Decentralized Trial Designs for Clinical Trial Diversity

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Just 5% of eligible patients participate in clinical research!

- Little to No Evidence
- Off-label indications
  - Variances in population characteristics from what was studied
- Conceptualization
  - Differing age groups – elderly, pediatrics
  - Race, ethnicity, gender variances
  - Unstudied co-morbid conditions
  - Varying severity of disease
  - Differing concomitant medications
- Utilization
  - Little to No Evidence
Clinical trial participants travel 67 miles to study sites on average.

In 2021, ClinicalTrials.gov had about 350,000 national and international trials registered, which, using the average calculated by the Sustainable Clinical Trials Group, would give a carbon emission of an estimated 27.5 million tonnes of carbon dioxide equivalent (CO2e).
Decentralized studies have two components: decreased reliance (1) on an intermediary and (2) on a physical location.
Decentralized clinical trials meet patients where they are.

**Clinical-trial designs**

- **Fully decentralized**
  - All trial procedures are conducted virtually, enabled by digital technologies and supply delivery.

- **Hybrid**
  - Less complex trial procedures that don’t require in-person visits (e.g., vital signs, electrocardiograms) are conducted via telehealthcare, remote data collection, or direct-to-patient supply.

- **Fully centralized**
  - Complex trial procedures (e.g., complex screening protocols, cell therapy, magnetic resonance imaging) are conducted via research sites (e.g., academic medical centers) or local hospitals.

- **Less complex trial procedures that require in-person visits (e.g., injections)** are conducted via mobile clinicians or alternative sites (e.g., mobile clinics, retail sites).
Benefits of Using Decentralized Trials

- Improved trial participant retention
- Greater control, convenience, and comfort for participants
- Increased participant diversity
- Faster trial participant recruitment
Overview of a Decentralized Clinical Trial

The diagram illustrates the process of a decentralized clinical trial, focusing on the supply of investigational products (IP) directly to patients (Direct-to-Patient Supply of IP) and home health visits. Key components include:

- **Study Database**: Contains participant data.
- **RTSM**: Remote Site Monitoring System.
- **Participants**: Engaged in the trial.
- **Study Management Platform**: Facilitates investigator-participant interactions.
- **eConsent**: Electronic consent for participation.
- **ePRO Application**: Supports patient-reported outcomes.
- **EDM**: Electronic Data Management System.

The diagram highlights the integration of technologies and communication channels to streamline the trial process, ensuring patient safety and data accuracy.
Augment delivery with DCT medication adherence solutions, e.g., reminders, photos, videos, smart packaging

At-home self-collection kits increasingly familiar due to COVID-19, home healthcare visits, collect samples through local labs or pharmacies

Berwanger O, Machline-Carrion MJ. Stroke. 2022;53:2967–2975
Involve diverse groups in participants in the trial design, conduct and interpretation.

Share results with study participants in a language and format that is easy to read.

Berwanger O, Machline-Carrion MJ. Stroke. 2022;53:2967–2975
Mobile Clinical Trials Unit
**EVOLVE-MI: EVOLOOCUMAB VERY EARLY AFTER MI – STUDY DESIGN**

~3.5 Year Median Follow Up

1° endpoint: total (first and subsequent) MI, ischemic stroke, any arterial revascularization, all-cause death

- Evolocumab dosed within 10 days of index MI. Home delivery and self-administration of drug
- **Pragmatic data collection through EMR, patient- or coordinator-completed eCRF and national registries (in Sweden)**

Evolocumab 140mg Q2W + Routine Clinical Care
N=2000 patients

Routine Clinical Care (ie, Provider discretion)
N=2000 patients

Real-time hybrid data collection through registry/EMR extraction

Evolocumab dosed within 10 days of index MI. Home delivery and self-administration of drug

- Pragmatic data collection through EMR, patient- or coordinator-completed eCRF and national registries (in Sweden)

eCRF electronic case report form, EMR electronic medical record, NSTEMI non-ST elevation myocardial infarction, STEMI ST elevation myocardial infarction

**CPC Clinical Research**
Potential Networks for Large-Scale Pragmatic Decentralized Trials

- HF Trial (N=18,000 patients)
- Type 2 Diabetes and Atherosclerotic Cardiovascular Disease (N=9,000 patients)
The Future (or The Present?)

- “Giant Simple Trial” (1MM, 5MM, 10MM…)
- Global
- Very Few (if any) Inclusion and Exclusion Criteria
- 99% CIs
- No Sample Size Calculation