Sponsor Name and Address:	Smith & Nephew Pty Ltd 85 Waterloo Road North Ryde New South Wales, 2113 Australia
Investigational Product(s)	MINITAC◊ Ti 2.0 Suture Anchor
Protocol Author(s):	Evita Höllige - Senior Clinical Study Manager Babajide Olayinka - Senior Biostatistician

1. SIGNATURES

1.1 PRINCIPAL INVESTIGATOR SIGNATURE PAGE

This page will be returned to Smith & Nephew and a copy retained at the investigational site.

I have read the attached protocol entitled "Safety and Performance of MINITAC◊ Ti 2.0 Suture Anchor in Extremities", version 3.0, dated 20Aug19 and agree to abide by all provisions set forth herein.

I agree to comply with the Investigator's Obligations stipulated in Section 21.4 of the protocol,

I agree to ensure that the confidential information contained in this document will not be used for any purpose other than the conduct of the described clinical investigation without the prior written consent of Smith & Nephew.

Name, Address, Professional Position	**Signature**	**Date Signed** (DD/MMM/YYYY)

1.2 SPONSOR APPROVAL

	Job title	DocuSign Stamp
Regional Operations Director signing on behalf of Head of Global Clinical Operations	Regional Operations Director signing on behalf of Senior Director	DocuSigned by: Isabelle Arrighi Signer Name: Isabelle Arrighi Signing Reason: I approve this document Signing Time: 02-Sep-2019 | 08:17:07 BST 4BBE7CF404D04F22AF4A6CE47CF51AA5
Regional Operations Director signing on behalf of Head of Global Clinical Strategy	Regional Operations Director signing on behalf of Vice President, Clinical Strategy	DocuSigned by: Isabelle Arrighi Signer Name: Isabelle Arrighi Signing Reason: I approve this document Signing Time: 02-Sep-2019 | 08:17:19 BST 4BBE7CF404D04F22AF4A6CE47CF51AA5
Head of Global Biostatistics	Director Biostatistics and Data Management	DocuSigned by: Alan Rossington Signer Name: Alan Rossington Signing Reason: I approve this document Signing Time: 04-Sep-2019 | 10:13:59 BST 556E7DBFCA8A4287A7EE3EE9B5B3ABFD

2. SYNOPSIS

Title of Study:	Safety and Performance of MINITAC◊ Ti 2.0 Suture Anchor in Extremities
Study Design:	A retrospective, multi-center, case series
Study Type:	Post-market, clinical follow-up study, non-interventional
Study Product:	MINITAC◊ Ti 2.0 Suture Anchor
Study Purpose:	Post-market clinical follow-up to support Notified Body (BSI) requirements for extremities repair indications.
Primary Objective:	Assess safety and performance of the MINITAC◊ Ti 2.0 Suture Anchor in extremities over a time period of 6 months after intervention.
Secondary Objective:	Assess safety and performance of the MINITAC◊ Ti 2.0 Suture Anchor in extremities over a time period of 12 months after intervention.
Sample Size:	The study sample was decided based on the feasibility of recruitment, enrollment and follow-up considerations. A minimum of 30 subjects (minimum of 10 subjects per site) up to a maximum of 50 subjects will be enrolled. It is reasonable to estimate a clinical success rate of 95% for the MINITAC◊ Ti 2.0 Suture Anchor in this study. As a result, the probability of estimating the 95% Confidence Interval for the clinical success of 95% to be between 85% and 100% is between 55.4% and 98.8% for 30 to 50 subjects.
Number of Study Sites:	Up to 3 sites
Targeted Global Regions:	Australia and EU (European Union)

Inclusion Criteria:	1. Subject has undergone extremities repair using the MINITAC◊ Ti 2.0 Suture Anchor. 2. Subject was ≥ 18 years of age at time of surgery. 3. Subject status is > 12 months post-operative.
Exclusion Criteria:	1. Subject is entered in another investigational drug, biologic, or device study or has been treated with an investigational product within 12 months post-operative.
Study Duration:	The expected timeline for the study is approximately two years from first site initiation until final study report.
Primary endpoint:	Clinical success rate (%) of the MINITAC◊ Ti 2.0 Suture Anchor in extremities at 6 months post-operative with clinical success defined as extremity repairs without signs of device failure and/or re-intervention as assessed by the surgeon.
Secondary endpoint(s):	Clinical success rate (%) of the MINITAC◊ Ti 2.0 Suture Anchor in extremities at 12 months post-operative with clinical success defined as extremity repairs without signs of device failure and/or re-intervention as assessed by the surgeon.
Other exploratory endpoint(s):	Surgeon Reported Outcomes based on data collected in the subject's medical chart as standard of care at study sites. This may include but is not limited to the following: • Range of Motion (ROM) • Pain assessed by Visual Analogue Scale (VAS) • Listing of device failure criteria.
Safety Data	• All adverse events (AEs) and complications occurring from the time of subject enrollment until study termination or study completion including intra-operative adverse events and complications.

	• Device related re-interventions. • Device Deficiencies.

STUDY SCHEDULE

Schedule of Events	Chart Review[1]		
	Screening	6 months (182 days) post-op (+30/- 150 days)	12 months (365 days) post-op (+ 30/- 150 days)
Inclusion/Exclusion	X		
Demographics/Medical History	X		
Operative Data Collection	X		
Assessment of clinical success (device related re-intervention and/or repair failure)		X	X
Surgeon Reported Outcomes: Pain assessed by VAS[2]	X	X	X
Surgeon Reported Outcomes: ROM[2]	X	X	X
Concomitant Medications or Therapies	X	X	X
All Adverse Events or Complications, Device Deficiency (DD)	X	X	X
AE Assessment	X	X	X
End of Study			X

[1] Given the retrospective study design, data will be collected to the extent it is available.
[2] Surgeon Reported Outcomes are collected per standard of care.

3. CONTENTS

3.1 TABLE OF CONTENTS

3.2 LIST OF TABLES

3.3 LIST OF FIGURES

3.4 LIST OF ABBREVIATIONS AND DEFINITIONS

Abbreviation	Definition
ADE	Adverse Device Effect(s)
AE	Adverse Event(s)
AFOAS	American Orthopaedic Foot & Ankle Society
ASADE	Anticipated Serious Adverse Device Effect(s)
BSI	British Standards Institute
CRF	Case Report Form(s)
CTA	Clinical Trial Agreement
CV	Curriculum Vitae
DD	Device Deficiency(ies)
EC	Ethics Committee
EU	European Union
GCP	Good Clinical Practice
HREC	Human Research Ethics Committee
ICMJE	International Committee of Medical Journal Editors
ID	Identification (ID) number
IFU	Instructions for Use
NA or N/A	Not Applicable
Non-interventional study	A clinical study in which the investigational medical device of interest is used in accordance with the approved instructions for use. Assigning a subject/patient to a particular therapeutic arm is not decided in advance by a protocol but falls within current practice; use of the device is clearly separated from the decision to include the patient in the study. No additional diagnostic or monitoring procedures are used, and epidemiological methods are used to analyse the collected data.
PI	Principal Investigator
PP	Per-protocol Population
ROM	Range of Motion
S&N	Smith & Nephew Orthopaedics AG

Abbreviation	Definition
SADE	Serious Adverse Device Effect(s)
SAE	Serious Adverse Event(s)
SAF	Safety population
SAP	Statistical Analysis Plan
UHMW	Ultra-high-molecular-weight
USADE	Unanticipated Serious Adverse Device Effect(s)
VAS	Visual Analogue Scale

4. INTRODUCTION

4.1 BACKGROUND

Bone anchor fixation devices are typically indicated for a variety of repairs in the shoulder, elbow, hand/wrist, hip, knee, and foot/ankle. There are numerous alternative therapy options associated with these indications including conservative therapies such as rest, non-steroidal anti-inflammatory drugs, injection of steroids with lidocaine, and physical therapy. Several clinical studies were identified that reported higher clinical outcome scores (9, 19), or the ability to return to previous level of activity (6, 9), or lower complication/re-injury rate (1, 9) in patients that were treated surgically rather than conservatively. When conservative therapy does not offer relief of symptoms for the patient, surgical intervention is often recommended. One method of surgical intervention is to repair using an implant such as an interference screw or suture anchor. Interference screws provide a press fit between bone to bone, or bone to graft/tendon whereas suture anchors approximate soft tissue with an implant embedded in the bone. The use of suture anchors may provide advantages such as reduced operative time, ease of access to the site of implantation, improved suture material, decreased stress along the suture line, greater repair strength, and improved consistency of load-to-failure characteristics (8, 10, 11, 18). Patient bone density, repair location, potential allergies, the operation being performed, and surgeon preference determine the size, type, and composition of the anchor needed to secure the soft tissue to the bone (5).

Suture anchors come in many diameters, lengths and materials, such as titanium, stainless steel, polyetheretherketone, or biodegradable absorbable materials such as polylactic acid and poly-L-lactic acid.

4.2 LITERATURE SUMMARY

MINITAC◊ Ti 2.0 Suture Anchors from Smith & Nephew are metallic suture anchors. Metallic (stainless steel or titanium alloy) implants provide rigid, reliable fixation and have been used successfully for decades (5). They provide excellent fixation but can be associated with loosening and migration, which may lead to cartilage damage. Metallic implants can present postoperative

distortion of repaired tissue during radiographic assessment (22). As cited by Suchenski et al, the majority of bone anchors currently approved for clinical use are made of metal (20).

The use of metallic suture anchors in foot and ankle was evaluated by Molloy et al. and Petrera et al. (13, 15). The two studies reported on a total of 67 joints, with a mean follow up of 25-42 months. Molloy et al. reported one patient (5.5%) who complained of scar tenderness, and the suture was excised at 9 months (13). Symptoms were resolved after 6 weeks. Mean American Orthopaedic Foot & Ankle Society (AFOAS) scores improved from 53 to 96, and eight patients resumed normal pre-injury activity levels. Petrera et al. reported 6% of patients experienced minor complications which included two cases of superficial wound infection (4%), which resolved after oral antibiotic treatment, and one case of temporary neuropraxia (2%) of the superficial peroneal nerve (15). AFOAS scores improved from an average of 36 preoperatively to an average of 75.4 postoperatively. The pain subscale improved from 35 to 75, symptom subscale from 38 to 70, and QOL subscale from 35 to 75.

The use of metallic suture anchors in hand wrist and elbow was evaluated by Micic et al. and Iba et al. (7, 12). These publications reported on a total of 28 patients, with a mean follow up of 20.5 to 51 months. Micic et al. reported 13 patients (65%) presented with heterotropic calcification of the joint capsule and collateral ligaments postoperatively (12). Post-traumatic degenerative change was found in six patients (30%). However, in most patients, this was not clinically significant. Concentric stability was achieved in all patients, and 18 patients (75%) had a firm endpoint during the valgus stress test. Overall mean functional motor evoked potentials was 93.2. Iba et al. reported no patients who demonstrated continuing symptoms, and all patients had a stable metacarpophalangeal joint after surgery (7). Postoperative grip strength and pinch strength were increased compared with preoperative values. All patients returned fully to their pre-injury work or sporting activities within six months after surgery. Postoperative flexion was decreased by an average of six degrees, but no patients noted functional deficiency.

4.3 STUDY PURPOSE

This is a retrospective study to evaluate intra-operative, 6 months and 12 months safety and performance of the MINITAC◊ Ti 2.0 Suture Anchors for extremities repair to meet post-market clinical follow-up requirements as outlined by the Notified Body (BSI).

4.4 SAFETY CONSIDERATIONS

The MINITAC◊ Ti 2.0 Suture Anchor is intended to provide secure reattachment of soft tissue to bone in the foot and ankle as well as elbow, wrist and hand. Representative language of the contraindications and potential adverse effects from the MINITAC◊ Ti 2.0 Suture Anchor can be found in the Instructions for Use (IFU).

5. OBJECTIVE(S)

5.1 PRIMARY OBJECTIVE

The primary objective of this study is to assess safety and performance of the MINITAC◊ Ti 2.0 Suture Anchor in extremities over a time period of 6 months after intervention.

5.2 SECONDARY OBJECTIVE

The secondary objective of this study is to assess safety and performance of the MINITAC◊ Ti 2.0 Suture Anchor in extremities over a time period of 12 months after intervention.

6. INVESTIGATIONAL PRODUCT(S)

6.1 IDENTIFICATION

6.1.1 Investigational Product

The MINITAC◊ Ti 2.0 Suture Anchor is designed to provide secure reattachment of soft tissue to bone in extremities. It is available in 2.0mm size with double suture configuration.
Suture anchors are manufactured out of a titanium alloy whereas the sutures are either braided, silicone or polytetrafluoroethylene impregnated, polyester, non-absorbable or braided, uncoated, ultra-high-molecular-weight (UHMW) polyethylene and UHMW polyethylene with monofilament

polypropylene cobraid, non-absorbable. The Mini TAC™ 2.0 mm suture anchors are available either with stainless steel needles preassembled to the insertion device or without needles.

Figure 6.1-1: MINITAC◊ Ti 2.0 Suture Anchor

MINITAC◊ Ti 2.0 Suture Anchors are intended for use in the foot and ankle, as well as elbow, wrist and hand. MINITAC◊ Ti 2.0 Suture Anchors are intended to be used for the following indications:

- Foot and Ankle
  - Hallux valgus repairs
  - Medial or lateral instability repairs / reconstructions
  - Achilles tendon repairs / reconstructions
  - Midfoot reconstructions
  - Metatarsal ligament / tendon repairs / reconstructions
- Elbow, Wrist, and Hand
  - Scapholunate ligament reconstructions
  - Ulnar or radial collateral ligament reconstructions
  - Lateral epicondylitis repair
  - Biceps tendon reattachment

Reference numbers for MINITAC◊ Ti 2.0 Suture Anchors allowed in this study can be found in section 21.3.

6.2 PRODUCT USE

Each device is packaged with an IFU (Document ID 10600149, Rev. C; 1061081, Rev E; 1061170, Rev F and 10600403 Rev D) to ensure that the device is used properly and for the intended purposes.

6.3 PACKAGING AND LABELING

A commercial product is being used as approved for this study. Labeling is done as per the standard commercial packaging.

6.4 PRODUCT ACCOUNTABILITY PROCEDURES

This is a post-market study and no product accountability procedures will be applied.

6.5 SURGICAL TECHNIQUE

The operative visit of this study is retrospective. The use of the MINITAC◊ Ti 2.0 Suture Anchors was performed per standard of care at the participating sites and in accordance with the IFU.

7. SUBJECT ENROLLMENT AND WITHDRAWAL

7.1 SUBJECT POPULATION

A minimum of 30 and a maximum of 50 subjects should be enrolled into the study at up to 3 sites.

7.2 INCLUSION CRITERIA

Subjects will be considered qualified for enrollment if they meet the following criteria:

1.	Subject has undergone extremities repair using the MINITAC◊ Ti 2.0 Suture Anchor.
2.	Subject was ≥ 18 years of age at time of surgery.
3.	Subject status is > 12 months post-operative.

7.3 EXCLUSION CRITERIA

Any one (1) of the following criteria will disqualify a potential subject from participation in the study:

1.	Subject is entered in another investigational drug, biologic, or device study or has been treated with an investigational product within 12 months post-operative.

7.4 SCREENING

Subject screening will include a retrospective chart review. To eliminate the potential for selection bias, Investigators will consecutively screen subjects that have undergone extremities repair using the MINITAC◊ Ti 2.0 Suture Anchor by date of surgery, starting from the earliest surgery date, moving forward in time, up until dates of surgery which are at least 12 months prior to the study start date at each site.

Participating study sites are required to document all screened subjects considered for inclusion in this study on the Screening and Enrollment Log. If a subject is excluded from the study, the reasons for exclusion will be documented on the Screening and Enrollment Log.

7.5 INFORMED CONSENT

Study sites will obtain HREC/EC approval before any study specific activities are performed. The Investigator and the Participating Site shall treat all information and data relating to the Study disclosed to Participating Site and/or Investigator in this Study as confidential and shall not disclose such information to any third parties or use such information for any purpose other than the performance of the Study. The collection, processing and disclosure of personal data, such as patient health and medical information is subject to compliance with applicable personal data protection and the processing of personal data (16,17, 24).

Due to the retrospective nature of the study, a HREC/EC waiver of informed consent for study participation should be requested for those subjects who meet eligibility criteria. If allowed, the retrospective data set will be collected for these subjects. No prospective visits will be performed. In Australia, a waiver or alteration of the requirements for obtaining informed consent may be

granted by the HREC/EC under any of the following provisions set forth by the National Statement on Ethical Conduct in Human Research published by National Health and Medical Research Council, Australia (14):

a) involvement in the research carries no more than low risk to participants
b) the benefits from the research justify any risks of harm associated with not seeking consent
c) it is impracticable to obtain consent
d) there is no known or likely reason for thinking that participants would not have consented if they had been asked
e) there is sufficient protection of their privacy
f) there is an adequate plan to protect the confidentiality of data
g) in case the results have significance for the participants' welfare there is, where practicable, a plan for making information arising from the research available to them
h) the possibility of commercial exploitation of derivatives of the data or tissue will not deprive the participants of any financial benefits to which they would be entitled
i) the waiver is not prohibited by State, federal, or international law.

If an HREC/EC waiver is not granted, then the informed consent shall be obtained from all study subjects according to ISO 14155:2011 guidelines and the latest version of the Helsinki Declaration (3, 23). All applicable national regulations will also be followed including but not limited to the National Statement on Ethical Conduct in Human Research in Australia and in Belgium, the Belgian law of 7 May 2004 related to experiments on Humans (2, 14). In this case, Informed consent will be obtained either by mail or over the phone.

By mail: The potential subject will be sent the informed consent form and information sheet from a member of the study team. If the subject has any questions regarding their participation in the study, they can contact a member of the study team. If the subject is willing to participate, they sign and date the informed consent form and mail it back to the study team. The Investigator or designee will countersign the Informed Consent form. A copy of the signed informed consent documentation will be provided to the subject by mail, a copy will be placed in the subject's medical record, with the original filed in the Investigator Site File.

If the subject is unable to read, the informed consent document and associated study information may be read aloud to the subject in the presence of an impartial witness. If possible the subject shall sign and personally date the informed consent form. Where this is not possible, due to difficulties in writing, the subject shall provide verbal consent to participate in the study. The witness shall then personally sign and date the informed consent form, attesting that the information was accurately explained and that the informed consent was freely given. The informed consent process and documentation will be in accordance with all local regulations.

Over the phone: Upon receipt of the the informed consent form and information sheet by mail a delegated member of the study team will contact the potential subject to inform the subject of the purpose of the study and the potential risks and benefits known. If the subject agrees to participate, informed consent is documented by the study team member who obtained informed consent on the Telephone Informed Consent Log. In addition, the subject will be sent a letter of confirmation of the phone conversation and study participation.

If a subject refuses participation, no further information will be collected. Reason for exclusion should be noted on the Screening and Enrollment Log.

7.6 ENROLLMENT

For screening, only information available in the medical records will be reviewed. Once a potential subject has been identified, all inclusion criteria and none of the exclusion criteria have been met and the informed consent process has been completed or a waiver of consent has been granted by the HREC/EC, the subject will be considered enrolled and assigned a consecutive Subject Identification (ID) number. Enrollment and assigned Subject ID will be documented on the Screening and Enrollment Log. For bilateral subjects, only one Subject ID will be assigned.

Any subject who provides informed consent or has a waiver of informed consent and is subsequently identified not meeting the required entry criteria is considered to be a screen failure. Demographic information must be captured in the appropriate CRF and the reason for screen failure will be documented on the Screening and Enrollment Log.

7.7 LOST TO FOLLOW-UP

A subject will be considered lost to follow-up if he/she did not return for follow-up per the Investigator's standard of care follow-up schedule. Information will be documented on the Case Report Form (CRF).

7.8 WITHDRAWAL

7.8.1 Withdrawal from Study

All reasonable efforts should be made to collect 12 months postoperative data on all subjects enrolled into the study. The Investigator may withdraw subjects from the study for many reasons, including but not limited to the following:

- subject lost to follow-up
- if the Investigator or the Sponsor stops the study for any reason and decides to withdraw subject(s) from the study
- any other significant reason identified by the Investigator

For each case, information will be documented on the CRF, detailing circumstances leading to the withdrawal.

Subjects who drop out or are withdrawn will not be re-entered into the study at a later date.

7.8.2 Subject's Withdrawal of Consent to Participate in Study

Study participation is voluntary, and subjects may withdraw at any point during the study without giving their reason for doing so. Where subjects withdraw consent, the Investigator should make a reasonable effort to ascertain the reason(s), while fully respecting the subject's privacy. The reason for withdrawal will be recorded on the CRF.

7.8.3 Use of Data Following Withdrawal

In cases where the subject withdraws consent, the data collected up to the point of withdrawal may be used, but no additional data for that subject may be collected.

8. STUDY DESIGN

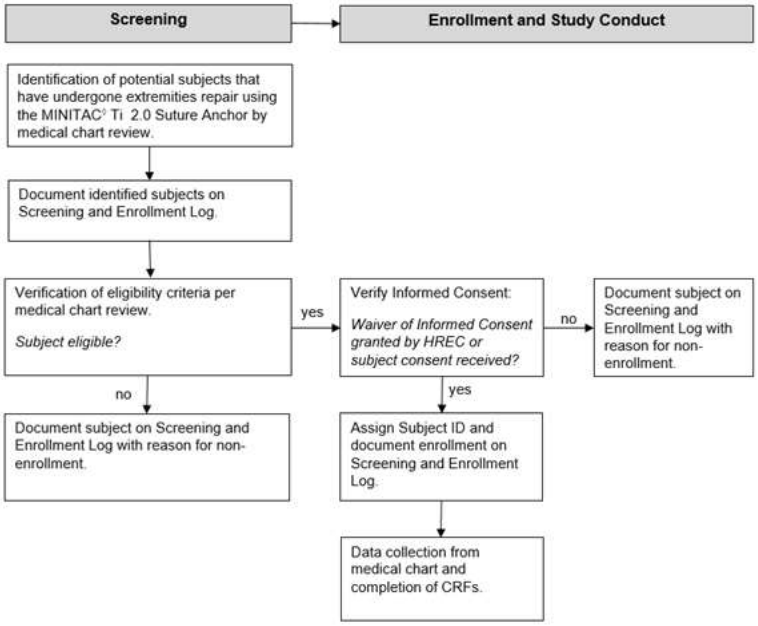
8.1 STUDY DESIGN

This is a retrospective, multi-center, case series study to collect clinical data that will evaluate the safety and performance of the MINITAC◊ Ti 2.0 Suture Anchor for indications in extremities. Up to 3 sites will participate in the study across Australia and the EU, collectively enrolling a minimum of 30 and a maximum of 50 subjects into the study. Each enrolling site will enroll a minimum of 10 subjects.

Data from eligible subjects, who have completed the informed consent process as detailed in section 7.5 will be recorded from the subject medical file on designated CRFs. Data will be collected retrospectively for different time points including preoperative, operative, 6 months post-operative and 12 months post-operative.

Figure 8.1-1 details the different steps of study conduct from screening to enrollment and follow-up.

Figure 8.1-1**: Study Flowchart**



8.2 STUDY ENDPOINTS

8.2.1 Primary Endpoint

Clinical success rate (%) of the MINITAC◊ Ti 2.0 Suture Anchor in extremities at 6 months post-operative with clinical success defined as extremity repairs without signs of device failure and/or re-intervention as assessed by the surgeon.

8.2.2 Secondary Endpoints

Clinical success rate (%) of the MINITAC◊ Ti 2.0 Suture Anchor in extremities at 12 months post-operative with clinical success defined as extremity repairs without signs of device failure and/or re-intervention as assessed by the surgeon.

8.2.3 Other Endpoints

Additional endpoints include surgeon reported outcomes as well as safety endpoints.

Surgeon reported outcomes include specific data collected as standard of care and documented in the medical records. This might include but is not limited to the following:

- Range of Motion (ROM)
- Pain assessed by Visual Analogue Scale (VAS)

Surgeon reported outcomes are optional and will be definitively specified in collaboration with the Investigators once sites have been identified for the conduct of the study.

In addition, a listing of device failure criteria will be collected for subjects that were assessed by the surgeon to have signs of device failure and/or re-intervention and therefore not meeting the definition of clinical success.

Safety endpoints include the collection of the following events from the subjects' medical record:

- All adverse events (AEs) and complications occurring from the time of subject enrollment until study termination or study completion including intra-operative adverse events and complications.
- Device related re-intervention.
- Device Deficiencies.

8.3 METHODS USED TO MINIMIZE BIAS AND MAXIMIZE VALIDITY

8.3.1 Retrospective Consecutive Enrollment

To minimize any potential for selection bias consecutive enrollment will be utilized to retrospectively enroll any subjects encountered that meet the inclusion/exclusion criteria. Consecutive enrollment will be performed starting at earliest surgeries moving forward in time.

8.3.2 Balanced Covariates

The inclusion/exclusion criteria will be generalizable and applicable to the widest possible subset of the population suffering from problems in the extremities. These criteria will be uniformly applied so as to enroll a cohort of subjects with similar symptoms and clinical requirements. This should maximize the applicability to as many subjects with similar baseline characteristics and help to bolster external validity.

8.3.3 Subject Attrition

Subject attrition due to reduction in sample size required for precision analysis has been accounted in the sample size calculation so that the estimate of the Confidence Interval (CI) to be obtained will still be valid through the most efficient use of available subjects.

8.3.4 Pre-specification of Statistical Analysis

The primary outcome measure has been pre-specified as well as the type of statistical analysis to be performed to evaluate clinical success so as to minimize reporting bias. The exploratory data analysis planned for the study which include construction of confidence intervals for the outcome

summaries and a pre-defined range in which the 95% CI for the primary outcome are expected to fall within are designed to maximize the validity of the study results.

More detailed specifications will be incorporated in the Statistical Analysis Plan (SAP) so as minimize any threats to external validity in order to yield clinically relevant estimates of effects and precision.

9. STUDY PROCEDURES

9.1 VISITS AND EXAMINATIONS

9.1.1 Summary

For a summary of the required procedures by visit, refer to the Study Schematic .

Table 9.1-1.

Table 9.1-1: Study Procedures by Visit

Schedule of Events	Chart Review[1]		
	Screening	6 months (182 days) post-op (+30/- 150 days)	12 months (365 days) post-op (+30/- 150 days)
Inclusion/Exclusion	X		
Demographics/Medical History	X		
Operative Data Collection	X		
Assessment of clinical success (device related re-intervention and/or repair failure)		X	X
Surgeon Reported Outcomes: Pain assessed by VAS[2]	X	X	X
Surgeon Reported Outcomes: ROM[2]	X	X	X
Concomitant Medications or Therapies	X	X	X

All Adverse Events or Complications, Device Deficiency (DD)	X	X	X
AE Assessment	X	X	X
End of Study			X

[1] Given the retrospective study design, data will be collected to the extent it is available.
[2] Surgeon Reported Outcomes are collected per standard of care.

9.1.2 Retrospective Chart Review - Screening

Given the retrospective study design, data will be collected from the medical chart to the extent it is available.

1. Screen medical charts to identify subjects meeting the protocol inclusion/exclusion criteria as detailed in section 7.4 Screening.
2. Obtain written informed consent from the identified subject or ensure HREC/EC approved waiver of consent was granted as detailed in section 7.5 Informed Consent.

   ----- Do not proceed until consent or waiver of consent has been obtained -----
3. Assign the subject a Subject ID.
4. Collect the following retrospective data, to the extent it is available, from the subject's medical chart and complete the associated CRFs:
   - Obtain demographic information and medical history.
   - Obtain operative data including discharge.
   - Obtain surgeon reported outcomes as defined in section 8.2.3 to the extent available for the pre-operative time point.
   - Collect Adverse Events and Device Deficiencies from enrollment until discharge and intraoperative complications.
   - Collect concomitant medications or therapies.

9.1.3 Retrospective chart review at 6 Months (182 days) Post-Operative (+ 30 days / - 150 days)

Given the retrospective study design, data will be collected from the medical chart to the extent it is available.

1. Collect the following retrospective data, to the extent it is available, from the subject's medical chart and complete the associated CRFs:
    - Review study implant status 6 months post-operative for device related re-interventions and/or repair failure and assess clinical success.
    - Obtain surgeon reported outcomes as defined in section 8.2.3 to the extent available at the 6 months follow-up.
    - Collect Adverse Events and Device Deficiencies occurring from discharge until 6 months follow-up.
    - Collect concomitant medications or therapies.

9.1.4 Retrospective chart review at 12 Months (365 days) Post-Operative (+ 30 days / -150)

Given the retrospective study design, data will be collected from the medical chart to the extent it is available.

1. Collect the following retrospective data, to the extent it is available, from the subject's medical chart and complete the associated CRFs:
    - Review study implant status 12 months post-operative for device related re-interventions and/or repair failure and assess clinical success.
    - Obtain surgeon reported outcomes as defined in section 8.2.3 to the extent available at the 12 months follow-up.
    - Collect Adverse Events and Device Deficiencies occurring from 6 months until 12 months follow-up.
    - Collect concomitant medications or therapies.

9.1.5 Concomitant Medications and Therapies

Concomitant medications and concomitant therapies are recorded at any time from enrollment into the study through the subject's last study visit. Concomitant medications should be recorded in the CRF providing the generic name.

9.1.6 Discontinued Subjects

Discontinued subjects are those who are withdrawn for reasons of safety or who are lost to follow-up. Discontinued subjects should be documented on the Screening and Enrollment Log.

9.1.7 Subject Pregnancy

Due to the retrospective study design, subject pregnancy does not require specific considerations. Data will be collected from the medical chart as documented by the treating physician.

9.2 STUDY METHODS AND MEASUREMENTS

Clinical success will be assessed by the surgeon at 6 months post-operative and at 12 months post-operative. Clinical success is defined as extremities repairs without signs of device failure and/or re-intervention as assessed by the surgeon. Used criteria for assessment of device failure and/or re-intervention will be provided by the surgeon on the designated CRF.

9.3 HEALTH ECONOMICS/QUALITY OF LIFE

Not applicable

10. STATISTICAL DESIGN

A SAP will be written and finalized prior to database lock. The SAP will contain more specific details of the statistical analyses that will be carried out as well as provide information on any changes or deviations from the projected analyses in this protocol. The Clinical Study Report will also highlight changes made to the analyses specified in the protocol.

10.1 GENERAL

Smith & Nephew's Global Biostatistics group or designee will conduct the statistical analysis for this study. Unless otherwise stated, all significance tests will be two-sided, performed at the 5% significance level. Resulting p-values will be quoted. Point estimates and their corresponding 95% two-sided confidence intervals will be generated where appropriate.Where data summaries are specified, categorical and ordinal variables will be summarized with frequencies and percentages. Continuous variables will be summarized with the following summary statistics: number of observations, mean, median, standard deviation, minimum and maximum values. All analyses will be performed in SAS 9.3 (or later).

10.2 ANALYSIS POPULATIONS

The following analysis populations will be used for this study:

- Safety Population (SAF): This includes all subjects who enroll in the study who had previously undergone arthroscopic repair using the MINITAC◊ Ti 2.0 Suture Anchor.
- Per-Protocol Population (PP): This includes all subjects in the Safety Population, who have no significant protocol deviations and who meet all the inclusion/exclusion criteria.

10.3 BASELINE DATA

Data to be summarized at baseline includes but is not limited to all collected demographic variable such as age, gender, primary diagnosis, height, weight, Body-Mass-Index and medical history. The baseline variables will be used to describe the outcome data where necessary.

10.4 EFFICACY ANALYSIS

10.4.1 Analysis of Primary Endpoint

Clinical success rate at 6 months will be summarized using frequency (N) and percentage (%). A 95% exact CI for a single proportion will be presented for clinical success at 6 months using the Clopper-Pearson method (1934) (4). This analysis will be carried out using the PP population as the primary analysis population with the SAF population used for sensitivity analysis.

10.4.2 Analysis of Secondary Endpoint

Clinical success rate at 12 months will be summarized using frequency (N) and percentage (%). The same type of analysis described for the primary endpoint will be carried out on this secondary endpoint. This analysis will use the PP population as the primary analysis population and the SAF population for sensitivity analysis.

10.4.3 Analysis of Other Endpoints

Available data based on data collected from the subject's medical chart as standard of care at study sites will be summarized and summary statistics tabulated.

- The derivation of surgeon reported outcomes will be described in the SAP and will be summarized as appropriate using descriptive summary characteristics for continuous or categorical endpoints. Differences from screening/baseline to 6 months and 12 months will be similarly summarized and/or compared. The details of distributional assumptions of the test statistics used will be described in the SAP.

10.5 SAFETY ANALYSES

All safety endpoints will be summarized using the safety population.

- The incidence of events and types of events encountered on-study will be summarized as N (%). An overall AE table will summarize the information on subjects with at least one AE as well as for AEs by the type of event. A cumulative summary by the number of events encountered on all subjects overall and within each classification will additionally be included within tables summarized.
- A listing of subjects reporting device deficiencies will be provided.
- A listing of device-related re-intervention will be provided.
- A listing of concomitant medications will be provided by subject

Additional summaries of safety endpoints, if applicable, will be described in the SAP.

10.6 INTERIM ANALYSES

Not applicable.

11. SAMPLE SIZE JUSTIFICATION

This study is precision-based, as a result, the sample size is not based on statistical power calculations.

It is reasonable to assume a success rate of 95% for the MINITAC◊ Ti 2.0 Suture Anchor in this study. With a further assumption of a ± 10% precision in order to obtain a 95% CI of 85% to 100%, enrolling 30 subjects into the study will provide 55.4% probability. Across all investigational sites therefore, a minimum of 30 subjects (minimum of 10 subjects per site) up to a maximum of 50 subjects overall (98.8% probability) across all sites will be enrolled into this study.

12. ADVERSE EVENTS AND DEVICE DEFICIENCIES

12.1 DEFINITIONS

The categories of adverse events are shown in Table 12.1-1. The definitions for each of these categories are given in the subsequent sections and are based on ISO 14155:2011 (3).

Table 12.1-1: Categories of Adverse Event

	NOT DEVICE-RELATED	DEVICE- OR PROCEDURE-RELATED	
NON-SERIOUS	ADVERSE EVENT (AE)	ADVERSE DEVICE EFFECT (ADE)	
SERIOUS	SERIOUS ADVERSE EVENT (SAE)	SERIOUS ADVERSE DEVICE EFFECT (SADE) (SEE 12.1.3)	
		ANTICIPATED	**UNANTICIPATED**
		ANTICIPATED SERIOUS ADVERSE DEVICE EFFECT (ASADE)	UNANTICIPATED SERIOUS ADVERSE DEVICE EFFECT (USADE)

12.1.1 Adverse Event

An Adverse Event (AE) is any untoward medical occurrence, unintended disease or injury, or untoward clinical sign (including abnormal laboratory findings) in subjects, users or other persons, whether or not related to the IP.

Note 1: This definition includes events related to the IP, comparator or ancillary products.

Note 2: This definition includes events related to the procedures involved.

Note 3: For users or other persons, this definition is restricted to events related to the IP.

AE is used both to refer to AE which are non-serious non-IP or procedure-related and as an umbrella term referring to adverse events of all classifications.

An AE can be any unfavorable and unintended sign (for example, an abnormal laboratory finding), symptom, or disease. For reporting purposes, emphasis is placed first and foremost on whether or not the event constitutes an untoward medical occurrence.

12.1.2 Adverse Device Effect

An Adverse Device Effect (ADE) is an adverse event related to the use of the IP.

Note 1: This definition includes adverse events resulting from insufficient or inadequate instructions for use, deployment, implantation, installation or operation, or any malfunction of the investigational medical device.

Note 2: This definition includes any event resulting from use error or from intentional misuse of the investigational medical device.

To differentiate between events that are related to the IP and events that are not related to the event the following notes should be taken into consideration:

- **Not Related**: An AE is considered to be not related to the use of an IP or the procedure when the effect is DEFINITELY UNRELATED or UNLIKELY to have any relationship to the use of the IP or the procedure;
- **Related**: An AE is considered to be related to the use of an IP or the procedure when there is a POSSIBLE, PROBABLE, or DEFINITE relationship between the AE and the use of the IP or the procedure.

An ADE is further categorized depending on whether the criteria in section 12.1.3 and 12.1.4 are met.

12.1.3 Serious Adverse Events and Serious Adverse Device Effects

An AE or ADE is considered a Serious Adverse Event (SAE) or Serious Adverse Device Effect (SADE) if, in the view of either the Investigator or the Sponsor, the event:

a) led to death,
b) led to serious deterioration in the health of the subject, that either resulted in
    - a life-threatening illness or injury, or
    - a permanent impairment of a body structure or a body function, or

- in-patient or prolonged hospitalization, or
- medical or surgical intervention to prevent life-threatening illness or injury or permanent impairment to a body structure or a body function,

c) led to foetal distress, foetal death or a congenital abnormality or birth defect

Note: Planned hospitalization for a pre-existing condition, or a procedure required by the study protocol, without serious deterioration in health, is not considered a serious adverse event.

12.1.4 Anticipated/Unanticipated Serious Adverse Device Effect

An Unanticipated Serious Adverse Device Effect (USADE) is a serious ADE which by its nature, incidence, severity or outcome has not been identified in the current version of the risk analysis report.

Note: Anticipated serious adverse device effect (ASADE) is an effect which by its nature, incidence, severity or outcome has been identified in the risk analysis report.

12.1.5 Severity

The severity of every AE will be assessed by the PI or medically qualified site staff to whom the responsibility has been delegated and documented on the delegation of authority log. AE should be classified as mild, moderate, or severe, regardless of whether or not the AE are considered to be serious or non-serious. The classification should be based on the following definitions:

Mild An event is mild if the subject is aware of, but can easily tolerate the sign or symptom;

Moderate An event is moderate if the sign or symptom results in discomfort significant enough to cause interference with the subject's usual activities;

Severe An event is severe if the sign or symptom is incapacitating and results in the subject's inability to work or engage in their usual activities.

12.1.6 Device Deficiency

A Device Deficiency (DD) is an inadequacy of a medical device with respect to its identity, quality, durability, reliability, safety or performance. DD includes malfunctions, use errors and inadequate labeling.

12.2 AE CODING DICTIONARY

The study will be coded using the internal Smith & Nephew coding dictionary titled Adverse Event Codes.

New version of Adverse Event Codes may be released over the course of the study and implemented. Any changes to the versions stated above will be captured in the Data Management Report.

12.3 REPORTING PROCEDURES

AE of any kind and DD will be identified from the source notes and recorded in the applicable CRF. The Investigator will evaluate all AE for relationship to the device and procedure, if applicable, seriousness, and severity. The following timescales should be followed for the AE/DD information to be entered into the CRF and reported to the Sponsor or designee (see Figure 12.3.1 and Figure 12.3.2):

- ADE and DD – without unreasonable delay
- SAE, SADE and DD with potential to cause SADE – immediately (i.e. within 24 hours of the investigator being informed about the event)

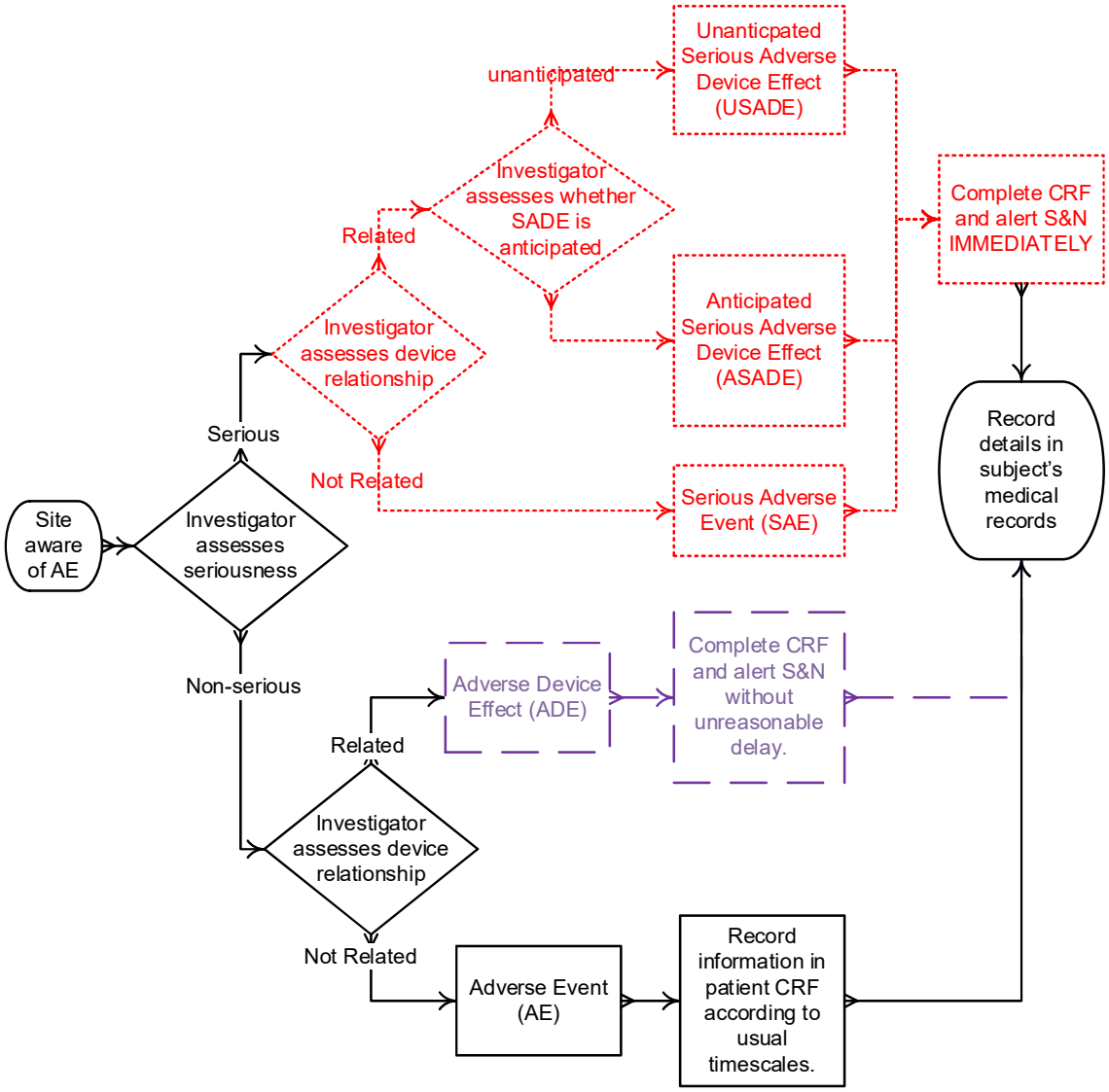
For ADE and DD, details of the product/procedure related to the event will be included and where applicable, pictures taken of the device. The deficient product should be retained for return to S&N, if applicable, unless it is contaminated (e.g., used dressings must not be retained). Updates to submitted information will be recorded in the CRF according to the timescales above.

All adverse events will be reviewed by a medically qualified person appointed by the Sponsor to determine which, if any, meet criteria for expedited reporting to the regulatory authorities.

The Investigator will inform the HREC/EC of adverse events according to the HREC/EC requirements.

Depending on the nature of the adverse event, the Sponsor may request copies of the subject's medical records, imaging, operative notes, as well as results of any relevant laboratory tests performed or other documentation related to the AE. If the subject was hospitalized, a copy of the discharge summary may be requested by the Sponsor and should be forwarded as soon as it becomes available. In certain cases, the Sponsor also may request a letter from the Investigator that summarizes the events related to the case.

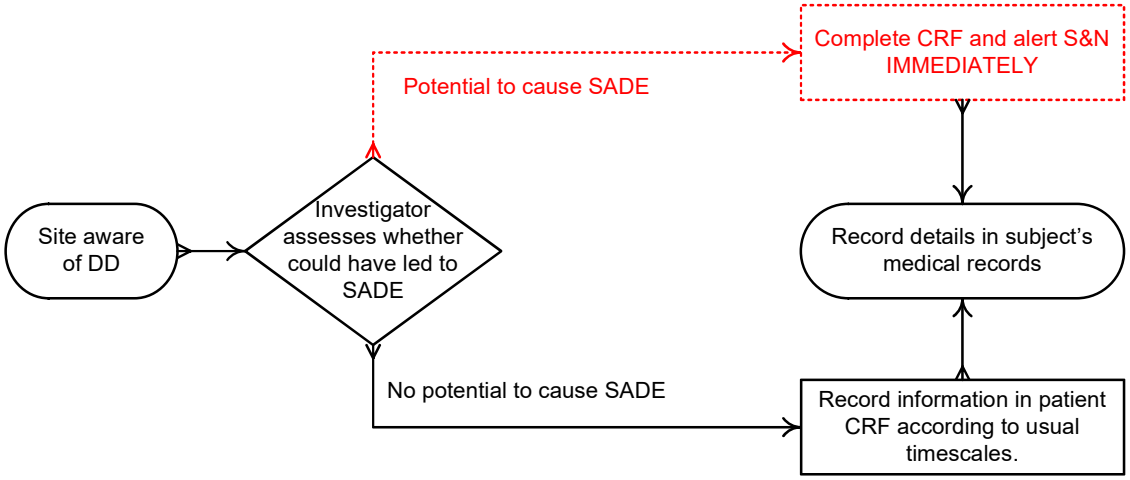
Figure 12.3-1: Evaluation and Reporting of AE



Red path – accelerated reporting within 24 hours

Purple path – reporting without unreasonable delay

Figure 12.3-2: Evaluation and Reporting of DD



Red path – accelerated reporting within 24 hours

12.4 FOLLOW-UP OF SUBJECTS WITH ADVERSE EVENTS

Unresolved AEs should be followed by the Investigator until the events are resolved. For subjects who are experiencing ongoing unresolved AE at the time of their study completion or early discontinuation from the study, the Investigator will monitor these events as part of the site's normal standard of care. Any additional data collected after study completion and related to an unresolved AE must be documented and made available to the Sponsor who will determine whether the data need to be documented on a CRF or in the Clinical Study Report.

12.4.1 Ongoing Adverse Events at Study Discontinuation

Adverse events which are **related** to a study procedure or IP and are ongoing at the end of subject's participation: The event should be followed until it is either resolved or until the event has become chronic and is not expected to further improve based on Investigator's review of the event.

Adverse events which are **not related** to a study procedure or IP and are ongoing at the end of subject's participation should be followed for 30 days after discontinuation or if the AE is resolved, whichever is sooner.

At the time of data analysis (e.g., interim or final), an evaluation of ongoing events should take place and be listed as ongoing in the safety table.

13. INVESTIGATOR OBLIGATIONS

The Principal Investigator will comply with the principles of Good Clinical Practice (GCP) as defined in ISO 14155:2011, and all applicable regulatory requirements as outlined in Appendix 21.4 of this protocol.

In addition, the PI will ensure that the Financial Disclosure Statements will be completed by the PI and the Sub-Investigator upon entry into the study and as any changes that affect their financial disclosure status occur during the course of the study and up to one year after study completion.

14. SPONSOR AND MONITOR RESPONSIBILITIES

The Sponsor will designate a monitor to conduct the appropriate site visits at the appropriate intervals. The clinical investigation will be monitored to ensure that: the rights and wellbeing of the subjects are protected; the reported data are accurate, complete, and verifiable from the source documents; and the study is conducted in compliance with the currently approved protocol and amendment(s), if applicable, with GCP regulations, and with applicable regulatory requirements.

Detailed monitoring requirements will be documented in the Clinical Monitoring Plan for this study.

14.1 SITE QUALIFICATION VISIT

A site qualification visit may be performed by the Sponsor prior to the execution of a clinical agreement to ensure that all Investigators have the appropriate training, staff, facilities, and resources to adequately conduct the study.

14.2 SITE INITIATION VISIT

A site initiation visit to provide training on the specifics of the study, site obligations and expectations of study conduct will be performed by the Sponsor or qualified person designated by

the Sponsor following the execution of the Clinical Trial Agreement (CTA) and documented HREC/EC approval.

14.3 SPONSOR AUDITS AND REGULATORY INSPECTION

Quality Assurance auditors, whether an employee of the Sponsor or its designee, may evaluate study conduct at the study sites. These parties must have access to any and all study reports and source documentation, regardless of location and format.

14.4 CLOSE-OUT VISIT

A study close-out visit will be performed by the Sponsor or designee to retrieve and account for all remaining clinical data and to resolve outstanding queries. During study close-out, the monitor will review investigator files to ensure required documents and records are on file, confirm the disposition of any other ancillary items used for the study, and review regulatory requirements regarding records retention and HREC/EC reporting requirements.

A remote close-out visit may be considered under when no subjects have been enrolled at a study site due to different reasons.

15. PROTOCOL AMENDMENTS

Amendments should be made only in necessary cases once the study has started. Protocol amendments must be approved by the protocol signatories prior to submission to the HREC/EC. Protocol amendments need to be approved by the HREC/EC and Regulatory Authority(ies), as applicable, prior to implementation at the site.

16. CONFIDENTIALITY OF THE STUDY

The confidentiality of this study and associated documents is governed by the terms of the CTA.

17. STATEMENTS OF COMPLIANCE

This clinical study will be performed in compliance with the ethical principles of the Declaration of Helsinki; and ISO 14155:2011 Clinical investigation of medical devices – Good Clinical Practice (3,23).

This clinical study will not commence until the required approval/favorable opinion from the HREC/EC or regulatory authority, as applicable, has been obtained. Any additional requirements imposed by the HREC/EC or regulatory authority will be followed.

18. END OF STUDY

Due to the retrospective design of the study, end of the study is defined as the date when the last subject is documented on CRFs.

Should circumstances arise which require the termination of the entire study prior to its planned completion (e.g., safety concerns) or circumstances arise which mean the end of the participation of an individual site (e.g., departure of Investigator, non-compliance), then this will be undertaken according to the Standard Operating Procedures of the Sponsor.

19. PUBLICATION POLICY

19.1 PUBLICATION OF STUDY DATA

The preparation and submission for publication of manuscripts containing the study results shall be in accordance with a process determined by the Clinical Trial Agreements between the study Sponsor and participating institutions. The publication or presentation of any study results shall comply with all applicable privacy laws, including, but not limited to the latest version of the Privacy Act 1988, Australia (16), and the European and Belgian legislation on the protection of natural persons with regard to the processing of personal data (17, 24).

19.2 DATA SHARING

Smith & Nephew is committed to upholding the highest ethical and legal standards involved in conducting clinical trials. Smith & Nephew, therefore, supports the data sharing requirements of The International Committee of Medical Journal Editors (ICMJE) published on the 6th June 2017 (21). In accordance, Smith & Nephew will consider requests to share individual (de-identified) participant data that underlie the results of any interventional clinical trial, as presented from the 1st July 2018 within an ICMJE associated journal. Requests made by researchers who provide a methodologically sound proposal will be considered. Requests may include data that underlie results presented in text, tables, figures, and appendices, together with data dictionaries. Availability of these data will begin nine months and end 36 months after article publication. Data supplied may only be used by the researcher(s) named in the approved research proposal for the purposes of achieving the aims of the analyses specified therein. All proposals should be directed to the Sponsor. To gain access, data requestors will need to sign a data access agreement.

20. REFERENCES

1. Arciero RA, Wheeler JH, Ryan JB, McBride JT. Arthroscopic Bankart repair versus nonoperative treatment for acute, initial anterior shoulder dislocations. Am J Sports Med. 1994;22(5):589-94.
2. Belgian Law related to experiments on humans (7 May 2004)
3. Clinical investigation of medical devices for human subjects - Good clinical practice (ISO 14155:2011), (2011).
4. Clopper CJ, Pearson ES. The Use of Confidence or Fiducial Limits Illustrated in the Case of the Binomial. Biometrika. 1934;26(4):404-13.
5. Efird C, Traub S, Baldini T, Rioux-Forker D, Spalazzi JP, Davisson T, et al. Knotless single-row rotator cuff repair: a comparative biomechanical study of 2 knotless suture anchors. Orthopedics. 2013;36(8):e1033-7.
6. Fitzgerald GK, Axe MJ, Snyder-Mackler L. A decision-making scheme for returning patients to high-level activity with nonoperative treatment after anterior cruciate ligament rupture. Knee Surg Sports Traumatol Arthrosc. 2000;8(2):76-82.
7. Iba K, Wada T, Hiraiwa T, Kanaya K, Oki G, Yamashita T. Reconstruction of chronic thumb metacarpophalangeal joint radial collateral ligament injuries with a half-slip of the abductor pollicis brevis tendon. J Hand Surg Am. 2013;38(10):1945-50.
8. Kerin C, Hopgood P, Banks AJ. Delayed repair of the quadriceps using the Mitek anchor system: a case report and review of the literature. Knee. 2006;13(2):161-3.
9. Kim SH, Oh JH, Lee OS, Lee HR, Hargens AR. Postoperative imaging of bioabsorbable anchors in rotator cuff repair. Am J Sports Med. 2014;42(3):552-7.
10. Lemos SE, Ebramzedeh E, Kvitne RS. A new technique: in vitro suture anchor fixation has superior yield strength to bone tunnel fixation for distal biceps tendon repair. Am J Sports Med. 2004;32(2):406-10.
11. Maniscalco P, Bertone C, Rivera F, Bocchi L. A new method of repair for quadriceps tendon ruptures. A case report. Panminerva Med. 2000;42(3):223-5.
12. Micic I, Kim SY, Park IH, Kim PT, Jeon IH. Surgical management of unstable elbow dislocation without intra-articular fracture. Int Orthop. 2009;33(4):1141-7.

13. Molloy AP, Ajis A, Kazi H. The modified Brostrom-Gould procedure--early results using a newly described surgical technique. Foot Ankle Surg. 2014;20(3):224-8.
14. National Statement on Ethical Conduct in Human Research 2007 (Updated 2018), (2018).
15. Petrera M, Dwyer T, Theodoropoulos JS, Ogilvie-Harris DJ. Short- to Medium-term Outcomes After a Modified Brostrom Repair for Lateral Ankle Instability With Immediate Postoperative Weightbearing. Am J Sports Med. 2014;42(7):1542-8.
16. Privacy Act 1988, Compilation No. 77, (2018).
17. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)
18. Richards DP, Barber FA. Repair of quadriceps tendon ruptures using suture anchors. Arthroscopy. 2002;18(5):556-9.
19. Smidt N, van der Windt DA, Assendelft WJ, Deville WL, Korthals-de Bos IB, Bouter LM. Corticosteroid injections, physiotherapy, or a wait-and-see policy for lateral epicondylitis: a randomised controlled trial. Lancet. 2002;359(9307):657-62.
20. Suchenski M, McCarthy MB, Chowaniec D, Hansen D, McKinnon W, Apostolakos J, et al. Material properties and composition of soft-tissue fixation. Arthroscopy. 2010;26(6):821-31.
21. Taichman DB, Sahni P, Pinborg A, Peiperl L, Laine C, James A, et al. Data Sharing Statements for Clinical Trials: A Requirement of the International Committee of Medical Journal Editors. Ethiop J Health Sci. 2017;27(4):315-8.
22. Woodmass JM, Matthewson G, Ono Y, Bois AJ, Boorman RS, Lo IK, et al. Suture locking of isolated internal locking knotless suture anchors is not affected by bone quality. Open Access J Sports Med. 2015;6:201-8.
23. World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. JAMA. 2013;310(20):2191-4
24. Belgian Law: Law on the protection of natural persons with regard to the processing of personal data) (30 July 2018)

21. APPENDICES

21.1 PROTOCOL AMENDMENT

Section	Current Text 10 JAN 2019 Version 2.0	Revised Text 20 AUG 2019 Version 3.0
2. Synopsis	6 months (182 days) post-op (+/- 90 days) 12 months (365 days) post-op (+/- 90 days)	6 months (182 days) post-op (+30/- 150 days) 12 months (365 days) post-op (+ 30/- 150 days)
2. Synopsis	3. Subjects who have undergone a device related re-intervention or were assessed as device failure will be considered terminated from the date of re-intervention/failure.	
3.4 Table of Abbreviations		EC Ethics Committee EU European Union
6.1.1		The Mini TAC™ 2.0 mm suture anchors are available either with stainless steel needles preassembled to the insertion device or without needles.
6.2	Each device is packaged with an IFU (Document ID 10600149, Rev. C) to ensure that the device is used properly and for the intended purposes.	Each device is packaged with an IFU (Document ID 10600149, Rev. C; 1061081, Rev E; 1061170, Rev F and 10600403 Rev D) to ensure that the device is used properly and for the intended purposes.
7.4	Subject screening will include a retrospective chart review. To eliminate the potential for selection bias, Investigators will consecutively screen subjects that have undergone extremities repair using the MINITAC◊ Ti 2.0 Suture Anchor by date of surgery, starting by the date one year prior to the Human Research Ethics Committee (HREC) approval date	Subject screening will include a retrospective chart review. To eliminate the potential for selection bias, Investigators will consecutively screen subjects that have undergone extremities repair using the MINITAC◊ Ti 2.0 Suture Anchor by date of surgery, starting from the earliest surgery date, moving forward in time, up until dates of surgery

	going backwards in time. Screening will stop once the full enrollment number is reached.	which are at least 12 months prior to the study start date at each site.
7.5		The Investigator and the Participating Site shall treat all information and data relating to the Study disclosed to Participating Site and/or Investigator in this Study as confidential and shall not disclose such information to any third parties or use such information for any purpose other than the performance of the Study. The collection, processing and disclosure of personal data, such as patient health and medical information is subject to compliance with applicable personal data protection and the processing of personal data (16,17, 24).
7.5	If an HREC waiver is not granted, then the informed consent shall be obtained from all study subjects according to ISO 14155:2011 guidelines, the National Statement on Ethical Conduct in Human Research and all applicable national regulations (1, 19). Potential subjects must be informed as to the purpose of the study and the potential risks and benefits known. The subject, or their legally authorized representative, will then read, sign, and personally date the HREC-approved informed consent document(s) (see below for difficulties with reading and writing). Additionally, the individual who obtains consent from the subject will sign and date the informed consent document. A copy of the signed informed consent documentation will be provided to the subject, a copy	If an HREC/EC waiver is not granted, then the informed consent shall be obtained from all study subjects according to ISO 14155:2011 guidelines and the latest version of the Helsinki Declaration (3, 23). All applicable national regulations will also be followed including but not limited to the National Statement on Ethical Conduct in Human Research in Australia and in Belgium, the Belgian law of 7 May 2004 related to experiments on Humans (2, 14). In this case, Informed consent will be obtained either by mail or over the phone. By mail: The potential subject will be sent the informed consent form and information sheet from a member of the study team. If the subject has any questions regarding their participation in the study, they can contact a member of the study team. If the subject is willing to participate, they sign and date the informed consent form and mail it back to the

	will be placed in the subject's medical record, with the original filed in the Investigator Site File. If the subject is unable to read, the informed consent document and associated study information may be read aloud to the subject in the presence of an impartial witness. If possible the subject shall sign and personally date the Informed Consent Form. Where this is not possible, due to difficulties in writing, the subject shall provide verbal consent to participate in the study. The witness shall then personally sign and date the informed consent form, attesting that the information was accurately explained and that the informed consent was freely given.	study team. The Investigator or designee will countersign the Informed Consent form. A copy of the signed informed consent documentation will be provided to the subject by mail, a copy will be placed in the subject's medical record, with the original filed in the Investigator Site File. If the subject is unable to read, the informed consent document and associated study information may be read aloud to the subject in the presence of an impartial witness. If possible the subject shall sign and personally date the informed consent form. Where this is not possible, due to difficulties in writing, the subject shall provide verbal consent to participate in the study. The witness shall then personally sign and date the informed consent form, attesting that the information was accurately explained and that the informed consent was freely given. The informed consent process and documentation will be in accordance with all local regulations. Over the phone: Upon receipt of the the informed consent form and information sheet by mail a delegated member of the study team will contact the potential subject to inform the subject of the purpose of the study and the potential risks and benefits known. If the subject agrees to participate, informed consent is documented by the study team member who obtained informed consent on the Telephone Informed Consent Log. In addition, the subject will be sent a letter of confirmation of the phone conversation and study participation.

Figure 8.1.1	Waiver of Informed Consent granted by HREC or written subject consent received	Waiver of Informed Consent granted by HREC or subject consent received
8.3.1	To minimize any potential for selection bias consecutive enrollment will be utilized to retrospectively enroll any subjects encountered that meet the inclusion/exclusion criteria. Consecutive enrollment will be performed starting at latest surgeries moving backwards in time.	To minimize any potential for selection bias consecutive enrollment will be utilized to retrospectively enroll any subjects encountered that meet the inclusion/exclusion criteria. Consecutive enrollment will be performed starting at earliest surgeries moving forward in time.
Table 9.1.1	6 months (182 days) post-op (+/- 90 days) 12 months (365 days) post-op (+/- 90 days)	6 months (182 days) post-op (+30/- 150 days) 12 months (365 days) post-op (+ 30/- 150 days)
Table 9.1.1	3. Subjects who have undergone a device related re-intervention or were assessed as device failure will be considered terminated from the date of re-intervention/failure.	
12.1.2	An Adverse Device Effect (ADE) is an adverse event that, in the opinion of the investigator, is related to the use of the IP.	An Adverse Device Effect (ADE) is an adverse event related to the use of the IP.
19.1.1	The publication or presentation of any study results shall comply with all applicable privacy laws, including, but not limited to the latest version of the Privacy Act 1988, Australia (2).	The publication or presentation of any study results shall comply with all applicable privacy laws, including, but not limited to the latest version of the Privacy Act 1988, Australia (16), and the European and Belgian legislation on the protection of natural persons with regard to the processing of personal data (17, 24).
21.2	Refer to MINITAC◊ Ti 2.0 Suture Anchor IFU 10600149 Rev. C.	MINITAC◊ Ti 2.0 Suture Anchor IFU 10600149 Rev. C. (#72200795) MINITAC◊ Ti 2.0 Suture Anchor IFU 1061081, Rev. E. (# 7210295) MINITAC◊ Ti 2.0 Suture Anchor IFU 1061170 Rev. F. (# 7210303)

		MINITAC◊ Ti 2.0 Suture Anchor IFU 10600403 Rev. D. (# 72202019)
21.3	Reference # 7210295: MINITAC◊ Ti 2.0 preloaded with two #3-0 DURABRAID◊ sutures	# 72200795 2.0mm MINITAC Ti Preloaded Suture Anchor with 2 Durabraid sutures size 3-0 # 7210295 2.0mm MINITAC Ti Suture Anchor with 2 Durabraid sutures # 7210303 2.0mm MINITAC Ti Preloaded Suture Anchor with 2 Durabraid sutures size 3.0 and needles # 72202019 2.0mm MINITAC Ti Suture Anchor with 2 Ultrabraid sutures size 2.0 and needles
All	Targeted region: Australian sites only	Targeted region: Australia and EU (European Union)
All	HREC	HREC/EC
All		References updated throughout

21.2 INSTRUCTIONS FOR USE

Refer to:

MINITAC◊ Ti 2.0 Suture Anchor IFU 10600149 Rev. C. (#72200795)

MINITAC◊ Ti 2.0 Suture Anchor IFU 1061081, Rev. E. (# 7210295)

MINITAC◊ Ti 2.0 Suture Anchor IFU 1061170 Rev. F. (# 7210303)

MINITAC◊ Ti 2.0 Suture Anchor IFU 10600403 Rev. D. (# 72202019)

21.3 INVESTIGATIONAL PRODUCT DESCRIPTION

The following list specifies the investigational product reference number allowed within this study:

72200795 2.0mm MINITAC Ti Preloaded Suture Anchor with 2 Durabraid sutures size 3-0

7210295 2.0mm MINITAC Ti Suture Anchor with 2 Durabraid sutures

7210303 2.0mm MINITAC Ti Preloaded Suture Anchor with 2 Durabraid sutures size 3.0 and needles

72202019 2.0mm MINITAC Ti Suture Anchor with 2 Ultrabraid sutures size 2.0 and needles

21.4 PRINCIPAL INVESTIGATOR OBLIGATIONS (ISO14155:2011)

1. General:
    a. The role of the PI is to implement and manage the day-to-day conduct of the clinical investigation as well as ensure data integrity and the rights, safety, and well-being of the subjects involved in the clinical investigation.
2. Qualification of the PI. The PI shall:
    a. be qualified by education, training, and experience to assume responsibility for the proper conduct of the clinical investigation in accordance with this International Standard; evidence of such qualifications of the PI and key members of the investigation site team shall be provided to the Sponsor through up-to-date Curriculum Vitae (CV) or other relevant documentation,
    b. be experienced in the field of application and trained in the use of the investigational device under consideration,
    c. disclose potential conflicts of interest, including financial, that interfere with the conduct of the clinical investigation or interpretation of results, and
    d. be knowledgeable with the method of obtaining informed consent.
3. Qualification of investigation site. The PI shall be able to demonstrate that the proposed investigation site:
    a. has the required number of eligible subjects needed within the agreed recruitment period, and
    b. has one or more qualified investigators, a qualified investigation site team and adequate facilities for the foreseen duration of the clinical investigation.
4. Communication with the IEC. The PI shall:

a. provide the Sponsor with copies of any clinical-investigation-related communications between the PI and the IEC,

b. comply with the requirements described in 4.5 of ISO 14155:2011.

   i. Submit to the IEC the following information, any amendments and any additional documentation required by the IEC: the Protocol; IB or equivalent; informed consent form and any other written information provided to subjects; procedures for recruiting subjects and advertising materials, if any; a copy of the CV of the PI(s) for with the IEC has oversight.

   ii. Provide documentation of the IECs approval/favorable opinion, identifying the documents and amendments on which the opinion was based, to the Sponsor, prior to commencing the clinical investigation.

   iii. Submit the following to the IEC if required by national regulations, the protocol or IEC, whichever is more stringent:

      1. SAEs
      2. Requests for deviations, and reports of deviations, if the deviation affects subject's rights, safety, and well-being, or the scientific integrity of the clinical investigation. Document and report to the Sponsor and IEC a report of deviations made to protect the rights, safety, and well-being of human subjects under emergency circumstances.
      3. Progress reports, including safety summary and deviations
      4. Amendments to any documents already approved by the IEC.
      5. If applicable, notifications of suspension or premature termination
      6. If applicable, justification and request for resuming the clinical investigation after suspension.
      7. Clinical investigation report or summary.

   iv. As a minimum, during the clinical investigation, the following information shall be obtained in writing from the IEC prior to implementation:

      1. Approval/favorable opinion of amendments
      2. Approval of the request for deviations that can affect the subject's rights, safety, and well-being or scientific integrity of the clinical investigation
      3. Approval for resumption of a suspended clinical investigation if applicable.

c. obtain the written and dated approval/favorable opinion of the IEC for the clinical investigation before recruiting subjects and implementing all subsequent amendments, if required,

d. promptly report any deviations from the protocol that affect the rights, safety or well-being of the subject or the scientific integrity of the clinical investigation, including those which occur under emergency circumstances, if required by the IEC, protocol or national regulations. In particular circumstances, the communication with the IEC can be performed by the Sponsor, partly or in full, in which case the Sponsor shall keep the Principal Investigator informed.

5. Informed consent process. The PI shall:

a. General:

i. Informed consent shall be obtained in writing from the subject and the process shall be documented before any procedure specific to the clinical investigation is applied to the subject; except when special circumstances for emergency treatments apply (see below)

b. Process of obtaining informed consent. The general process for obtaining informed consent shall be documented in the protocol and shall comply with the following. These requirements also apply with respect to informed consent obtained from a subject's legally authorized representative:

i. Ensure that the PI or his/her authorized designee conducts the informed consent process

ii. Include all aspects of the clinical investigation that are relevant to the subject's decision to participate throughout the clinical investigation

iii. Avoid any coercion or undue improper influence on, or inducement of, the subject to participate

iv. Not waive or appear to waive the subject's legal rights

v. Use native non-technical language that is understandable to the subject

vi. Provide ample time for the subject to read and understand the informed consent form and to consider participation in the clinical investigation

vii. Include personally dated signatures and the PI or an authorized designee responsible for conducting the informed consent process

viii. Show how informed consent will be obtained in special circumstances (see below) where the subject is unable to provide him or herself, and

ix. Ensure important new information is provided to new and existing subjects throughout the clinical investigation.

c. Special circumstances for informed consent (the following provisions are subject to national regulations):

i. Subject needing legally authorized representatives: informed consent may be given by the legally authorized representative only if a subject is unable to make the decision to participate in a clinical investigation (e.g., infant, child, or juvenile, seriously ill or unconscious subject, mentally ill person, mentally handicapped person). In such cases, the subject shall also be informed about the clinical investigation within his/her ability to understand.

ii. Subject unable to read or write: informed consent shall be obtained through a supervised oral process if a subject or legally authorized representative is unable to read or write. An independent witness shall be present throughout the process. The written informed consent form and any other information shall be read aloud and explained to the prospective subject or his/her legally authorized representative and, whenever possible, either shall sign and personally date the informed consent form. The witness also signs and personally dates the informed consent for attesting that the information was accurately explained and that the informed consent was freely given.

iii. Emergency treatments:

1. For clinical investigations involving emergency treatments, when prior informed consent of the subject is not possible because of the subject's medical condition, the informed consent of the subject's legally authorized representative, if present, shall be requested.
2. When it is not possible to obtain prior informed consent from the subject, and the subject's legally authorized representative, is not available, the subject may still be enrolled if a specific process has been described in the protocol.

3. Arrangements shall be made to inform the subject or legally authorized representative, as soon as possible, about the subject's inclusion in the clinical investigation and about all aspects of the clinical investigation.
4. The subject shall be asked to provide informed consent for continued participation as soon as his/her medical condition allows.

d. The Principal Investigator may not enroll a subject without obtaining informed consent of the subject or his/her legally authorized representative only when the following conditions are fulfilled: the prospective subject fulfils the emergency conditions and is obviously in a life-threatening situation; no sufficient clinical benefits are anticipated from the currently available treatment; there is a fair possibility that the life-threatening risk to the prospective subject can be avoided if the investigational device is used; anticipated risks are outweighed by the potential benefits of applying the investigational device ; the legally authorized representative cannot be promptly reached and informed.

e. Information provided to the subject. All information pertinent to the clinical investigation, including at least the following, shall be provided in writing and in native, non-technical language that is understandable to the subject (or the subject's legally authorized representative):

i. Description and purpose
ii. Potential benefits
iii. Risks and inconveniences or the subject and, when applicable, for any embryo, fetus or nursing infant
iv. Alternative procedures
v. Confidentiality
vi. Compensation
vii. Anticipated expenses, if any, to be borne by the subject for participating in the clinical investigation
viii. Information on the role of Sponsor's representative in the clinical investigation
ix. Contact persons
x. Statement declaring that new findings or the reasons for any amendment to the protocol that affect the subject's continued participation shall be made available to the subject.

xi. Statement indicating that, upon the subject's approval, the subject's personal physician will be informed of the subject's participation in the clinical investigation

xii. Termination procedures

f. Informed consent signature shall contain the following:

i. The voluntary agreement to participate in the clinical investigation and follow the investigator's instructions

ii. A statement declaring that refusal of participation incurs no penalty for the subject

iii. A statement declaring that discontinuation at any time incurs no penalty for the subject

iv. A statement with regard to the possible consequences of withdrawal

v. An acknowledgment of the information provided and confirmation that all the subject's questions were answered

vi. A statement confirming that the subject or his/her legally authorized representative agrees to the use of the subject's relevant personal data for the purpose of the clinical investigation

vii. A statement confirming that the subject or his/her legally authorized representative agrees that Sponsor's representatives, regulatory authorities and IEC representatives will be granted direct access to the subject's medical records.

g. New information: if new information becomes available that can significantly affect a subject's future health and medical care, that information shall be provided to the subject(s) affected in written form. If relevant, all affected subjects shall be asked to confirm their continuing consent in writing.

h. ensure compliance with the applicable regulatory requirements and ethical principles for the process of obtaining informed consent, and

i. ensure and document appropriate training if an authorized designee is appointed to conduct the informed consent process.

6. Compliance with the protocol. The Principal Investigator shall:

a. indicate his/her acceptance of the protocol in writing,

b. conduct the clinical investigation in compliance with the protocol,

c. create and maintain source documents throughout the clinical investigation and make them available as requested during monitoring visits or audits,

d. ensure that the investigational device is used solely by authorized users as specified in 6.2, and in accordance with the protocol and instructions for use,
e. propose to the Sponsor any appropriate modification(s) of the protocol or investigational device or of the use of the investigational device,
f. refrain from implementing any modifications to the protocol without agreement from the Sponsor, IEC and regulatory authorities, if required,
g. document and explain any deviation from the approved protocol that occurred during the course of the clinical investigation,
h. ensure that an adequate investigation site team and facilities exist and are maintained and documented during the clinical investigation,
i. ensure that maintenance and calibration of the equipment relevant for the assessment of the clinical investigation is appropriately performed and documented, where applicable,
j. ensure the accuracy, completeness, legibility, and timeliness of the data reported to the Sponsor in the CRF and in all required reports,
k. maintain the device accountability records,
l. allow and support the Sponsor to perform monitoring and auditing activities,
m. be accessible to the monitor and respond to questions during monitoring visits,
n. allow and support regulatory authorities and the IEC when performing auditing activities,
o. ensure that all clinical-investigation-related records are retained as required taking measures to prevent accidental or premature destruction, and
p. review and sign the clinical investigation report, as applicable.

7. Medical care of subjects. The Principal Investigator shall

a. provide adequate medical care to a subject during and after a subject's participation in a clinical investigation in the case of adverse events,
b. inform the subject of the nature and possible cause of any adverse events experienced,
c. provide the subject with the necessary instructions on proper use, handling, storage, and return of the investigational device, when it is used or operated by the subject,
d. inform the subject of any new significant findings occurring during the clinical investigation, including the need for additional medical care that may be required,
e. provide the subject with well-defined procedures for possible emergency situations related to the clinical investigation, and make the necessary arrangements for emergency

treatment, including decoding procedures for blinded/masked clinical investigations, as needed,

f. ensure that clinical records are clearly marked to indicate that the subject is enrolled in a particular clinical investigation,

g. if appropriate, subjects enrolled in the clinical investigation shall be provided with some means of showing their participation in the clinical investigation, together with identification and compliance information for concomitant treatment measures (contact address and telephone numbers shall be provided),

h. inform, with the subject's approval or when required by national regulations, the subject's personal physician about the subject's participation in the clinical investigation, and

i. make all reasonable efforts to ascertain the reason(s) for a subject's premature withdrawal from the clinical investigation while fully respecting the subject's rights.

8. Safety reporting. The Principal Investigator shall:

a. record every adverse event and observed device deficiency, together with an assessment,

b. report to the Sponsor, without unjustified delay, all serious adverse events and device deficiencies that could have led to a serious adverse device effect; this information shall be promptly followed by detailed written reports, as specified in the protocol,

c. report to the IEC serious adverse events and device deficiencies that could have led to a serious adverse device effect, if required by the national regulations or protocol or by the IEC,

d. report to regulatory authorities serious adverse events and device deficiencies that could have led to a serious adverse device effect, as required by the national regulations, and

e. supply the Sponsor, upon Sponsor's request, with any additional information related to the safety reporting of a particular event.