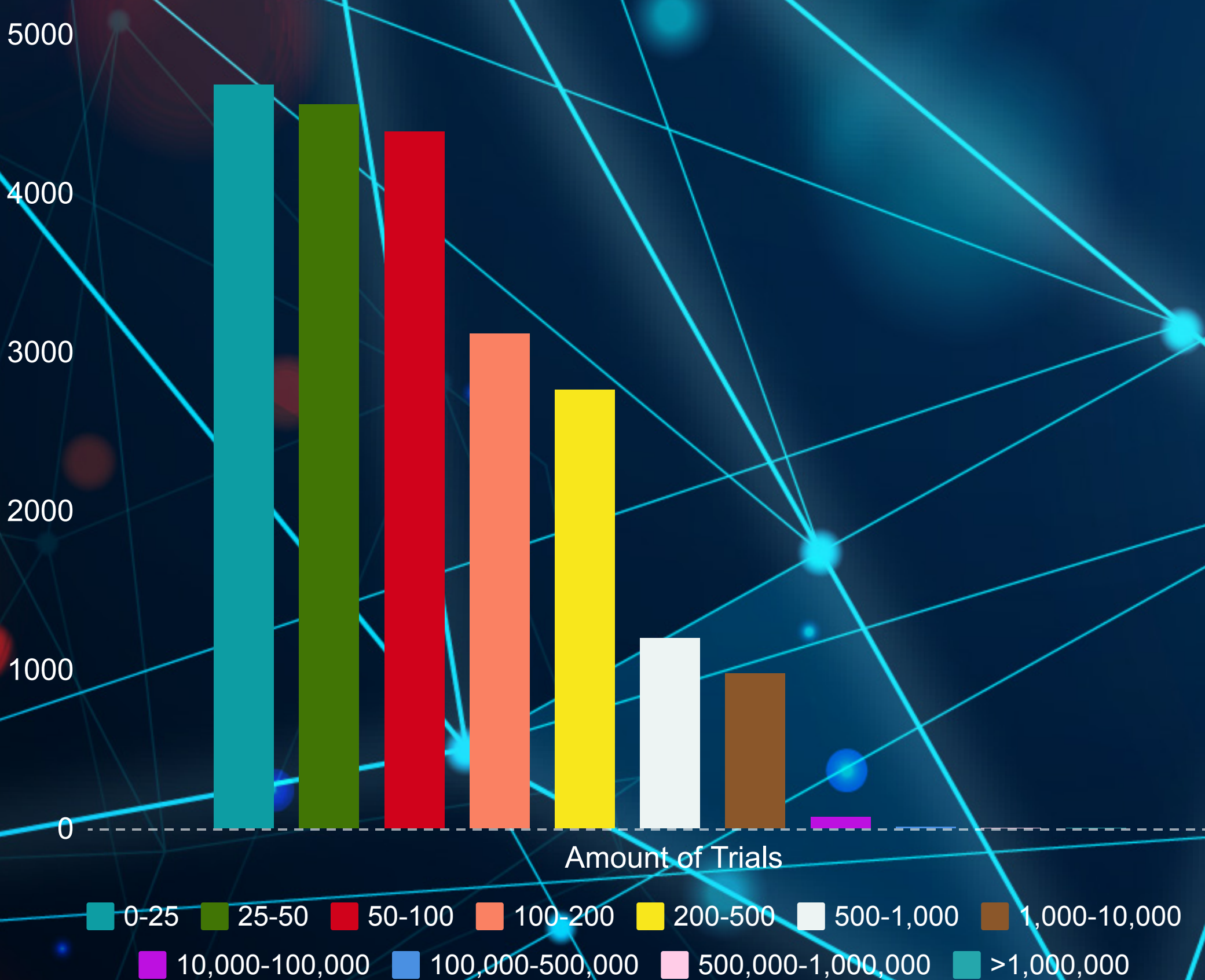


There were multiple age groups that were sampled in the clinical trials. Therefore, it was difficult to find an exact age group for each age. To combat this challenge, we made the age groups either one age group, or multiple age groups (at maximum, a combination of two age groups). Out of the successful clinical trials, 14,349 of the trial samples used people aged 18-65 (Adult-Older Adult). Noticing that vast majority of successful trials used this age range, clinical trials should use both adults and older adults in future trials. Based on the analysis, we were able to infer that using only one age group leads to a much slimmer chance of success in opposition to using combined age groups.

04

Enrollment sizes

Our analysis of the enrollment sizes allowed for us to see how many participants were in each clinical trial. Success was impacted by the size of the study (in terms of how many people were used). We saw that smaller groups from the size of 1-100 lead to the most predominant success (nearly 60% of all successful clinical trials). Therefore, smaller groups opposed to larger groups should be used, as it increases the odds of success by over 50%.



Based on our findings

We believe that in making the following changes to their sampling pools, Alexion will yield increased success from their trials:

- Sampling an age group between the years 18 - 65 (adult, Older Adult)
- Utilizing both male and females in their samples opposed to singularly male or female.
- Limiting the sample sizes to below 100 participants in total

Jin Lee

tug99823

Temple University

**Fox School of Business and
Management**

Rakan Alqtaishat

tuj12218

Temple University

**Fox School of Business and
Management**

Tristan Johnson

tui89543

Temple University

**Fox School of Business and
Management**

ALEXION



Fox School of Business
TEMPLE UNIVERSITY®