The Rise of Decentralized Clinical Trials

Remote Patient Participation is a viable solution EVEN for Complex Cardiovascular Clinical Trials.

Jodi J. Akin, MSN

Hawthorne EFFECT

Direct-to-patient clinical trial participation platform

Pre-COVID

80%

didn't finish on time

79%

critical missing data

50%

Missed or late visits over time

As a result:

- Fewer than 1 in 10 drugs ultimately make it to market
- Market introduction of cures are delayed
- 10% YOY increases in spend, passed on to the system/public
- Data validity and generalizability questioned
- Incongruities of health burden to population in clinical trials cost trillions

With decentralized model we expect:

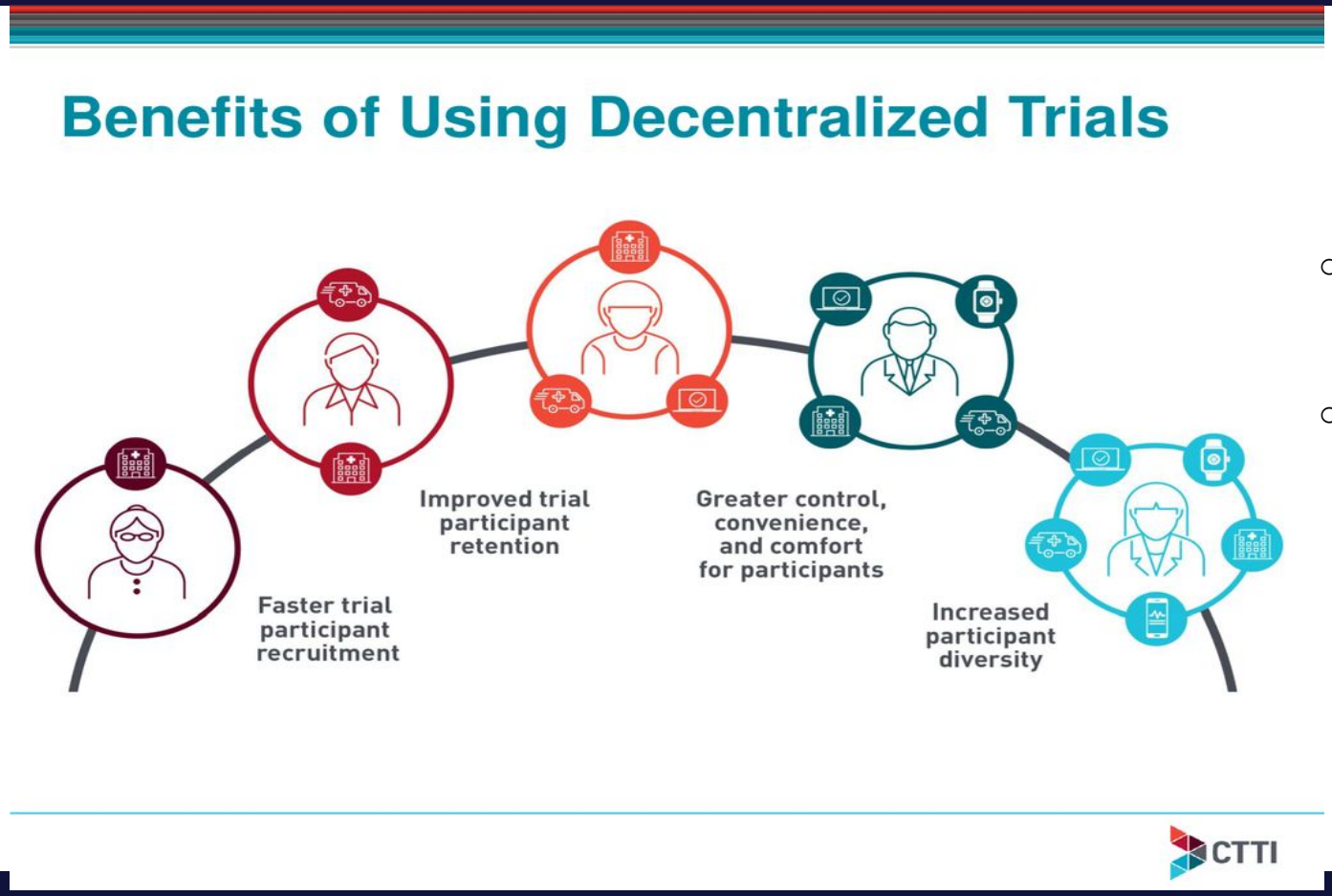
- 25% accelerated enrollment timeline due to broader catchments
- 75%-95% improvement on missing data
- 90% retention improvement (patients stay in trial when they have HEROs)
- Close the gender/ethnicity gaps addressed (matching HEROs to communities)
- $ millions in budgets reduced
- Numbers of trials on new molecules and therapies can increase

*est.

Decentralized Clinical Trial technologies have been on the horizon for years, but not generalized.

From Virtual

Virtual – No patient contact



Decentralized

- Fully Remote, data from wearables, telemedicine and other devices
- Fully decentralized – Data from telemedicine and Patient contact but not brick and mortar site
- Hybrid- Some visits at sites while other done at home or remotely

Software-Enabled Clinical Trials

Many companies offer products that span across categories. To keep the map simple, the logo is in the "primary" product.
Have an update? Share via www.ElektraLabs.org/decentralized-trials

Conduct Study

Design Protocol
ProofPilot, trials.ai, transparency life sciences, HealthiVibe, AllTrials

Enabling Non-Profits & Consortia [0]
Clinical Trials Transformation Initiative, CDISC, IMI, TransCelerate BioPharma Inc, Critical Path Institute, Digital Therapeutics Alliance, DIA

Start-Up Study [1]
CenterWatch, IQVIA, Veeva, WIRB, medidata, Covance, goBalto, ERT, TriNetX, trifecta, teckro, FIRECREST

Recruit Patients
Mendel.ai, Driver, Trial x, antidote, Clara, QuintilesIMS, trialbee, mprove Health, DEEP 6, SubjectWell, ClinicalConnection, patientslikeme, myHealthTeams, VITALTRAX, STUDYKIK, langland, seeker, Be the Partner, Trialspark, FindMeCure, myTomorrows

Manage Operations [2]
PAREXEL, BIOCLINICA, PERCEPTIVE MyTrials, SIGNALPATH, Veeva, Longboat, ORACLE, SIEBEL, medidata, thought sphere, Covance, Florence Healthcare, REALTIME, Trialspark, clinical research.io, SimpleTrials, Welkin Health, Cognizant, velos, comprehend, salesforce, health cloud, FORTE, CluePoints, Cytregnity, greenphire, ClinPay

Drug & Supply Logistics
Slope.io, mesm, 4G Clinical, endpoint, CENDUIT, Bracket

Collect and Analyze Patient-Level Data

Patient Data Management (e.g., EDC, eCOA, Digital Biomarkers) [3]
Veeva, REDCap, medidata, Human API, ClinPlus, OpenClinica, Covance, VALIDIC, fitabase, IBM Watson Health, eClinical, ORACLE, QuintilesIMS, evidation, medrio, Target Health Inc, ERT, Biospective, trialbee, Bracket, actiGraph, clinCapture, trials.ai, mprove Health, 2net, ResearchKit, Clinical Studio, phys iQ, ALMAC, koneksa health, yprime, verily, EmpiraMed, xclinical, FORTE, Viedoc, AliveCor, umotif, C-R-F Health, MedNet, Altavoz, snapIoT, PHILIPS, tonic, assisTek, AiCure, VivifyHealth

Decentralized Trials
Sage, Science 37, CLINPAL, koneksa health, IQVIA, Trial x, monARC, EmpiraMed, evidation, MEDABLE, medidata, THREAD, snapIoT, VIRTRIAL, aparito, Data³

0 Unlike the other for-profit ventures on this map, CTTI is a Public-Private partnership & AllTrials is a registered charity
1 Includes startup tools like eConsent and site training
2 Includes clinical trial management systems, risk-based monitoring, site monitoring, payment automation
3 Includes EDC (electronic data capture), informed consent, Imaging, Lab Data, Digital Biomarker Data and Validation, eCOA (Electronic Clinical Outcomes Assessment)

2018 by @AndreaCoravos

Then COVID-19 Happened Amplified the Problem of Clinical Trial Continuity

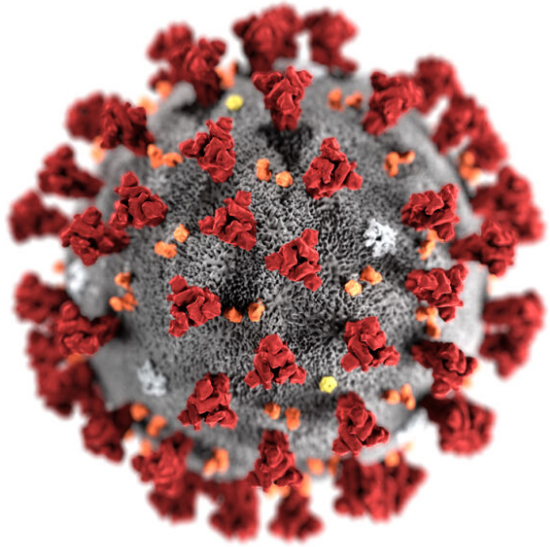
1.Overall, there was a 70% decline in enrollment or new study starts post COVID, now recovering slowly and indeterminate loss to follow-up.

2. Due to local, state and institutional guidance, clinical trial follow-up was considered “non-essential” and essentially abandoned or relegated to phone or virtual visits for 90 days in most institutions.

3. The “decentralized” clinical trial movement has received a major boost with sentiment moving from reluctance to a mandate.

4. Health disparity has also been amplified in the COVID crisis.

5.Making trials accessible to patients in their homes is the ultimate expression of patient-centricity and should become a new standard of practice.



Elements of Decentralized Clinical Trials From Pilot to MANDATE post COVID-19

Elements of decentralization	
Electronic data capture	The first frontier
Participant recruitment and screening	Internet, digital ads, EMR (AI)
Consent process	E-consent, remote consent honoring the code of conduct
Supply and drug management	Distribution models with chain of control and traceability
Adherence	Assuring compliance (drug trials)
Sites and site management	The meta-site, hybrid models
Subject engagement tools	PROM, prompts
Study management	Remote monitoring, safety oversight
Study visit management	Compliance, completeness, consistency, source documentation
Data acquisition and transfer	HIPAA, PHI security, Interoperability
Remote data monitoring	Not just via EMRs…

Considerations and Barriers to Adoption of Decentralized Clinical Trials

Barriers to change

- Complexity of assessments required for trial
- Quality and consistency of ascertainment
- Patient adoption of technology, virtual visits
- Perception of regulatory adoption
- Adoption by all stakeholders
- Seamless integration from site-based to decentralized
- Economics

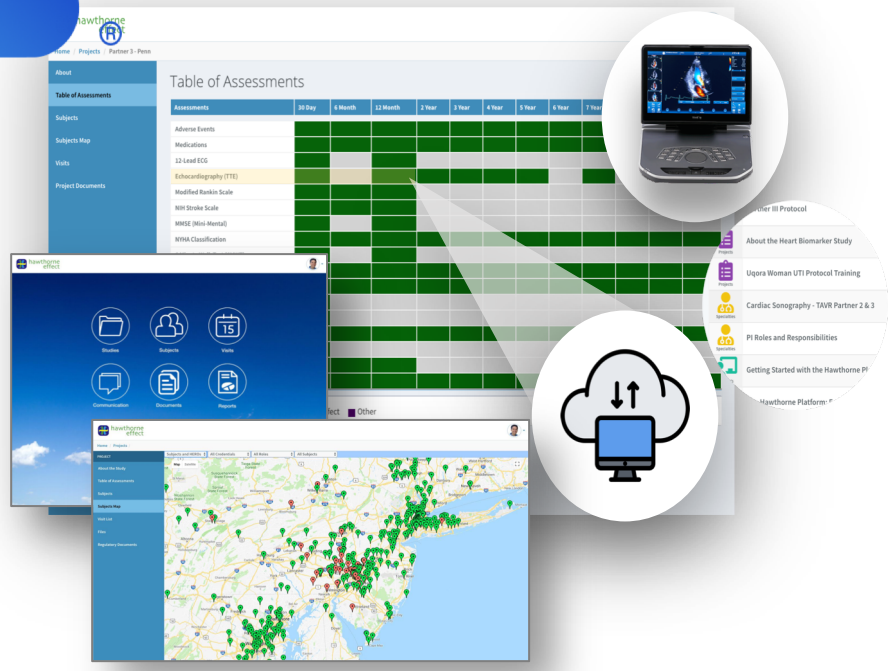
Over-emphasis on technology solutions alone

- Do not address complex ascertainment
  - Physical
  - Biometrics
  - Imaging
  - Functional
- Patient affinity or accessibility to tech, internet, etc.
- Compliance in fact worse, not better
- Does not address the vulnerable populations, cultural considerations

Hawthorne Effect is a platform that offers ACCESS to clinical trials and Quality Data

Hawthorne Cloud

Scientific Precision



+

Hawthorne Hero™

Clinical Compassion

Digital Schedule of Visits

Home / Projects / Partner 3 - Penn

- About
- Table of Assessments
- Subjects
- Subjects Map
- Visits
- Project Documents

Table of Assessments

Assessments	30 Day	6 Month	12 Month	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year
Adverse Events	■	■	■	■	■	■	■	■	■
Medications	■	■	■	■	■	■	■	■	■
12-Lead ECG	■		■						
Echocardiography (TTE)	■		■	■	■	■	■		■
Modified Rankin Scale	■	■	■						
NIH Stroke Scale	■	■	■						
MMSE (Mini-Mental)	■		■						
NYHA Classification	■	■	■	■	■			■	■
6 Minute Walk Test (6MWT)	■		■						
SF-36 (v2)	■	■	■	■	■				■
Physical Examination	■	■	■	■	■				■
CBC (w/diff and platelet count)	■								
Creatinine	■								
KCCQ	■	■	■	■	■	■			
proBNP N-Terminal	■								
EQ-5D-5L	■	■	■						
Medical Records Release (Penn)	■	■	■	■	■	■			

Not part of protocol Hawthorne Effect Other

ther III Protocol

Projects — About the Heart Biomarker Study

Projects — Uqora Woman UTI Protocol Training

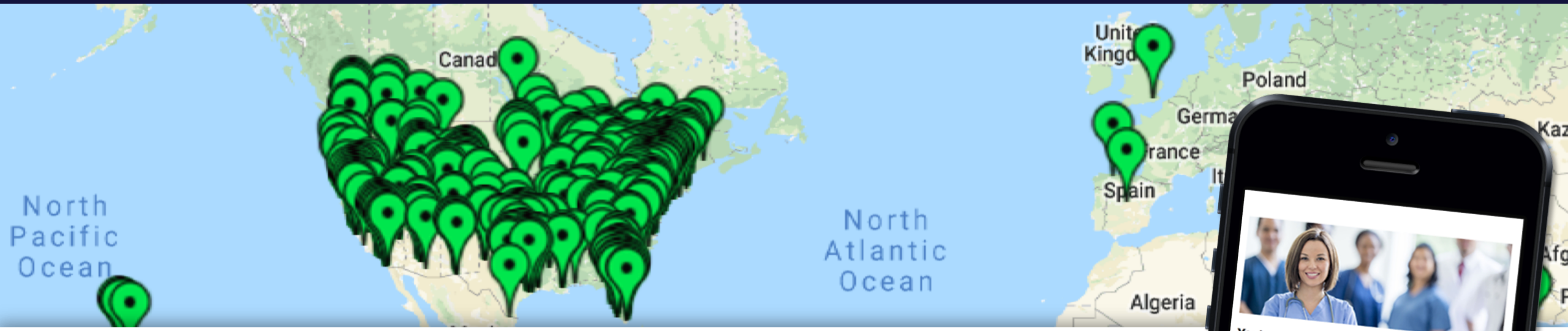
Specialties — Cardiac Sonography - TAVR Partner 2 & 3

Specialties — PI Roles and Responsibilities

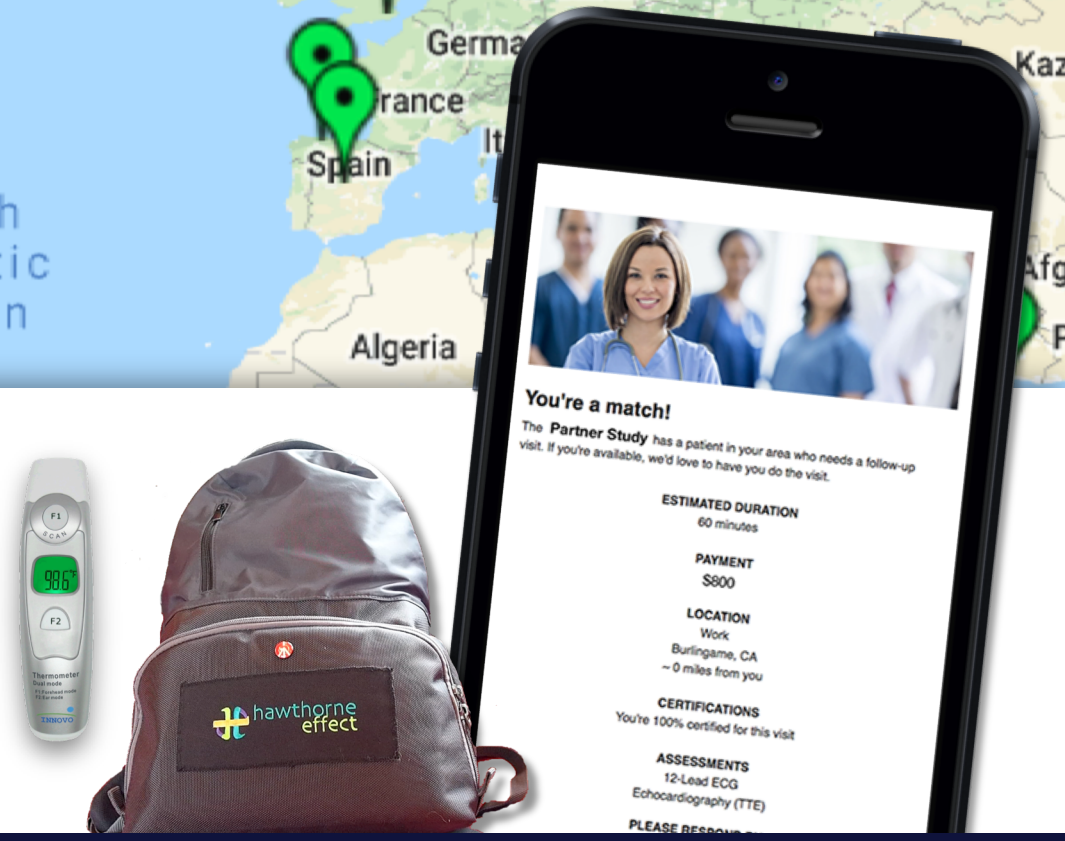
Getting Started with the Hawthorne Pl

Hawthorne Platform: F

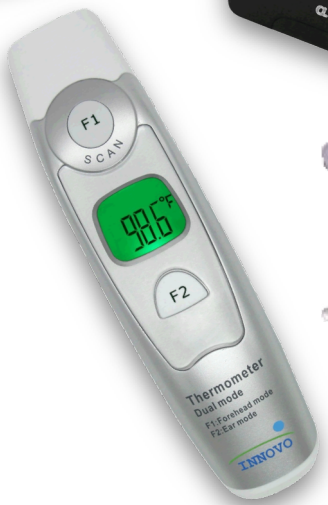
Reaching patients anywhere, anytime. Physically, virtually, or both.

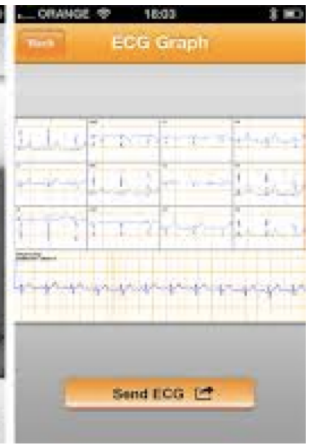


- 1900+ HEROs, covering all 50 states (EU early 2021)
- Vetted, credentialed, certified, insured, equipped
- Multi-specialties, skills, versatility
- Visits performed in rural and far reaches
- Ecosystem from HERO onboarding to patient follow-up and data in the cloud works through an integrated platform “HEHQ”



HEROs are equipped with cutting edge digital mobile tools for comprehensive visits





Meet Opal

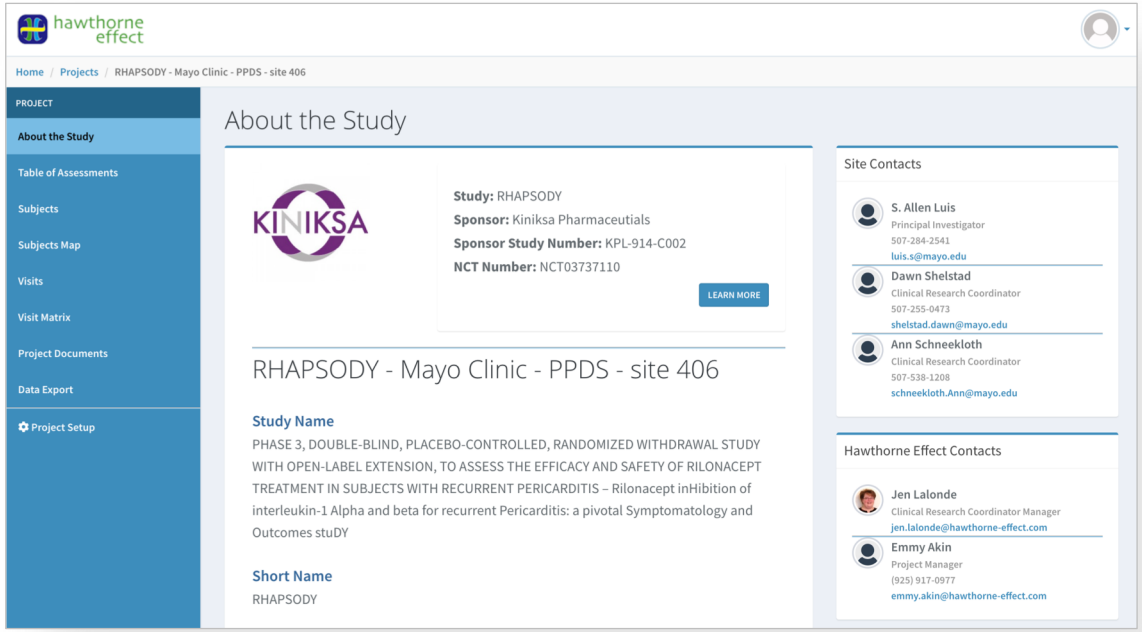
- At 86, her heart was failing but she was full of life
- She enrolled in a breakthrough heart valve trial
- The trial required travel more than 1000 miles each way
- She would have to make **10 study visits**
- She was going to drop out

With decentralized follow-up, at 93 years old she continues her follow-up

- She has HEROs
- Her study data, echocardiogram, ECG, bloodwork and 10 clinical assessments were delivered to her investigators in the cloud via Hawthorne Effect's platform.
- Remote transfer of source docs, allows remote monitoring!

COVID Stakes are high for clinical trials: Saving The RHAPSODY Trial

- Sponsor: Kiniksa
- Phase 3 drug trial with critical dosing milestones
- COVID-19 halted follow-up
- Sample size- 86 patients
- Hawthorne completed 30 critical visits for 12 sites in 15 days
- One third of study sample would have been lost, costing a est. 6 months in trial time, possibly millions in trial budget



hawthorne effect

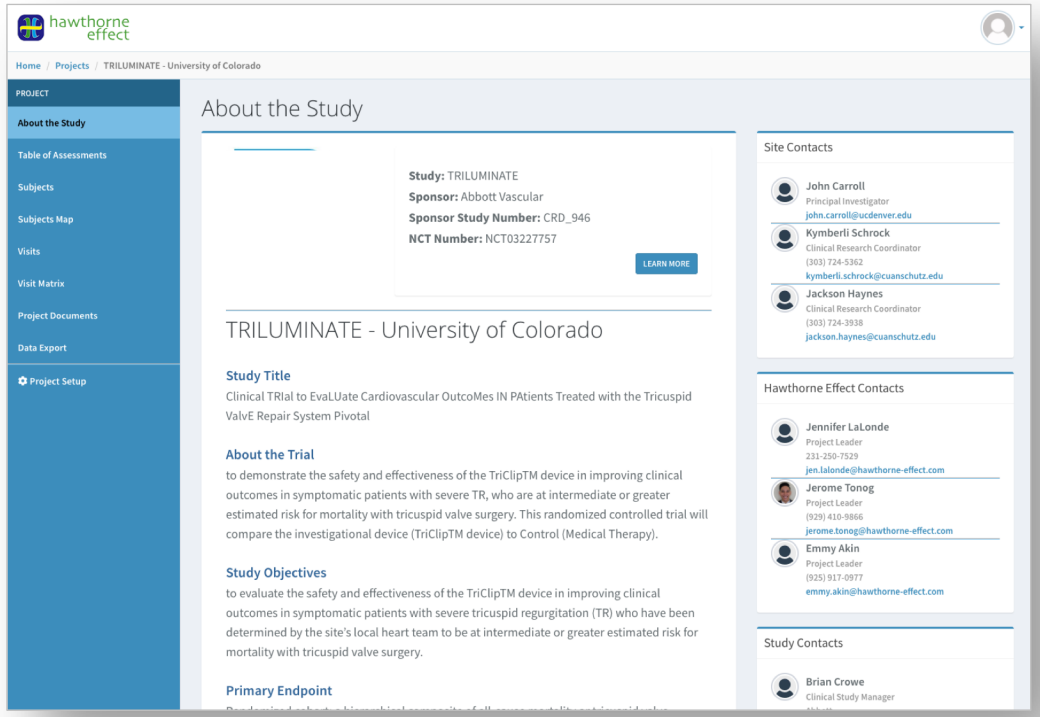
Home / Projects

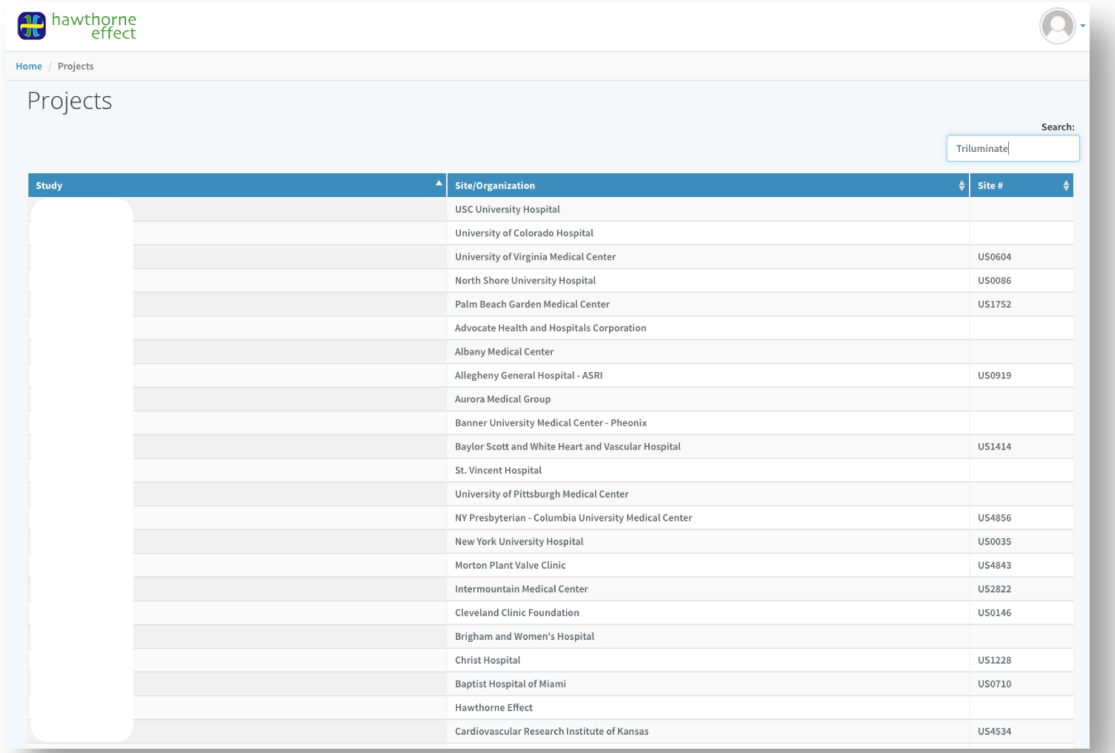
Projects

Study	Site/Organization
RHAPSODY	Virginia Commonwealth University - 402
RHAPSODY	Cardiology Consultants of Philadelphia - 404
RHAPSODY	Mayo Clinic - PPDS - 406
RHAPSODY	Arthritis and Rheumatology of Georgia - 407
RHAPSODY	Cincinnati Childrens Hospital Medical Center - 408
RHAPSODY	Minneapolis Heart Institute Foundation - 413
RHAPSODY	University of Vermont Medical Center - 414
RHAPSODY	Cleveland Clinic - 416
RHAPSODY	Intermountain Healthcare - 419
RHAPSODY	Loretto Hospital - 420
RHAPSODY	Cedars-Sinai Heart Institute - 423
RHAPSODY	Swedish Medical Center - 427

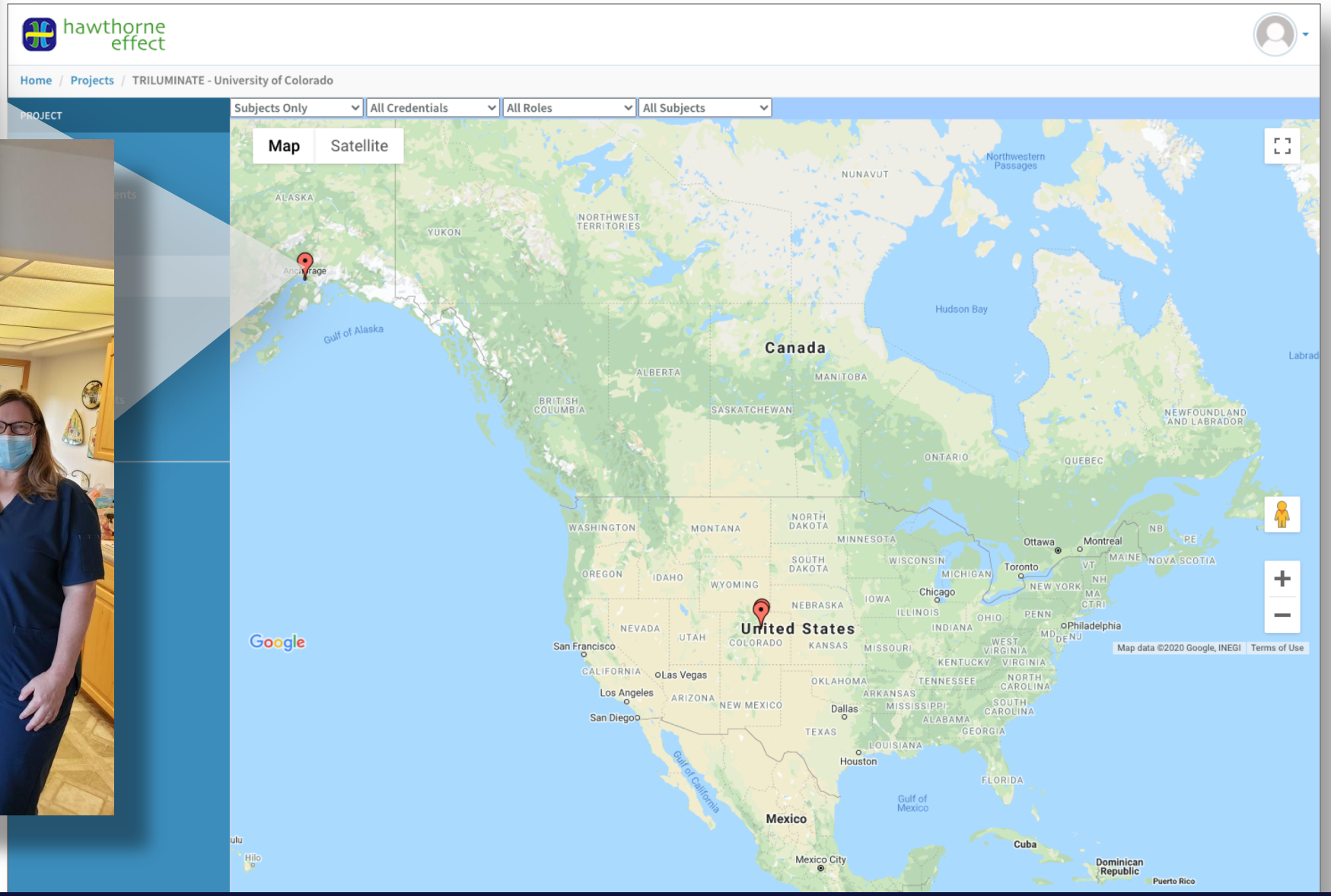
Pivotal Valve Trial

- Pivotal trial with critical complex visits including echo
- Vetted by clinical team and core lab
- Hawthorne Partnered with 50 clinical sites to share the study visits for the 6M, 18M and long-term follow-up
- Primary endpoint visits assigned to sites, but Hawthorne a safety net
- COVID-19- no disruption in continuity, including 30-day visits that would have been missed!

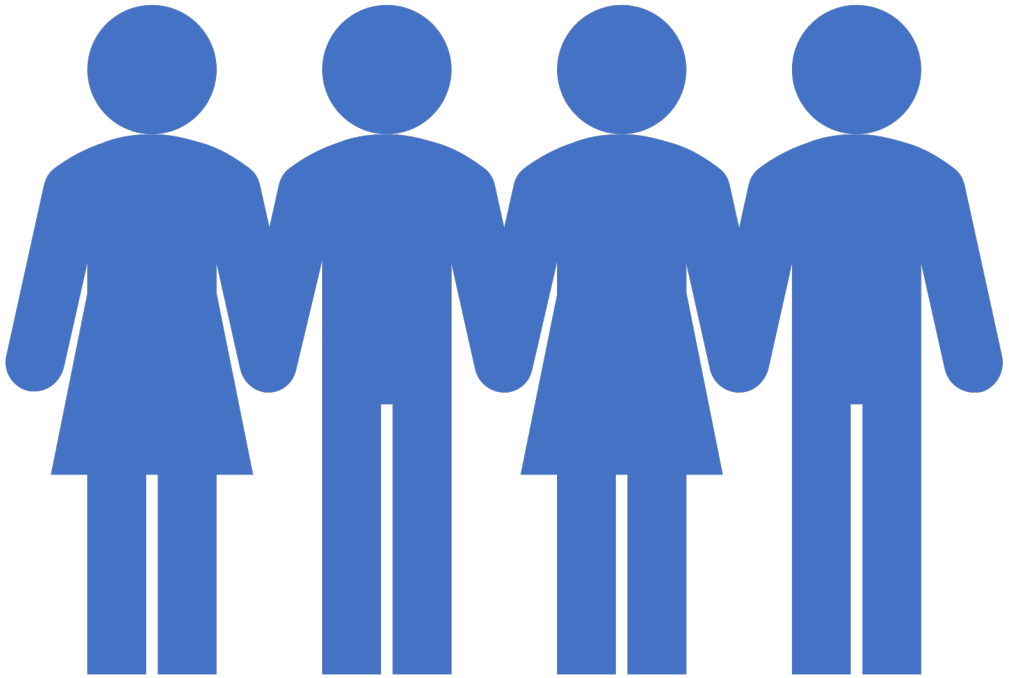




Patients Can Participate on their terms



“The Profound Influence of Place” Dr. Clyde Yancy



COVID-19 Accelerated E-Commerce Growth ‘4 To 6 Years’

John Koetsier Senior Contributor
Consumer Tech

Same for Decentralized Clinical Trials

Make Clinical Trials Accessible and Convenient for Everyone, Everywhere