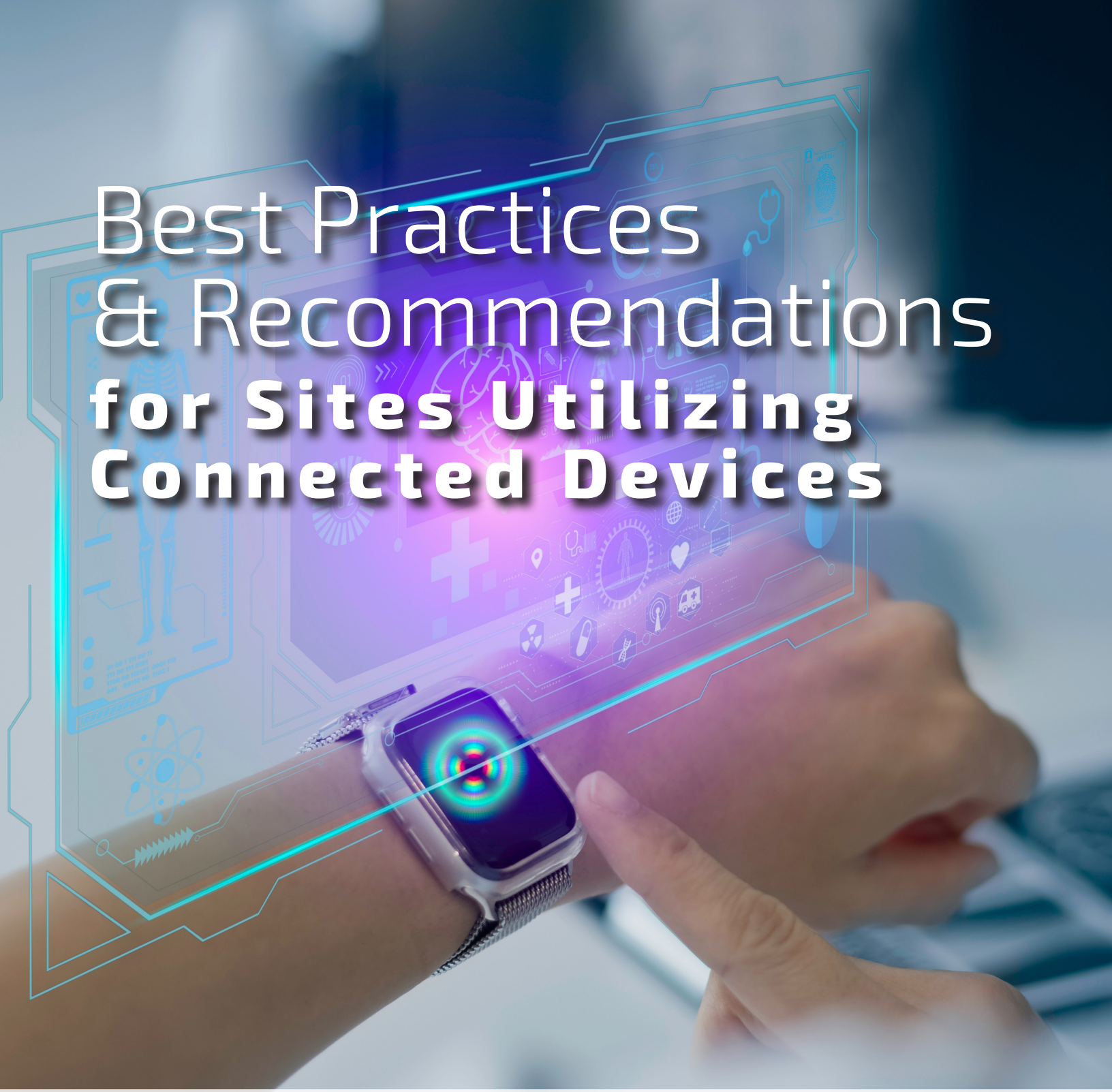

# Best Practices & Recommendations for Sites Utilizing Connected Devices

SCRS Digital Innovation

SCRS Digital Innovation

# Table of Contents

The purpose of this publication is to enable a simpler and streamlined user experience with connected devices. The intention is to enable a more integrated systems approach and underscore the value of effective interoperability. The acknowledgement of the impact these connected devices have on the clinical research site, and the considerations that must be made, are critical to success.

With the incorporation of new and innovative technology, a certain level of understanding must exist for sites to successfully operationalize connected devices. This publication will enhance that understanding and allow for easier execution and implementation. There are different approaches that can be taken to enable connected devices within a clinical trial and several ways to successfully navigate data redundancy across these multiple systems.

While this document will help outline guidance for adopting new technologies, it avoids endorsing specific devices or providers of said devices. It is also critical to note that this publication again serves as a general guideline, but is not a "one-size-fits-all" resource. This document has been produced under the pretense that the industry will continue to follow its current trajectory of technology adoption in this space. Readers should have a baseline understanding of the concept around connected devices.

SCRS hopes that the deliverables will continue to advance the industry forward and accomplish the goals set forth. The bulk of the recommendations are based on guidance for the roles and will outline how those roles change with the implementation of connected devices. Special considerations must be made by these roles when working with these tools in order to prepare for their application and more effective management. This publication explores those considerations, as well as providing insight into important discussion points for the various involved parties surrounding connected devices. The tools contained here are all designed to simplify the roles and their tasks as it pertains to connected devices.

## Starting Point – Protocol and Device Receipt

Much of what is outlined throughout this resource will focus on providing flexibility for both patients and sites. The overarching theme is to enable choice and assure your site has what it needs to be successful as connected devices are implemented. It should also be noted that sponsors, CROs, and suppliers will also be encouraged to offer flexibility as a result of the work here-in.

When the protocol is received and the operational manuals and plans for devices has been determined, this information should be obtained by the site and used to attempt to assure the highest level of success with the applicable tool or device. Careful review of the protocol as well as the literature and resources applicable to the connected devices should be completed. If the accompanying information related to the operational details of the connected devices associated with this protocol are not made immediately available, you should ask for them promptly. Having this information upon protocol review is essential to assessing the sites' ability to execute the needs of the devices, as well as cost the implementation of said devices.

Part of this will also be a clear understanding of suppliers or vendors used in conjunction with the connected devices and technology. This will give the site an experiential lens to review the technological related requirements and assess their capabilities. Certain suppliers or vendors of applicable technology will set certain expectations at the site level and allow a better assessment of time and resources at the site level.

Additionally, this is the stage when a site should begin to assess and establish an effective data security and storage plan that will remain in place for the duration of the study, through and after close out. Understanding the protocol applicability, suppliers or vendors used, and operationalization of the device through review of supplied information will allow the site to prepare and inform their patients on what they might need to understand in regards to the technology and devices they will be interacting with. It will also allow a complete understanding of how personal data and information will be stored, secured, and how that data will move from patient, to site, to sponsor, and various places in between.

From a global perspective, it will be equally important for the site to assess and understand their regulations or laws pertaining to data storage and movement. For example, General Data Protection Regulation (GDPR) restricts, by law, the physical location of servers housing patient related data. It will be important to understand how the data will be archived once the study concludes, including the format in which it will be maintained. From a longevity perspective, it sites will need to consider how technology might change and if your site will have the ability to read, analyze, and consume that data in the future.

### Key Learnings

1. Work to enable flexibility in how connected devices are implemented and used so that site and patient needs are met.
2. Obtain information related to the use and implementation of connected devices on the trial as soon as you can to better allow for preparation and cost analysis.
3. Establish effective data security and storage plans on a trial-by-trial basis, understanding how patient data will move, be stored, and be accessed along the course of the trial.
4. Understand local and regional regulations and laws related to data privacy and how the site's participation in the trial is affected by those laws.

## Consenting to a Device

The primary function of the consent process as it pertains to this resource surrounds informing patients of their record and data privacy. It is critical that patients feel that their information will be safe. Sites should use the consenting process to explain all of this in detail and educate them on how their data will be used and secured in terms they can understand. This information should be clearly outlined in the consent form, interpreted appropriately by the site staff assisting the participant through the consent process, and fully understood. This will also typically be accompanied by a description of assessments performed using the devices and how those assessments and subsequent data will be used.

Part of this process will also involve information on how the patient will use the device as part of this clinical trial, and care should be given to explain how this device or technology may impact their daily lives. It is vital to understand that the patient will, in most instances, be asked to perform a task with this device outside of the clinic setting to capture clinical trial data. Their ability, comfort, understanding, and consent to do so cannot be overstated.

### Key Learnings

1. Part of the consent process will be helping the participant understand and feel good about how their data will be captured, stored, and used as a result of the implementation of a connected device or technology.

2. The site should strive to assure the patient is comfortable with and understands how the connected device will impact their daily life, and its importance to the clinical trial process.

## Budgeting and Contracting

Budgeting and contracting for a trial that is utilizing a connected device can and often looks different than a trial without connected devices. Mainly, there are typically additional costs associated with implementing and using connected devices that will be new and not previously accounted for from previous trials. As previously stated, it is imperative that the site obtain information on the protocol and user manuals for the devices to understand how that device will be used in the trial. Based on this information, the site should then work to determine the cost associated with that device's use on the trial. Some of these differences may include training time, technology team overhead, storage and space for devices, data capture and analysis, technical support, archiving data, and amendment changes.

As it pertains to the contract, a site will often observe that the ways staff are interacting with the technology and conducting the trial may be different, and provisions within the contract may be affected. Understanding what provisions your organization may need in place to assure that the site team is protected legally, as well as the well-being of the patients, is an important step when reviewing the contract. Detailed review of any clauses pertaining to technology use and implementation should be reviewed in detail to assure that they meet your organizations policies.

### Key Learnings

1. Budgeting and contracting will be different in trials with connected devices. Obtain the information necessary and as early as possible to perform a cost analysis so the budget can accurately be negotiated.

2. Clauses in the contract may affect how technology is used and should be reviewed so that the site and patient are protected. This should also conform to institutional policy.

## Pre-Study Logistical Items

### Data Pathways

Understanding and having a plan in place for how and where your organization's data flows is important when considering the implementation of connected devices, which will alter this pathway. Certain laws and regulations are also major considerations as it pertains to data flow, management, and storage. It is imperative that your organization learn and understand your local and regional laws and regulations, and not rely on a sponsor or other organization to inform you – the responsibility ultimately lies with the site in most situations.

Part of this is understanding where the server or repository that the data will be stored in or pass through is located. Certain laws have restrictions and requirements as it pertains to patient data that can affect how this is managed. When things go from paper to digital and have the possibility of being stored in new locations, it is important to understand how this will affect your organization, and review on a study-by-study basis.

### Outlining Responsibilities and Resourcing

Identify how the site will allocate resources and responsibilities for the various tasks associated with the trial. This step is important for any trial, but even more so when connected devices or other technologies are involved. The site should dedicate time to understanding how the protocol lays out various study related activities, how connected devices and technology affect these changes, and ultimately how the site will manage those nuances. Each procedure or task that may be affected by or altered by the usage of connected devices should be carefully reviewed for reasons previously mentioned, as well as understanding how the site will assure that responsibility is managed and what site resources will be needed to assure its effective execution. For example, there may be tasks associated with allocating devices which take steps to activate and assure proper use by the patient. Or, data may need to be reviewed and managed in a way that is different from what might have been done using paper based methodologies. These activities will need a novel approach to manage.

It is important to balance this allocation of resources and time with the time spent recruiting and spending with participants. If excess time is being spent with managing technology and it begins to take away from or distract from participant care, then immediate communication should be made to the sponsor, supplier, or CRO to communicate and manage this issue. Part of this process should be effective documentation of what may be causing the loss of participant engagement, as well as the impact to the site and trial. This will allow for efficient and effective management of issues that arise and allow a better discussion to make appropriate changes.

## Mitigation Plans and Risk Analysis

As with many other aspects of clinical trials, there often are unforeseen and mitigatable issues that arise. To best prepare for and manage these issues, a site should perform a risk analysis of the trial and how the connected devices will affect that risk. A mitigation plan should then be put into place that will help understand and manage unexpected risks that may occur.

Performing a risk analysis consists of a process that starts with a detailed analysis of the protocol and notating areas where there may be an increased risk to patient safety, data integrity, protocol deviation, or trial delay. Locating and establishing a plan to manage those risks or avoid them all together will allow the site to execute the trial in the best way possible. This also includes the ability to bring these issues up to the sponsor or CRO before they happen in hopes that they can be circumvented.

However, there are often issues that emerge that we cannot foresee or predict, particularly when it comes to trials that have new models of execution. Trials with connected devices are often in this category and therefore, it is essential that the site have a mitigation workflow and plan in place to efficiently manage unanticipated issues. This plan can usually be widely applied across the organization to handle protocol-related issues and should serve as a roadmap and plan to recognize, address, solve, and put preventative action in place for any issues that may surface.

## Training

Training is an imperative part of conducting any clinical trial for both patients and for site staff. As new technologies and connected devices are implemented in clinical trials, there will be new practices needed to train sites and patients. Before any training is executed, the site should first take time to analyze the entire training requirement for a given trial. This will help with resource allocation, time estimation, and ultimately, site costs associated with any training. From there, the site can best understand the needs and any potential burdens that would exist as a result of training, again keeping in mind both site level burden and patient level burdens that should be managed. It is valuable to also understand what level of support exists for the training, in the event there are issues, unknown questions, or failures of training programs. Doing this prior to executing training will assure its rapid completion and minimize negative impacts on the site.

## Device Regulation

Not to be confused with medical devices that are designed to help a patient's medical condition, like a pacemaker, several regulations that apply directly to connected devices exist that need to be understood at the site level. It is primarily important for the site to assure that the necessary approvals and regulatory requirements have been established and documented for these devices. CFR 21, Part 11 compliance is often a consideration that many devices collecting patient data need to have in place. It should also be determined that the correct licenses related to data transmittal are in place, as this may vary across different geographies. If your region requires certain licenses for transmittal, learning this and assuring those are confirmed for your site is highly recommended. Finally, it is imperative to understand any regulations that may exist around the shipping of these devices. Some may have special provisions surrounding their contents and care is needed to assure their viability both to the site, when being transported by or for the patient, and when returning them.

## Storage Capacity

A site should also take into consideration the amount of space for storage they may need to hold these devices. They often require being connected to a power source as well as a strong internet or cellular connection to function. This may take up specific and considerable physical space at the site. Sites should consider dedicating space to devices, and outfit this space with necessary power and connection sources in a location that has reliable internet and/or cellular service connection. This space should also be secure, treating these devices just as one would an investigational product. It will be equally important that these devices are protected from power surges, outages, or other environmental factors that may affect their reliability. Referencing back to previous sections, these storage capacity needs should all factor into the cost analysis that your site performs so that all space and overhead costs are accounted for.

## Demo Kits

In many instances, a site may be able to request demo kits, test devices, or sandbox environments to preview, learn, and be better prepared for the implementation of these devices. It is important for service providers issuing these technologies to provide these resources for the sites, and equally as important for the sites to request these opportunities. These environments and test devices are typically loaded with non-production or live data and allow the sites to perform mock visits and/or learn more about how the devices work in application. This can also affect your risk analysis and mitigation process, as utilizing these devices in this way will help identify potential issues before they happen in a live environment.

## Companion Applications and Services

Often, these devices require pairing with a companion application (app) or another device to work properly. You may also be required to physically plug a device into a working computer to upload data, make changes, or resolve issues. This should all be identified as part of the pre-study work and asked for by the site. You will most commonly see this through an app on a separate device or a device that is maintained by your site. Data flows from the connected device itself, through this application which can then be used to review, assess, and submit the data to the CRO or sponsor. Careful considerations for this process include assuring that the connection is established and maintained as necessary so system errors do not occur during live visits, as well as clear lines of service and support should an issue arise.

### Key Learnings

1. Prior to the study, careful consideration should be made to assess the pathways the data will flow when connected devices are incorporated, as well as the resources necessary to implement these devices.
2. A site should use this time to build and establish a risk analysis and mitigation plan if issues arise.
3. Training and regulations can vary in the case of trials with connected devices. Sites should review applicable training needs as well as local and regional regulations pertaining to the data and devices.
4. Storage is an important consideration that should be pre-planned for, as well as costed.

# During Trial

## Support Model – Technical and Clinical Support

Support is a necessary and valuable resource for both patients and sites as they utilize connected devices. These devices are often unfamiliar and have specific needs and processes that are unique to each individual trial. Being able to provide and receive the necessary support is essential to their success. Part of assuring success as it pertains to optimal support is making sure the support is provided for both patients and sites in the language most appropriate for them. In global decentralized trial models, this becomes even more important. It is also critical that support is readily available when patients are asked to use devices and technology they have never used before.

Establishing a clear plan, through the resources provided to the site by the sponsor or CRO, of how and where to find support will make this aspect of delivering successful trial engagement successful. Through the risk analysis and mitigation process, as well as assessment of initial trial documentation a site can best understand how to triage both site-based and patient-based support needs. Part of this process will also be a clear understanding of when and how the site is expected to provide user support to patients, or when that should be directed elsewhere, such as vendor-based support. There should also be a clear process of escalation should issues emerge or when feedback is provided.

## AE Reporting with a Device Involved

Because patients may not regularly be coming into the site to report issues or clinical adverse events, it the site must understand and establish how to ascertain this information from the patients, adhering to protocol required patient safety requirements. Before patients enroll into the trial and through the consenting process, understanding how the site should work with the patients to manage these inevitable occurrences is an important component to patient safety. Identify and follow a pre-determined plan and utilize the applicable technology to assure site personnel become aware of any issues that may be recorded through a connected device. Since these devices sometimes enable patients to come in less frequently for scheduled visits, a patient may experience a protocol specified event that would require reporting, assessment, and management sooner than their next visit may allow. Understanding and being prepared for this will help assure patient safety, and it is up to the site to ensure plans are in place to do so.

## General Device Management

This section outlines items of consideration that pertain to the management of the devices themselves, as well as the data that the devices collect. For example, it is important that the site recognize and implement plans pertaining to how and when data will be uploaded. This will also take into consideration other sections previously and subsequently such as risk management, data regulations, and others. For the purposes of this section, sites should be aware of the mechanism of action for uploading data. In most situations, the data will be either uploaded automatically, requiring verification and any correction after. Other scenarios may require that the site or patient initiate steps to upload the data manually. This may permit review and correction prior to submission. Either way, it is vital the site understand how this data transmission will occur, account for it from a resourcing and costing stand-point, and prepare for any post-submission action items as outlined in the protocol.

A trial with connected devices will require the site to take action in certain intervals. This includes the receipt of new devices, shipment of damaged or defective devices, return of devices at the conclusion of the study, and other less common scenarios where a device must be assessed and managed. In all instances, there are likely specific procedures a site must go through in order to receive the device and activate it for use as covered in previous sections, return or exchange a device when an issue may surface, or how to return devices and decommission them at the conclusion of the trial. Being aware of these procedures and any other situational procedures will be a valuable learning for the site so they can be prepared for these eventualities. These procedures vary considerably based on the connected device, trial, and supplier so care should be given for each study. It is also important that the site understand and communicate any steps a patient may need to take in these instances as well. For example, new devices often require the site to allocate them based on patient and protocol number, through an Interactive Response Technology (IRT). Understanding this process and following it accurately will be important.

The devices may also require regular updates that will follow similar logic, requiring them to be manually updated or be subject to automatic updates. In either instance, the site should be aware of when these updates occur and most critically, how and if it will affect their use by the site or patient. Being aware and preparing properly for any updates based on their effect on the device is vital to their seamless use. If sites are not made abundantly aware of these, the site should inquire how those changes are communicated and assure that information is obtained in a timely manner.

Another consideration of note is the battery or power supply life for devices where applicable. As part of the risk mitigation plan, should a power supply fail, battery be without charge or power, or other failure instances, sites should understand how this will affect the device and how to manage this situation should it arise.

### Key Learnings

1. Assure your site understands the support model for the device on any particular trial instance. This includes support for both for the site and patient, and identifying the site's role for any support needs.

2. Adverse event reporting may take a different form when a connected device is involved. Form a plan based on the protocol requirements so that patient safety is assured.

3. Device management contains several regular considerations across the duration of the trial. Review the section above to know when and how to manage devices and their nuances pertaining to failure, replacement, storage, and updates.

## Ending Point – Data Consolidation and Device Return

At the conclusion of the trial, there are several actions that the site will need to execute before their interaction with the connected devices and technology is finished. This primarily includes the finalization and archival of the data reconciliation of devices. It is important to understand the process surrounding the data and the actions the site needs to take to finalize it. The site may need to establish a plan at this stage and be clear on how and where the data will be stored. Ultimately, considering what happens to the device and any data collected and stored within it is equally important. In some instances, storing and maintaining the data and its access can be a 10+ year requirement, so understanding whose responsibility it is to manage the data should be obtained in writing. The long-term viability of this data and assuring it will be accessible across the duration

of its storage is important as well. The site should make attempts to receive reimbursement for any costs associated with their responsibility of these storage requirements.

This ending point of the trial as it pertains to the connected devices may come as the result of a patient ending their participation in the trial before they complete all protocol specified visits, often referred to as Lost to Follow-up or Early Terminated. In these instances, it is sometimes difficult to secure the data and the devices the patients may have. Every attempt by the site, including preempting these eventualities with patients as they consent, should be made to recover the device and its data. These attempts should be clearly documented in the event that the patient simply refuses to return contact. At times, the sponsor or CRO may be able to provide guidance for this step, as there are at times protocol specific nuances to the devices and this process. However, a site should prepare for this by establishing clear processes to mitigate this potential challenge.

Finally, the devices will need to be reconciled and returned. This process can vary in many ways depending on the device and the trial, but the end result remains consistent. The device and data proceed through whatever pre-determined process to conclude their use by the patient and all data is collected, reviewed, approved, audited, and finalized or locked. Devices are then often returned via the specified methods. In the event of a Bring-Your-Own-Device situation, there may be unique circumstances, particularly when trial data or portal access needs to be ended. Patients may also desire to have access to their data, or have certain feelings about this situation, so special care should be made to consider the needs of the patient in these situations.

### Key Learnings

1. The site should review and implement procedures associated with data finalization, assuring adherence to protocol, regulatory, and legal requirements pertaining to conclusion and long-term storage of the device data collection.

2. The site should have reviewed and be prepared to implement any pre-determined budgetary items related to this close-out process and data reconciliation.

3. Devices will need to be reconciled and their use properly concluded when the trial or patient's participation concludes, including attempts to obtain devices back from patients, considering as well when patients bring their own devices to use in the study.

Although the area of connected devices is an ever-evolving component to clinical trials, there are many insights to be gained from this document that will increase the likelihood a site will successfully participate in trials with these devices and technologies. Equally as important, understanding the use of connected devices can enable a sustainable way to bring patients into these trials and assure their safe and valuable participation. While not completely comprehensive, these considerations were developed by a multi-stakeholder team of sites, sponsors, CROs, and service providers in an attempt to lessen the potential burden these devices may have on the site, therefore enabling their long-term success. The hope is that as new industry-wide changes come into effect, this document will evolve to cover the best practices for sites.

SCRS

Society for Clinical Research Sites

Our Voice | Our Community | Your Success