

# Clinical Researcher

## January 2018

### HOME STUDY TEST

#### *All Hands in On Recruitment and Retention*

### Earn 2.0 Continuing Education Credits

Two articles from the online January 2018 issue of *Clinical Researcher* (see <https://www.acrpnet.org/resources/clinical-researcher/>) have been selected as the basis for a Home Study test that contains 20 questions. For your convenience, the selected articles and test questions are combined and posted in the form of this printable PDF at <https://www.acrpnet.org/professional-development/training/home-study/>, where the test may be purchased. *The test will be active until January 31, 2019.* This activity is anticipated to take two hours. **Answers must be submitted using the electronic answer form online (members \$30; non-members \$50).** Those who answer 80% or more of the questions correctly will receive an electronic statement of credit by e-mail within 24 hours. Those who do not pass can retake the test for no additional fee.

### CONTINUING EDUCATION INFORMATION

The Association of Clinical Research Professionals (ACRP) is an approved provider of nursing and clinical research continuing education credits.

#### Contact Hours

The Association of Clinical Research Professionals (ACRP) provides 2.0 contact hours for the completion of this educational activity. These contact hours can be used to meet the maintenance requirements for certification programs of the Academy of Clinical Research Professionals. (ACRP-2018-HMS-001)

#### Continuing Nursing Education

The California Board of Registered Nursing (Provider Number 11147) approves the Association of Clinical Research Professionals (ACRP) as a provider of continuing nursing education. This activity provides 2.0 nursing education credits. (Program Number 11147-2018-HMS-001)

### ACRP DISCLOSURE STATEMENT

The Association of Clinical Research Professionals (ACRP) requires everyone who is in a position to control the planning of content of an education activity to disclose all relevant financial relationships with any commercial interest. Financial relationships in any amount, occurring within the past 12 months of the activity, including financial relationships of a spouse or life partner, that could create a conflict of interest are requested for disclosure. The intent of this policy is not to prevent individuals with relevant financial relationships from participating; it is intended that such relationships be identified openly so that the audience may form their own judgments about the presentation and the presence of commercial bias with full disclosure of the facts. It remains for the audience to determine whether an individual's outside interests may reflect a possible bias in either the exposition or the conclusions presented.

### ACRP EDITORIAL ADVISORY BOARD

Jerry Stein, PhD (*Chair*)  
Paula Smailes, RN, MSN, CCRC, CCRP (*Vice Chair*)  
Suheila Abdul-Karrim, CCRA, CCRT (*Training and Development Liaison*)  
Victor Chen  
Fraser Gibson, CCRA, CCRP  
Gregory Hale, MD, CPI  
Stefanie La Manna, PhD, ARNP, FNP-C  
Christina Nance, PhD, CPI  
Ernest Prentice, PhD (*Association Board of Trustees Liaison*)  
Shirley Trainor-Thomas, MHSA  
Heather Wright, BS, BA:  
*Nothing to Disclose*

### ACRP STAFF/VOLUNTEERS

James Michael Causey (*Editor-in-Chief*)  
Gary W. Cramer (*Managing Editor*)  
Karen Bachman  
Jan Kiszko, MD  
Jo Northcutt  
Deepti Patki, MS, CCRC  
Barbara van der Schalie  
Christine Streaker:  
*Nothing to Disclose*

PEER REVIEWED

## **The Clinical Trial Participant Experience: Development of a Survey Instrument and Implementation in a Global Phase III Clinical Trial**

Abbe Steel, MSc; Bert Hartog, PhD; Tom Howard; Jennifer Frasier; Jennifer Kelly; Elise Felicione, MPH, MBA

[DOI: 10.14524/CR-17-0010]

Global clinical trial enrollment rates across all therapeutic areas decreased from 75% in 2000 to 59% in 2006. Furthermore, retention of enrolled patients fell 21% over the same period.<sup>{1}</sup> According to the Center for Information and Study on Clinical Research Participation, the percentage of screened patients who completed a clinical trial dropped from 49% during the 1999–2003 time period to 25% during 2009–13.

The requirements of a study are often more demanding than standard medical care, in that patients must invest significant time in making frequent office visits for blood tests and procedures, and in completing lengthy questionnaires. Total median procedures per protocol increased from 105.9 in 2000–03 to 166.6 in 2008–11.<sup>{2}</sup>

Given the need for new medicines, and the critical role that clinical trials play in the drug approval process, it is necessary for today's pharmaceutical companies to design trials that fit with patients' lifestyles and medical needs. Sponsors recognize the vast recruitment and retention challenges; however, very few include patient feedback as part of the study design or implementation.

This article describes a two-stage project that sought to capture patients' voices in a clinical trial-specific survey, ultimately to guide programs that can improve patient enrollment, satisfaction, and retention.

## **Background**

There are many standardized general satisfaction surveys in healthcare with good validity and reliability, including the Patient Satisfaction Questionnaire Short Form (PSQ-18),{3} the Picker Patient Experience Questionnaire (PPEQ -15),{4} and the consumer assessment health plans (CAHPS).{5} However, these surveys were not specifically developed for the clinical trial setting.

Because the overall clinical trial experience is impacted by so many unique factors related to study protocol and standards of care (i.e., research site staff, unapproved medication/placebo, need for increased tests/procedures, etc.), any survey that seeks to effectively assess the clinical trial participant experience must be designed for this setting.

HealthiVibe, LLC designed and administered a U.S.-based survey development study from April 2015 to August 2015, which allowed for development, pre-testing, and refinement of the survey instrument. The company then partnered with Janssen Research & Development, LLC to jointly conduct a global implementation study to assess logistics and proof-of-concept implementation in 10 countries. The global study was conducted from December 2015 to June 2016.

## **Survey Development Study**

### *Objectives*

1. Assess patient satisfaction with the clinical trial process
2. Isolate drivers of satisfaction or dissatisfaction
3. Identify what barriers hinder participation and completion, and any other aspects of the trial process the patients felt could be improved to positively impact their experience
4. Ascertain the role played by site-specific considerations on trial participation, completion, and satisfaction

Issues explored as part of the survey development process included:

- The informed consent process
- Friendliness, preparation, and effectiveness of site staff
- Positive and negative impressions of waiting areas and exam rooms
- Flexibility and convenience
- Obstacles related to travel, child care, and other factors
- Study compensation
- Reasons for trial participation
- Likelihood of participation in additional trials

By administering the survey to clinical trial participants, Janssen's goal was to identify areas of relative strength and weakness within the clinical trial, target areas for improvement, and gain a more substantive understanding of the patient experience. This would also provide insight into how the survey could be rolled out and standardized to a broader audience, and ultimately be validated as a benchmarking tool for comparison across trial types (phase, therapeutic area, complexity, etc.). This understanding could then be leveraged to help drive protocol design, site selection, and study execution moving forward.

## *Methods*

### Literature Review

A literature review was undertaken in April and May 2015 to evaluate trial participant experience topics/issues in published papers, reports, blogs, and videos. {3,4,6–15}

### Patient Interviews

Detailed, open-ended, face-to-face and phone interviews were conducted with 24 U.S.-based past trial participants to understand their perspective on challenges they faced and how the clinical trial experience could be improved. The goal was to identify areas of concern from a patient perspective and improve the overall experience before, during, and after the trial, including any challenges they may have faced during enrollment in the trial, execution of the protocol, and

study completion. These interviews were geared toward gathering information and expressions that could be used to develop potential survey questions (see Figure 1).

**Figure 1: Sample questions from patient interviews**

How did you first learn about the trial?
How long was the trial in terms of the length of time that you were involved?
How did the study site keep you informed about your test results, the number of people participating in the trial, or other trial-related details?
What questions or concerns did you have for the study doctor or study staff after you finished reading the informed consent form?
Looking back, do you think the information provided in the consent form was adequate given your experience in the study?
How did the doctors or nurses talk to you about your study medication? What types of questions did you have about the medication?
How did you get to and from your study (or doctor's) visits when you were enrolled?
What challenges did you encounter during the enrollment process?
What was challenging or did you find to be particularly burdensome once you were enrolled and actively participating in the study?
Once the study ended, how did you feel about finishing your involvement in the clinical trial?
Did you ever consider dropping out of the study? (If yes, PROBES: painful tests, transportation, etc.)
Was there anything that could have done differently that might have improved your clinical study experience?

#### Draft Survey Implementation

The draft survey instrument was created on the basis of these 24 patient interviews, along with the literature search, and included a final selection of 50 multiple-choice questions. It was programmed in an online format in July 2015, and was fielded to 100 additional respondents who had participated in a Phase II or III clinical trial from 16 distinct disease areas within the past 10 years (n=100). The respondents were all located in the U.S. and ranged in age from 18 to 69 (62% male; 38% female).

The goal of the draft survey implementation was to test the comprehensibility and clarity of the survey instrument. Respondents completed the survey between July and August 2015.

### Telephone Depth Interviews

Following the administration of the online survey, a sample of clinical trial survey respondents (n=11) participated in 45-minute telephone interviews in August 2015. The purpose of these interviews was to gain insight into the participant response to the survey content, formatting, clarity of questions, and user-friendliness.

### Site Staff Interviews

Telephone interviews were also conducted in August 2015 with a representative sample of investigators and study coordinators (n=5) from U.S.-based research sites to obtain feedback on the survey. Site staff took the survey as part of the interview process, then provided specific feedback to questions and response options.

The draft instrument was revised, based on comprehensive review of patient and site feedback. Revisions included elimination of some items and rewording of others, due to such factors as a high non-response rate or response scales that showed little variability.

## *Results*

### Themes and Question Selection

Six consistent themes were found across different sources of patient feedback. The final survey questions align with these themes. Additional context for each of these themes is provided in Table 1.

**Table 1: Survey Themes**

<b>Theme</b>	<b>Number of Questions</b>	<b>Examples of Topic Areas</b>
Communication	8	<ul style="list-style-type: none"><li>• Site staff sharing information about study medication, procedures, tests, number and duration of study visits, study progress</li><li>• Ability to ask questions and opportunity to obtain answers to questions</li><li>• Patients should receive regular &amp; patient-friendly communication &amp; information both throughout and after the end of the trial (including study results)</li></ul>
Site Experience	10	<ul style="list-style-type: none"><li>• Role of clinical research staff was instrumental in ensuring patients have a positive experience, understand the protocol &amp; fully grasp the importance of compliance and how to achieve it</li><li>• Having an accurate length of appointment as communicated</li><li>• Physical appearance of site</li></ul>
Convenience	8	<ul style="list-style-type: none"><li>• Appointment times that are convenient</li><li>• Travel distance, site convenient to home or work</li><li>• Medication administration, storage and packaging needs to be easy to use, right size, easy to store, &amp; help you to remember to take medication</li></ul>
Relationship Building & Support	7	<ul style="list-style-type: none"><li>• Patients start off scared and worried</li><li>• Patients care about the interaction with staff and doctors and not about the paperwork or tests</li><li>• Being constantly monitored</li><li>• Continuity of staff for developing relationship and familiarity</li></ul>
Compensation	3	<ul style="list-style-type: none"><li>• Being paid is an important factor in decision to participate</li><li>• Most patients expressed concern about lack of compensation</li><li>• Timely reimbursement important</li></ul>
Helping Self & Others	7	<ul style="list-style-type: none"><li>• Opportunity to improve the health of others</li><li>• Opportunity to improve their own health</li><li>• Informed patients who feel they are part of something</li><li>• For all the effort &amp; sacrifice, patients know they may not be getting any value</li></ul>

The final survey resulted in 50 questions presented sequentially in several formats:

- Choose one or multiple responses from a defined list of possible statements (e.g., “Select all that apply”)
- Provide a rating using a 5-point Likert scale

In addition, the survey was designed without open-ended questions to avoid the possibility of adverse event reporting.

There was consensus among the site staff interviewed that measuring patient satisfaction in the clinical trial setting is critical for site/patient relationships, patient retention, and compliance. None of the interviewees had implemented a patient satisfaction questionnaire, nor did they have any process in place to assess patient satisfaction. All of those interviewed stated they would willingly offer a patient satisfaction survey to their research participants if one was provided.

### Drivers to Satisfaction

Of the measures collected from participants, the top driver of participant overall satisfaction was having their health concerns addressed by staff during the study (0.688 Pearson correlation coefficient, accounting for 47% of the shared variance between the measures) (see Table 2).

Other top drivers included satisfaction with the answers to questions during the informed consent process (0.585 Pearson correlation coefficient, 34% of shared variance) and the opportunity to ask questions throughout the study (0.563 correlation coefficient, 32% of shared variance).

Three drivers were identified with a negative correlation to overall satisfaction. Respondents who considered stopping participation in the clinical trial for personal reasons were more likely to be dissatisfied (-0.558 correlation coefficient, 31% of shared variance), with two of the most common drivers of dissatisfaction being staff failing to keep the patient informed about his or her health (-0.508 correlation coefficient, 26% of shared variance) and the patient having to undergo tests seen as painful or scary (-0.425 correlation coefficient, 18% of shared variance).

**Table 2: Top 10 Drivers of Overall Satisfaction in Clinical Trials**

	<b>Aspect of Clinical Trial</b>	<b>Correlation to Overall Satisfaction</b>	<b>Shared Variance</b>
<b>1</b>	Health concerns addressed by staff	0.688	47%
<b>2</b>	Answers to questions during informed consent process	0.585	34%
<b>3</b>	Opportunity to ask questions	0.563	32%
<b>4</b>	Having a personal reason to consider stopping	-0.558	31%



5	Staff friendliness	0.542	29%
6	Helpfulness of participation to oneself	0.535	29%
7	Failure to inform patient about their health	-0.508	26%
8	Explanations during informed consent process	0.491	24%
9	Painful/scary tests	-0.425	18%
10	Satisfied with instructions regarding medicine	0.411	17%

### Ease of Use

Patients were asked about any challenges with taking the survey and to share their perspective on ease of use and navigating the survey site (see examples in Figure 2).

**Figure 2: Patient Quotes Regarding Survey Ease of Use**

"I just had to press Next. It was very smooth to get through."
"It was fairly easy to use. I remember afterwards in my head I thought that wasn't bad. When I saw the subject I thought it would be pretty clunky to take but it was well written and well laid out."
"Yeah, it was real easy to navigate."

### **Global Implementation Study**

Janssen contracted with HealthiVibe to conduct a clinical trial participant survey for a Phase III, multicenter, randomized, double-blind study in subjects with moderate to severe plaque-type psoriasis upon completion of a Week 60 follow-up visit. The survey launched initially in the U.S. in December 2015. Additional surveys were launched in the first half of 2016 in Australia, Canada, Germany, Korea, Poland, Russia, Spain, Taiwan, and United Kingdom. For this pilot, the surveys were limited to just those patients who completed the study. The survey closed in June 2016.

### *Methods*

#### Ethics Committee Approvals

A central institutional review board (IRB) in the U.S. and each country's ethics committees (ECs) for participating sites were sent an implementation package for review and approval. The submission packages, which were all approved by the applicable ECs, included a survey, translated content and corresponding certificate, privacy policy, postcard, and survey screen shots.

### Translations

The survey, privacy policy, and postcard were translated from English into seven additional languages, allowing the survey to be fielded in all participating countries.

### Site Communication/Training

One month prior to launch, site staff received an e-mail that included a link to a five-minute training video and a link to an English version of the survey. Following the training, site staff were sent a Welcome Packet that included a supply of EC-approved, language-specific patient invitation postcards. Janssen's local trial managers were centrally trained on key operational aspects to allow them to work with site staff for implementation.

### Patient Communications

During their Week 60 study follow-up visit, participants at sites in participating countries received a survey invitation via a language-specific postcard with a QR code allowing easy access to the survey website in the participants' native languages.

### Survey Fielding

The implementation survey was made available to 148 patients left in the study across 10 countries, at the time of EC approval. It included a subset of the questions refined through the earlier survey development study. Questions that were not relevant based on the trial design (i.e., compensation and medication use questions) were removed.

Respondents completed the web-based survey consisting of 35–40 questions, with the exact number varying based on skip logic. Answers were required to all questions.

### Response Identification and De-Duplication

Responses were anonymous, and both Internet-based and location-based tracking were disabled to protect privacy and anonymity. No patient-identifiable information was collected. Response deduplication was therefore not possible.

### Periodic Reporting

Monthly reports were provided to the sponsor via an online reporting portal. Reports included response distribution frequencies, aggregate mean scores between 1.0 and 5.0 for all Likert-based questions, and aggregate scores for each themed group of questions and for the survey sample population as a whole. Site- and country-level responses were also made available through the online portal.

### Reporting Thresholds

In consideration of patient privacy and to maintain anonymity of participants, scores were not reported to the sponsor unless certain thresholds were met at the site, country, and overall survey level.

For sites reporting fewer than five total respondents, the site's aggregate score was not reported, and response distribution frequencies were not made available. For countries reporting fewer than five respondents and fewer than two reporting sites, the country's aggregate score was not reported, and response distribution frequencies were not made available.

### *Results*

A total of 57 respondents took the survey, including 46 complete and 11 partial responses representing 25 different study sites across the 10 participating countries. Response rates varied by country, with Spain having the highest (50%) and Russia the lowest (1%). The average response rate for completed surveys across the 10 countries was 31%.

Among all respondents, 63% were male and 37% were female. The average survey completion time was 9.5 minutes, exclusive of the slowest and fastest 10% of respondents.

### Overall Satisfaction

Ninety percent of respondents said they were “very” or “completely” satisfied with their overall clinical trial experience; 87% said the clinical trial experience “very much” or “completely” met their expectations; and no patients reported being only “slightly” or “not at all” satisfied by the overall trial experience.

### Responses by Theme

“Relationship Building and Support” had the highest aggregate theme score (4.59 out of a possible 5.0) among respondents. The themes of “Communication,” “Helping Self and Others,” “Overall Satisfaction,” and “Site Experience,” while less highly rated, also exceeded the 4.0 threshold. The lowest aggregate theme score (3.62) was for “Convenience” (note that the “Compensation” theme was out of scope for this clinical trial).

### **Lessons Learned**

As part of the pilot study, participating sites and sponsor staff were asked their feedback on the survey and the survey process, to help support the design and implementation of patient experience surveys for future trials. Insights were generated and feedback obtained in multiple areas, as described in the following sections.

#### *Post-Study Site Feedback*

Forty-six sites from eight countries provided their feedback regarding the implementation of the survey study. They were asked about their role in supporting the implementation and the value they believe the survey could bring.

The survey was perceived as “easy to implement” by 68% of sites, and 52% indicated they could see the value in it. Nearly 64% of sites indicated they were “satisfied” or “very satisfied” with the questions used in the patient satisfaction survey. Further, nearly 80% of respondents said they would recommend patient satisfaction surveys be conducted for all clinical trials.

#### *Site Communications*

There were clear learnings related to site communications, including the following:

- Clear and concise patient communication is needed.
- Introduction letters must be short and concise.
- Communication should come from country's lead clinical research associate/site monitor.
- Staff should encourage patients to complete surveys onsite.

### *Patient Communications*

Additionally, there were clear learnings related to patient communications, including the following:

- One touch is not enough; multiple reminders support higher response rates.
- Encouragement from the site is critical.

### *Timing*

The response rate in the pilot study could have been higher, had it not been for the fact that it was introduced late in an already ongoing clinical trial; sites had not been prepared during study start up. Therefore, it is recommended to make the survey part of the original submission package, including mention of the survey(s) in the study informed consent.

### **Discussion**

The survey instrument, as designed, is understood to be a baseline or template for patient experience surveys. IRB and EC feedback on using the survey has been positive and, given the novelty of this approach, our recommendation is to continue to inform IRBs and ECs about planned use of such surveys for reasons of transparency.

Meanwhile, sponsor modifications to the survey are to be expected, in order to capture datapoints specific to any given trial and to discard inapplicable questions, while retaining core questions that will help shape future benchmarking capabilities. It is important, from a patient experience perspective and from a response analytics perspective, that modifications are made with consistent question wording and response scales while paying attention to the ordering of questions and the overall length of the survey.

Additional changes were made to the survey instrument following the development study and the survey's global trial implementation. These changes were implemented to extend the analytical capabilities of the survey response dataset, further simplify and clarify the content, and allow for industry benchmarking.

### **Ethical Approval**

Survey Development Study: Ethical & Independent Review Services (Kansas City, Mo.)

Pilot Study: U.S. central IRB and country/site-level ECs

### **Conflicts of Interest**

HealthiVibe was paid by Janssen to execute the pilot study.

### **References**

1. Lo C. 2014. The numbers game: boosting clinical trial enrolment. *Pharm Tech* [www.pharmaceutical-technology.com/features/featurethe-numbers-game-boosting-clinical-trial-enrolment-4171654/](http://www.pharmaceutical-technology.com/features/featurethe-numbers-game-boosting-clinical-trial-enrolment-4171654/)
2. Center for Information and Study on Clinical Research Participation. <https://www.ciscrp.org/download/our-full-set-of-graphs-and-tables-in-pdf-format/?wpdmdl=4951>
3. Dawn AG, Lee PP. 2003. Patient satisfaction instruments used at academic medical centers: results of a survey. *Am J Med Qual* 18(6):265–9.
4. Jenkinson C, Coulter A, Bruster S. 2002. The Picker Patient Experience Questionnaire: development and validation using data from in-patient surveys in five countries. *Int J Qual Health Care* 14(5):353–8.
5. Agency for Healthcare Research and Quality. <https://www.ahrq.gov/cahps/>
6. TEDx Talks. Fred Lee presentation at TEDxMaastricht 2011: The Future of Health. Patient satisfaction or patient experience? <https://www.youtube.com/watch?v=tylvc9dY400>
7. Health Talks Online. [healthtalksonline.com](http://healthtalksonline.com)
8. Gorski D. 2010. Integrating patient experience into research and clinical medicine: towards true “personalized medicine”. *Sci-Based Med*

<https://sciencebasedmedicine.org/integrating-patient-experience-into-research-and-clinical-medicine-towards-true-personalized-medicine/>

9. National Public Radio. 2012. One woman's experience as a clinical trial "lab rat".  
<https://www.npr.org/2012/02/07/146531530/one-womans-experience-as-a-clinical-trial-lab-rat>
10. International Society for Pharmaceutical Engineering. 2014. Assessing patient experience with clinical trial medicine kits. <https://www.ispe.org/ispeak/assessing-patient-experience-with-clinical-trial-medicine-kits>
11. Eli Lilly & Company. 2014. Improving the patient experience of clinical trials.  
<http://docplayer.net/16455005-Improving-the-patient-experience-of-clinical-trials-eli-lilly-company.html>
12. Hussain-Gambles M. 2004. South Asian patients' views and experiences of clinical trial participation. *Family Practice* 21:636–42.
13. Nelson A, Fenlon D, Morris J, et al. 2013. QUALZICE: A QUALitative exploration of the experiences of the participants from the ZICE clinical trial (metastatic breast cancer) receiving intravenous or oral bisphosphonates. *Trials* 14:325.
14. Ferguson PR. 2001. Patients' experiences and views of clinical trials. *Med Law* 20:143–52.
15. Heaven B, Murtagh M, Rapley T, et al. 2006. Patients or research subjects? A qualitative study of participation in a randomised controlled trial of a complex intervention. *Patient Educ Couns* 62:260–70.

**Abbe Steel, MSc**, ([abbe.steel@healthivibe.com](mailto:abbe.steel@healthivibe.com)) is CEO of HealthiVibe, LLC.

**Bert Hartog, PhD**, ([BHartog@its.jnj.com](mailto:BHartog@its.jnj.com)) is a senior director for Janssen Clinical Innovation at Janssen Research & Development.

**Tom Howard** ([tom.howard@healthivibe.com](mailto:tom.howard@healthivibe.com)) is chief information officer at HealthiVibe, LLC.

**Jennifer Frasier** ([JFrasier@its.jnj.com](mailto:JFrasier@its.jnj.com)) is clinical innovation manager at PRA Health Sciences, performing services on behalf of Janssen Research & Development.

**Jennifer Kelly** ([jennifer.kelly@healthivibe.com](mailto:jennifer.kelly@healthivibe.com)) is vice president at HealthiVibe, LLC.

**Elise Felicione, MPH, MBA**, ([EFelicio@its.jnj.com](mailto:EFelicio@its.jnj.com)) is a senior director for Janssen Clinical Innovation at Janssen Research & Development.

© Copyright 2018 Association of Clinical Research Professionals. All rights reserved.

PEER REVIEWED

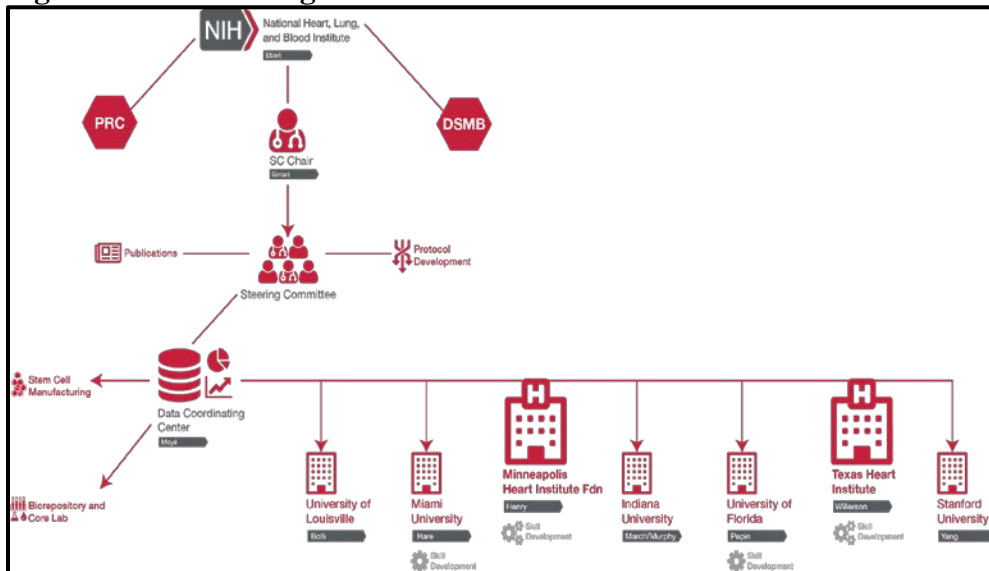
## Training CRCs of the CCTRN Using an Online Learning Platform

Joseph Cosico, MA, CCRC; Jennifer Chambers, RN, BSN, CCRC; Rachel Olson, RN, BSN, MBA; Gerry Yumul, BA; Jay H. Traverse, MD; Emerson C. Perin, MD, PhD; Timothy D. Henry, MD

[DOI: 10.14524/CR-17-0024]

Launched in 2007 by the National Heart, Lung, and Blood Institute (NHLBI), the Cardiovascular Cell Therapy Research Network (CCTRN) aims to achieve public health advances for the treatment of cardiovascular diseases through the conduct and dissemination of collaborative research leading to evidence-based treatment options and improved outcome for patients with heart disease. { 1 } The CCTRN is a network of physicians, scientists, and support staff (see Figure 1) dedicated to studying stem cell therapy for treating heart disease.

**Figure 1: CCTRN Organizational Chart**



DSMB = Data and Safety Monitoring Board; PRC = Protocol Review Committee; SC = Steering Committee



Traditionally, cell therapy trials for cardiovascular disease are complex trials requiring experienced and well-trained clinical research nurse coordinators (CRNCs). Hiring and retaining experienced CRNCs across multicenter, multiyear clinical trials can be challenging. It is worth noting that the average tenure in a job setting for a research coordinator working in the United States is between one and three years.<sup>{2}</sup> This high turnover rate is resource intensive in terms of recruitment, onboarding, and training.

Recognizing this as an opportunity for improvement, the NHLBI issued a request for training program proposals as part of the competitive grant renewal for the CCTRN in 2012. NHLBI awarded the Minneapolis Heart Institute Foundation (MHIF) and the Texas Heart Institute (THI) funding to train CRNCs.

The MHIF training program consisted of moderated and self-paced online training components that were provided in addition to its established, preceptor-based orientation program. THI's training program followed a more traditional pathway, with each clinical research nurse training onsite for 16 months with a structured preceptorship taught by the members of the research team.

### **MHIF Training Core Program**

The primary goal of the Clinical Nurse Research Coordinator Core Curriculum Training program at MHIF was to encourage the development of nurses with varying levels of research experience into successful CRNCs in cardiovascular cell therapy. The specific goals were to:

- Develop a core curriculum consisting of didactic, hands-on training, multimedia/virtual support, and, most importantly, a mentoring program during the first 12 months of the grant period.

- Train four or five research nurse coordinators yearly in conjunction with the CCTRN clinical research activities during the grant award period.

The curriculum for the training program (see Figure 2) was delivered in a variety of media formats that included interactive classroom, taped or linked video presentations, live and remote presentations, and moderated slide presentations. The curriculum also contained a repository of relevant peer-reviewed articles.

<b>Figure 2: MHIF Training Curriculum</b>	
<p>A. <u>Human Research Subject Protection</u></p> <ul style="list-style-type: none"> <li>• Institutional Review Board and Institutional Biosafety Committee</li> <li>• National Institutes of Health &amp; Food and Drug Administration Regulations</li> <li>• Informed Consent Process</li> <li>• Health Insurance Portability and Accountability Act (HIPAA)</li> </ul>	<p>E. <u>Cardiovascular Diseases Targeted with Cell Therapy</u></p> <ul style="list-style-type: none"> <li>• Acute Myocardial Infarction</li> <li>• Heart Failure/Heart Transplant/Mechanical Circulatory Support</li> <li>• Refractory Ischemia</li> <li>• Peripheral Artery Disease (Critical Limb Ischemia)</li> <li>• Stroke</li> </ul>
<p>B. <u>Responsible Conduct of Clinical Research</u></p> <ul style="list-style-type: none"> <li>• Conflict of Interest</li> <li>• Data Integrity</li> <li>• Study Methodologies</li> </ul>	<p>F. <u>Current Cell Therapy Technologies</u></p> <ul style="list-style-type: none"> <li>• Cell Types (adult vs. cord vs. embryonic)</li> <li>• Autologous vs. Allogeneic</li> <li>• Cell Harvesting and Processing</li> <li>• Cell Delivery (Intravenous, Intramyocardial, Intracoronary, Retrograde Coronary Sinus)</li> </ul>
<p>C. <u>Study Start-up, Implementation and Data Collection</u></p> <ul style="list-style-type: none"> <li>• Regulatory document preparations and submissions</li> <li>• Contracts and Study Budgets</li> <li>• Screening and Recruitment strategies</li> <li>• Data submissions</li> </ul>	<p>G. <u>Introduction to Study Methodology</u></p> <ul style="list-style-type: none"> <li>• Biostatistics</li> <li>• Clinical Trial Design</li> <li>• How to read and critique a scientific paper, abstract, or manuscript for peer-review submission</li> </ul>

D. <u>Data and Safety Reporting</u>	
-------------------------------------	--

- Serious Adverse Event and Adverse Event Reporting
- Data Adjudications

For the online instruction component described below, quizzes followed each module to assess the coordinator's retention of the presented material. Research coordinators accessed the modules of interest to them when it worked with their schedule, making this a very convenient resource.

### **MHIF Online Learning Approach**

For the online component of the training program, MHIF used the Udemy online learning platform to enhance its existing orientation and training program. A unique feature of this platform was that it provided a technology solution for experts of any kind to create courses that could be offered to the public, either at no charge or for a fee.

Use of the platform was intuitive, and required minimal technical skills for program setup. The course content created could be adapted for training in clinical research networks, customized to disease-specific training, and used across different research departments of health systems.

Additionally, from a cost perspective, the online learning platform was a good match for this program since the pricing structure could be adjusted as the training program expanded.

Converting traditional research nurse training materials into moderated slide presentations required a great deal of up-front effort and time. Slides and scripts were created from existing materials and reviewed for accuracy, completeness, and user comprehension. Once the materials

were converted, they were easily accessible, easily updated, and “green” because preceptors did not need to print materials for new employees.

Importantly, because the field of stem cell research is evolving, it was necessary that presentations be easily modifiable. Each module contained a disclaimer stating that the creators had made reasonable efforts to ensure that the information presented was accurate at the time of publication.

### **THI Training Core Program**

The goal of THI’s Clinical Research Nurse Training Core Program was to provide a training environment in the Stem Cell Center at THI in which nurse participants developed the comprehensive skills and research competencies necessary to become independent CRNCs in cardiovascular stem cell research. Training emphasized the care of subjects in clinical stem cell studies; solving problems that arose regarding the logistics of coordinating these trials; ensuring data accuracy; and adherence to established clinical research standards, regulatory guidelines, ethical principles, competency, and protection of human research subjects.

THI’s program used a variety of methods to educate trainees, consisting of individualized mentoring, didactic classes, hands-on training, and web-based training modules. The participants for this nursing skills program were registered nurses new to clinical research with less than one year of clinical research coordination experience and without previous cardiovascular cell therapy research knowledge. The participants held a minimum of two years of clinical work experience (preferably working in a cardiovascular intensive care unit, critical care unit, or catheterization lab). This program was a 16-month training core.

THI's program was divided into four phases:

Phase I: Basics of Research/Stem Cell Research (three months)

Phase II: Advancing Basic Skills (three months)

Phase III: Advance to Independent Coordinator Role (six months)

Phase IV: Independent Coordination of Stem Cell Studies (four months)

The following skills development areas complemented the training phases:

- Implementation of CCTRN and Private Sponsor Trials
- Cross Disciplinary Career Development
- New Technologies and Skills
- Professional Development

### **Combined Programs**

In 2014, the strengths of both sites were capitalized upon to create a joint CRNC training skills development program to better serve the needs of nurse coordinators throughout the CCTRN.

The goal of the THI/MHIF collaboration was to maintain an effective and user-friendly way to train coordinators and disseminate the most up-to-date information, to be accomplished by creating self-paced modules for disseminating best practices for coordinators in stem cell research. Training was geared toward new CRNCs, but also offered an opportunity for experienced nurse coordinators to expand their knowledge base.

Furthermore, the initial intended audience comprised CCTRN nurse coordinators, but there were non-nurse coordinators at participating sites who also expressed interest in the training opportunity. The two groups developed modules that were comprehensive (covering

cardiovascular, clinical research processes, and stem cells), convenient (content could be accessed as needed on multiple devices), and adaptable (content was applicable to other studies and other disease processes, and could be modified as scientific breakthroughs occurred).

Figure 3 lists the main topics of the CCTRN modules. Content for both the initial MHIF and the combined training programs was created with contributions from the investigators and coordinators at MHIF, THI, and other CCTRN sites. The pool of experience about cell therapy research from these individuals greatly enhanced the quality of the training modules.

The modules covered the basics of a study coordinator's roles in subject recruitment and consent, staff education, and regulatory compliance. The content addressed many stem cell topics, including cell harvest, processing, transportation, and delivery. The coursework offered a basic cardiovascular anatomy and physiology module for those coordinators who needed a refresher in these areas.

The modules trained study coordinators through recorded lectures, videos, links to additional resources that supported the topic, and self-assessment quizzes. Each module had a consistent overall format, and as professional trainees have limited time, the modules were developed in segments usually lasting no more than 15minutes. Preceptor contact information was provided so that the trainees could submit follow-up questions, as needed. Trainees also had multiple opportunities (i.e., at the end of each module) to provide feedback to the preceptors so the site could be continually improved.

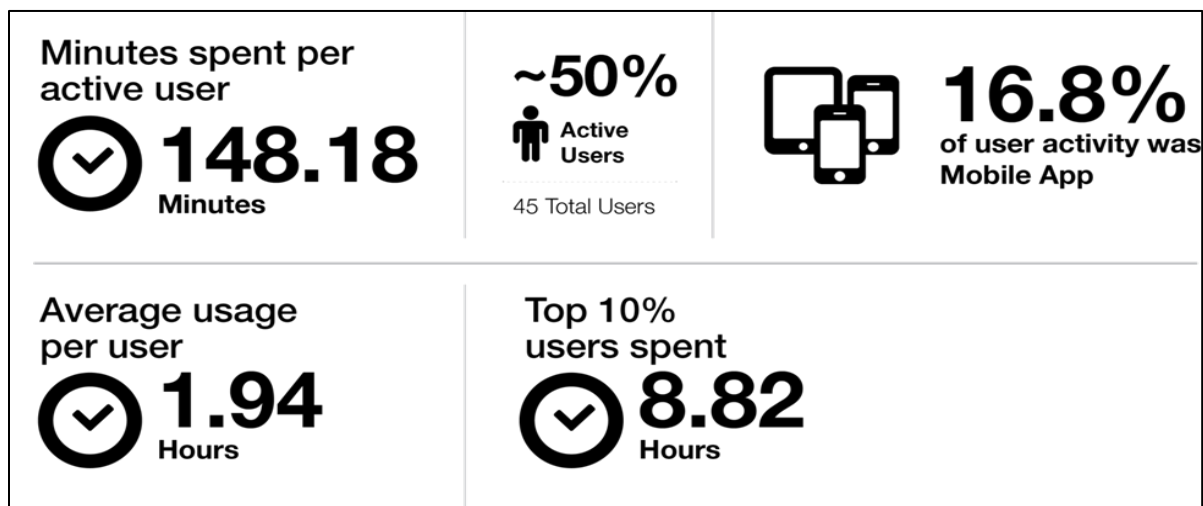
**Figure 3: Combined MHIF/THI Program Online Modules**

- |      |   |
|------|---|
| I.   | Stem Cells 101                            |
| II.  | Cardiac Anatomy                           |
| III. | Stem Cell Research Delivery Methods       |
| IV.  | Cell Harvest Considerations (in progress) |
| V.   | Cell Processing Overview                  |

- VI. Cell Transportation/Reconstitution
- VII. Considerations for: Preparation for Treatment, Day of Treatment, Recovery After Treatment, Discharge
- VIII. Recruitment
- IX. Staff Education
- X. Stem Cell Protocol Review
- XI. Consent
- XII. Regulatory

Key advantages of the online learning platform were seen from how it supplemented the sites' own onboarding programs, reduced training time for new coordinators, and enabled all users to access and learn at their own pace and convenience. Further, the online learning platform provided analytics insights so preceptors could ascertain who was using the training site and which content they viewed. Tracking the site's user analytics helped the team improve the site and track usage trends, as displayed below (see Figure 4) in a sample snapshot report from the CCTRN online training platform's analytics dashboard.

**Figure 4: CCTRN Online Learning Platform Provides Snapshots of User Metrics**



## **ACRP-Approved Modules for Contact Hours**

In addition to developing the CCTRN training modules, the THI/MHIF team wanted to offer further incentives for participation to the coordinators. In Spring of 2015, the team approached the Association of Clinical Research Professionals (ACRP) to request a certificate of completion from a recognized organization for the learner's or trainee's completion of activities. ACRP indicated that it had worked with organizations in the past on these types of requests and was interested in working with the team.

ACRP requested the modules be grouped together in 45-minute to one-hour segments due to their varying timeframes. After months of discussions and collaboration, ACRP approved the module content and translated the activity into contact hour points for the users' recertification needs.

ACRP determined that, upon completion of the approved training modules (see Figure 5), an ACRP certificant would be able to self-report the continuing education contact hours on applications for maintenance of ACRP's CCRC®, CCRA®, or CPI® certification designations. ACRP will continue to review and evaluate any new content added to the CCTRN's online learning platform.



**Figure 5: ACRP-Approved Training Modules**

**Stem Cell Overview – 1 healthcare point**

Stem Cell 101

**Cardiovascular Anatomy and Protocol Basics – 1 healthcare point**

Protocol Feasibility

Cell Processing

Cardiovascular Anatomy

**Stem Cell Delivery – 1 healthcare point**

Infusion day/Dosing day

Stem Cell Delivery Methods

**Regulatory Documents and Subject Recruitment – 1 research point**

Regulatory Documents

Subject Recruitment

**Informed Consent – 1 research point**

Consent Role Play

Consent Considerations

To provide a mechanism for the learner and/or trainee to document module completion and receive the contact hours, the MHIF team created a survey/feedback section. Once the curriculum was completed, an automated e-mail message notified the MHIF team for training completion verification and certificate issuance.

In Spring 2017, the CCTRN launched the ACRP CCRC maintenance credit opportunity for the CCTRN THI/MHIF modules for all of the coordinators within the network. More than 80 coordinators have used the CCTRN MHIF/THI training core modules to date, and an increase in the number of users is expected.

## **Indicators of Program Success**

As of December 2017, MHIF's CCCT has trained 20 clinical research coordinators over a five-year period, including the recently completed cohorts, which included non-nurse research coordinators. For the first time, the type of trainees were expanded to include associate research coordinators and research assistants. These groups expressed keen interest in completing the moderated and self-paced programs and were great addition to the training cohort.

The faculty will further customize the program to ensure that scopes of practice are clearly delineated. Of the CRCs who underwent training, 10 are working at MHIF as independent CRNCs, and 10 others left to pursue opportunities in clinical research as coordinators or research management in academic and cardiovascular health industry settings.

THI's 16-month training core program has trained a total of three coordinators, two of whom have continued in the field of clinical research. The fourth trainee started THI's training core program in April 2017. The trainee who did not continue in clinical research decided to return to bedside nursing, with a particular interest in the care of patients who received stem cell therapy.

Individualizing the training core program at THI to the trainee's learning needs was the most beneficial aspect of the program, as each participant learned differently. It was also noted that not all participants will want to continue in research due to personal professional preferences.

## **Lessons Learned**

Ensuring that the end-user interface was user-friendly was essential for the training program's success; users had varied online access experience. The interface needed to be easy, convenient, and intuitive for all. Further, our early online content tended to come in the form of longer

presentations that users did not finish in one sitting. By breaking these and future presentations into 10-to-15 minute blocks, we increased utilization and completion of modules. Analytics showed access to the program peaked during the mid-week and around mid-day.

Finally, providing ACRP certification credits has been very positive and has increased utilization. To date, nine research coordinators have completed the certificate eligible modules, with more coordinators being expected to utilize the program for certification maintenance credits.

### **Next Steps**

In addition to continuing to support the training needs of CCTRN, it is envisioned that the online training site will expand to include other NHLBI networks and external research networks. The goal is to eventually provide an accessible resource for the general clinical research community. We are carefully considering charging nominal fees for site access outside CCTRN to ensure sustainability of the program beyond the grant period.

### **Acknowledgement**

Support for these learning modules is made possible through the National Heart, Lung, and Blood Institute (NHLBI) (awards HL087394 and HL087365) in conjunction with the Cardiovascular Cell Therapy Research Network (HL087318).

### **References**

1. Simari RD, Moyé LA, Skarlatos SI, Ellis SG, Zhao DX, Willerson JT, Henry TD, Pepine CJ. 2010. Development of a network to test strategies in cardiovascular cell delivery: the NHLBI-sponsored Cardiovascular Cell Therapy Research Network (CCTRN). *J Cardiovasc Transl Res* 3:30–6.
2. Speicher LA, Fromell G, Avery S, Brassil D, Carlson L, Stevens E, Toms M. 2012. The critical need for academic health centers to assess the training, support, and career development requirements of clinical research coordinators: recommendations from the Clinical and Translational Science Award Research Coordinator Taskforce. *Clin Transl Sci* 5:470–5.

**Joseph Cosico, MA, CCRC, ([joseph.cosico@cshs.org](mailto:joseph.cosico@cshs.org))** of Cedars-Sinai Heart Institute.

**Jennifer Chambers, RN, BSN, CCRC, ([jchambers@texasheart.org](mailto:jchambers@texasheart.org))** of Texas Heart Institute.

**Rachel Olson, RN, BSN, MBA, ([rachel.olson@comcast.com](mailto:rachel.olson@comcast.com))** of Duke Clinical Research Institute and consultant with Minneapolis Heart Institute Foundation.

**Gerry Yumul, RN, ([gerrydesign@gmail.com](mailto:gerrydesign@gmail.com))** of Paradigm Education Solutions and consultant with Minneapolis Heart Institute Foundation.

**Jay H. Traverse, MD, ([jay.traverse@allina.com](mailto:jay.traverse@allina.com))** of Minneapolis Heart Institute Foundation.

**Emerson C. Perin, MD, PhD, ([eperin@texasheart.org](mailto:eperin@texasheart.org))** of Texas Heart Institute.

**Timothy D. Henry, MD, ([timothy.henry@cshs.org](mailto:timothy.henry@cshs.org))** of Cedars-Sinai Heart Institute.

## JANUARY 2018 CLINICAL RESEARCHER

### HOME STUDY

#### ALL HANDS IN ON RECRUITMENT AND RETENTION

##### **The Clinical Trial Participant Experience: Development of a Survey Instrument and Implementation in a Global Phase III Clinical Trial**

###### LEARNING OBJECTIVE

After reading this article, participants should be able to understand the process of conducting a survey and be able to apply the results to categories identified in the survey.

###### DISCLOSURE

Abbe Steel, MSc; Tom Howard; Jennifer Kelly: *Consultants to HealthiVibe, LLC*

Bert Hartog, PhD; Jennifer Frasier; Elise Felicione, MPH, MBA: *Nothing to disclose*

**1. According to the article, clinical trial enrollment rates during 2002 to 2006 decreased across all therapeutic areas globally from:**

- a) 79% to 63%
- b) 75% to 59%
- c) 76% to 61%
- d) 77% to 66%

**2. Sponsors are aware of the recruitment challenges, but are still lacking in some areas. What are these?**

- a) Having a larger patient outreach to get an idea of patient needs across different populations.
- b) Allowing patients to express themselves about the pros and cons of participating in a trial.
- c) Including patient feedback as part of the study design or implementation.
- d) Creating awareness on patient needs in a clinical trial.

**3. Janssen LLC and HealthiVibe LLC conducted a global implementation study in 10 countries. What did they want to assess?**

- a) Logistics and proof-of-concept implementation.
- b) The possibility of the development of surveys as a data tool.
- c) The pharmaceutical industry's response to collecting patient feedback data.
- d) Patients' willingness to complete additional questionnaires after trial completion.

**4. One of the objectives of the study was to assess patient satisfaction with the clinical trial process. How many objectives were there in total?**

- a) Seven
- b) Five
- c) Four
- d) Three

**5. This global implementation study was conducted to provide an understanding that could assist in the future with which of the following?**

- a) Patient centrality in clinical trials.
- b) Insight on the role of surveys in clinical trials.
- c) Understanding patients' needs during participating in trials.
- d) Driving protocol design, selection of sites, and study execution.

**6. Methods that were used in the survey development study include:**

- a) Interviews with patients/site staff and literature reviews.
- b) Collection of patient vital statistics and site financial analyses.
- c) Internet searches, online surveys, and questionnaires for institutional review board members.
- d) Feedback from the principal investigator (PI), sub-investigator (SI), and vendors.

**7. The purpose of the telephone interview was to gain insight on participant response to survey content, format, user-friendliness, and clarity of questions. How long were the interviews?**

- a) 90 minutes
- b) 60 minutes
- c) 45 minutes
- d) 30 minutes

**8. What was the consensus amongst the site staff interviewed?**

- a) Patient feedback is not an important part of the clinical trial process.
- b) Obtaining patient feedback is only useful when questionnaires are combined with interviews.
- c) Ensuring understanding of the informed consent document is the most time-consuming process.
- d) Measuring patient satisfaction in clinical trials is critical for site/patient relationships, retention, and compliance.

**9. Which of the following were some of the processes followed in the global implementation of the Phase III multicenter psoriasis study?**

- a) Patient interviews, site staff interviews, and interviews with the PI and SI.
- b) Patient questionnaires answered by mail, online, and by telephone.
- c) Ethics committee approvals, site communication/training, and translations.
- d) Feedback forms from site staff, patient questionnaires, and interviews with all involved in the trial.

**10. What two areas were clearly identified as “lessons learned” from the Phase III multicenter psoriasis study?**

- a) Site communications and patient communications.
- b) Ethics committee feedback and site feedback.
- c) Patient satisfaction and ease of use.
- d) Cost of participation and timing of visits.

**Training CRCs of the CCTRN Using an Online Learning Platform**

LEARNING OBJECTIVE

After reading this article, participants will be aware of the training programs available through NHLBI as well the different career pathways in cardiovascular research.

DISCLOSURE

Jay H. Traverse, MD: *Receives grant/research support from the U.S. National Institutes of Health*

Joseph Cosico, MA, CCRC; Jennifer Chambers, RN, BSN, CCRC; Rachel Olson, RN, BSN, MBA; Gerry Yumul, BA; Emerson C. Perin, MD, PhD; Timothy D. Henry, MD: *Nothing to disclose*

**11. According to the article, what is the CCTRN?**

- a) A group of employees from the NHLBI specializing in cardiovascular research.
- b) A group of key opinion leaders appointed by a pharmaceutical company to conduct stem cell research.
- c) Researchers from academic centers with an interest in stem cell therapy in cardiovascular disease.
- d) A network of physicians, scientists, and support staff studying stem cell therapy in heart disease.

**12. According to the literature, what is the average tenure for a research coordinator working in the United States?**

- a) An average of two years.
- b) Between one to three years.
- c) Approximately three to five years.
- d) An overall average of four years, including training.

**13. The NHLBI awarded funding to two institutions for training. These are:**

- a) MHIF and THI

- b) CCRTN and ACRP
- c) CCRNC and CCTRN
- d) API and CCTRN

**14. What was the difference in the training programs offered at the two institutions described in this article?**

- a) Attending lectures at an institution versus field-based research assignments.
- b) One was a self-paced online training and the other was onsite training.
- c) One focused on a certification examination and the other required an internship in the unit.
- d) One program had a set number of compulsory modules while the other offered a choice of modules.

**15. The primary goal of the MHIF training program is to:**

- a) Encourage the development of nurses into successful CRNCs.
- b) Provide a mentoring program for nurses entering cardiovascular research.
- c) Enhance nurses' career by providing certification hours in the program.
- d) Provide nurses involved in research with skills on stem cell therapy.

**16. MHIF used the UdeMy online learning platform. What was the unique feature of this learning platform?**

- a) Enables users to log in from anywhere using any device.
- b) Each module has a quiz that tests understanding of the module.
- c) The pricing structure can be adjusted as modules are modified over time.
- d) Provides a technology solution to create courses offered for a fee or no charge.

**17. What is the goal of the THI training program?**

- a) To enable nurses to explore a career in stem cell research.
- b) To enhance the training program with face-to-face lectures onsite.
- c) To provide nurses with training and skills to become independent CRNCs.
- d) To allow nurses to select modules specific to their area of interest and gain insight on stem cell therapy.

**18. A variety of training methods were used in the THI Program. These are:**

- a) Lectures, web-based modules, and live webinars.
- b) Modules with a quiz at the end of each module for knowledge testing.
- c) Rotation across different research areas in different departments in the unit.
- d) Didactic classes, hands-on training, web-based modules, and individualized mentoring.

**19. The THI/MHIF collaboration led to the development of training modules that were:**

- a) Detailed, accessible, and well presented.
- b) Comprehensive, convenient, and adaptable.
- c) Based on stem cell therapy, research-related, and user-friendly.



d) Web-based, interactive, and containing a repository of articles.

**20. THI/MHIF collaboration with ACRP was effective in the development of:**

1. ACRP contact hours for training modules for maintenance of ACRP-CP certification
2. ACRP contact hours for training modules for maintenance of CCRC certification
3. ACRP contact hours for training modules for maintenance of CCRA certification
4. ACRP contact hours for training modules for maintenance of CPI certification

- a) 1, 2, and 3 only
- b) 1, 2, and 4 only
- c) 1, 3, and 4 only
- d) 2, 3, and 4 only