

VIRGIL PLATFORM HELPS IMPROVE SITE PERFORMANCE AND SIGNAL DETECTION IN ALZHEIMER'S TRIALS

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INTRODUCTION

- Late-phase clinical trials in Alzheimer's disease (AD) typically involve large numbers of sites across different geographic regions. While the multi-site approach is necessary for recruitment, it can pose several challenges, including endpoint measurement variability across investigative sites¹.
- Traditional paper-based administration of clinical outcome assessments (COA) is prone to high error rates and requires an additional step of manual data entry into an electronic data capture (EDC) system, imposing administrative burden on trial sites.
- The Virgil[®] Investigative Study Platform, consisting of a tablet device for digital data capture with electronic rating scales and a tightly integrated web portal for data analysis, is used for electronic outcome administration (eCOA) in addition to enabling electronic source data (eSource) collection. The Virgil tablet provides real-time clinical guidance to help standardize scale administration and improve data quality across sites².
- In the present study, we examined whether the use of the eCOA platform helps enhance site performance by reducing scoring errors in the primary and co-primary endpoints in AD trials.

METHODS

- Investigative sites that used paper-based COA administrations in a recent clinical trial of mild cognitive impairment (MCI) were compared against sites that used eCOA administrations of the same scales in a separate MCI trial.
- Both studies are phase II/III multinational trials. CDR and ADAS-Cog administrations were evaluated.
- The same cohort of expert calibrated clinicians reviewed audio recordings and source data to report scoring discrepancies in CDR and ADAS-Cog administrations.
- The first 150 reviews conducted for each scale were compared in terms of the rates of one and two or more scoring errors by type of scale administration (paper-based vs Virgil).
- For sites with more than 20 reviews for a given scale, the percentages of reviews with two or more scoring errors were calculated to explore whether Virgil maintained an advantage over paper-based administration following feedback from initial reviews.

RESULTS

- In comparing the first 150 reviews of each scale in each study, Virgil eCOA administration significantly reduced error rates for both the CDR and the ADAS-Cog (Figures 1 and 2).

Figure 1: Paper-Based vs. eCOA Administration: ADAS-Cog

F (1,298) = 8.6 p=.004

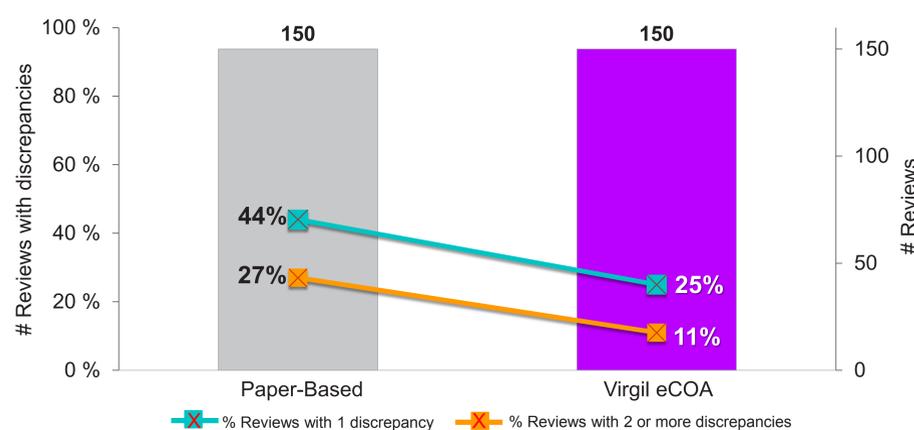
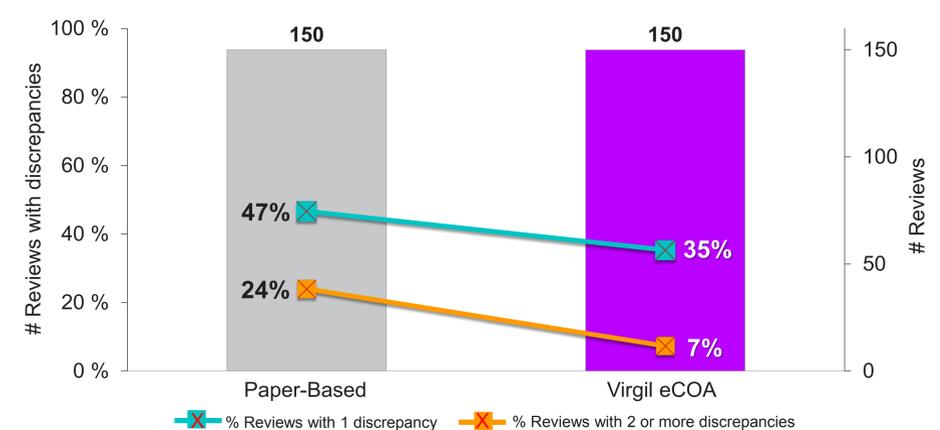


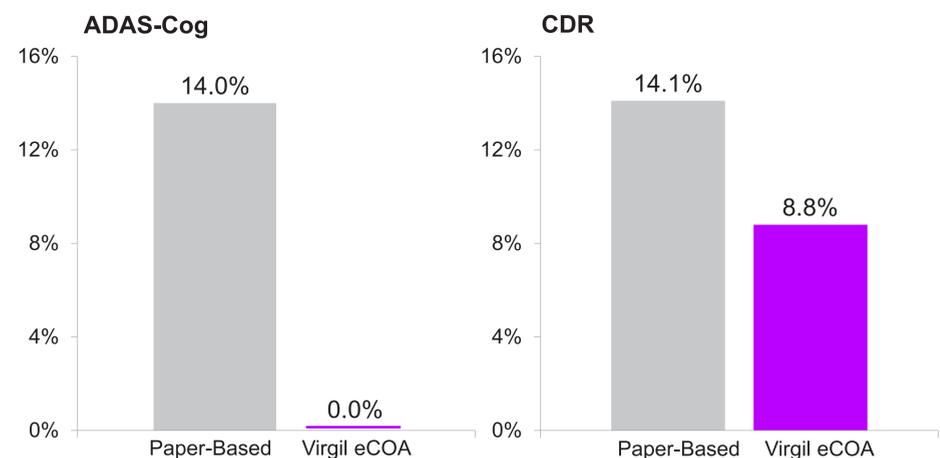
Figure 2: Paper-Based vs. eCOA Administration: CDR

F (1,298) = 15.0 p<.001



- There were a combined total of 74 sites for which at least 20 reviews of CDR and ADAS-Cog administrations were completed. Even though performance was improved over the initial 150 study-wide reviews, likely due to the review feedback, the Virgil administrations maintained a substantial advantage.
- The percentage of ADAS-Cog reviews with two or more errors was 14 percent for paper-based administrations and 0 percent for Virgil. The percentage of CDR reviews with two or more errors was 14.1 percent for paper-based administrations, but fell to 8.8 percent for Virgil (Figure 3).

Figure 3: Error Rates for Paper-Based and eCOA Sites



CONCLUSION

- Virgil eCOA administration improves rater and site performance compared to paper-based administration both in study start-up, as well as over time.
- Central Review and feedback reduces error rates on the ADAS-Cog and CDR, regardless of method of scale administration.
- Use of Virgil eCOA platform with real-time clinical guidance, auto-calculation of scores and prompts for missing data and out-of-range errors can standardize rating scale measurements, thereby reducing error variance and improving site performance.

REFERENCES

1. Cummings JL, Morstorf T, Zhong K. Alzheimer's disease drug-development pipeline: few candidates, frequent failures. *Alzheimers Res Ther.* 2014 Jul 3;6(4):37.
2. Negash S, Boehm P, Steele S, Randolph C. Virgil investigative study platform minimizes scoring discrepancies to improve signal detection. Presented at Alzheimer's Association International Conference, 2016, Toronto, Canada.

