DATA

WHITE PAPER
SYNTHETIC CONTROL ARM® IN CLINICAL TRIALS

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An SCA® has validated by showing they effectively mimic randomized controls. They can therefore be used to interpret the treatment effects of an investigational product in trials lacking a concurrent control group, such as single-arm trials. Therefore, an SCA® help enhance the scienti□c validity of single-arm trials; in certain indications, they can also reduce the amount of time and costs associated with trials and expose fewer patients to placebos or existing standard-of-care treatments that might not be effective for them.

CONSTRUCTING A SYNTHETIC CONTROL ARM

Medidata has been a pioneer in de□ning adequate external contols and creating a □t-for-purpose SCA® because Medidata has amassed a unique pool of more than six million anonymized patients

An SCA®

Bene f ts to Patients and Sponsors

An SCA® offers many bene□ts to patients and drug sponsors alike, including the following.

FOR PATIENTS

An SCA® can reduce the burden associated with traditional RCTs. While patients often view an investigational drug as an opportunity for a novel treatment, particularly in rare and life-threatening diseases, the possibility of landing in a control arm, such as placebo or ineffective standard-of-care treatment, can dissuade patients from participating in a trial (American Cancer Society Cancer Action Network, 2018). Additionally, if patients detect they are in a non-treatment control arm, they may drop out or seek therapies outside the trial protocol (Kemmler, 2005). Further, an SCA® can improve patient recruitment and retention by allowing for a study design where all or at least more patients can be treated with the experimental therapy.

FOR DRUG SPONSORS

While external controls are not a replacement for RCTs, a well-designed study with an SCA®

Case Studies

The validity of an SCA® has been demonstrated in several studies. This section summarizes these studies (two that were conducted by Medidata in partnership with the **Friends of Cancer Research**[1] and one by the Celsion Corporation).

CASE STUDY IN NON SMALL CELL LUNG CANCER NSCLC

The validity of an SCA® in an accelerated approval setting was evaluated by examining if an SCA® could replicate the outcomes of a target randomized control from a NSCLC trial. The patients for the NSCLC SCA® were required to have satis□ed the key eligibility criteria of the target trial and were further selected using a propensity-score-based approach to balance the baseline characteristics in the SCA® and the target randomized control. All patient selections were made without knowledge of patient outcomes.

Summary

As described in this paper, there are numerous clinical scenarios where randomization may

Endnotes

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