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Absorb GT1 Japan PMS
Absorb GT1 Bioresorbable Vascular Scaffold (BVS) System Post-marketing Surveillance (PMS)
Study Document No: 16-310
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Sponsor [redacted]

[redacted]

Absorb GT1 Bioresorbable Vascular Scaffold System Post-marketing Surveillance Protocol

16-310

[redacted]

Principal Investigator:

[redacted]

Abbott Vascular Japan Co., Ltd.

Result of this post-marketing surveillance shall be reported to the Ministry of Health, Labour and Welfare as a condition to marketing approval of the Absorb GT1 Bioresorbable Vascular Scaffold System.
Your cooperation in this surveillance would be highly appreciated.

[redacted]

Surveillance Device Approval Number	[redacted]
Surveillance Device Approval Date	Nov 2, 2016.
Generic Name of the Surveillance Device	Absorbable Coronary Stent
Brand Name of the Surveillance Device	Absorb GT1 Bioresorbable Vascular Scaffold System
Surveillance Period (Registration Period)	[redacted]
Post-marketing Surveillance Sponsor	[redacted]
Post-marketing Surveillance Manager	[redacted]

[redacted]

Table of Contents

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym/ Abbreviation	Description
%DS	Percent Diameter Stenosis
ACC	American College of Cardiology
ACE	Angiotensin-converting Enzyme
ACS	Acute Coronary Syndrome
AHA	American Heart Association
ARB	Angiotensin Receptor Blocker
BVS	Bioresorbable Vascular Scaffold
CABG	Coronary Artery Bypass Graft
CAG	Coronary Angiography
CEC	Clinical Event Committee
CFR	Coronary Flow Reserve
CK	Creatine Kinase
CK-MB	Creatine Kinase Myocardial Band Isoenzymes
CRP	C-reactive Protein
CT	Computer Tomography
CTO	Chronic Total Occlusion
CVA	Cerebrovascular Accident
CVIT	Japanese Association of Cardiovascular Intervention and Therapeutics
DCA	Directional Coronary Atherectomy
ECG	Electrocardiogram
eGFR	Estimated Glomerular Filtration Rate
FFR	Fractional Flow Reserve
GPSP	Good Post-marketing Study Practice
HDL	High Density Lipoprotein
IFU	Instruction for Use
IVUS	Intravascular Ultrasound
LAD	Left Anterior Descending Artery
LCX	Left Circumflex Artery

Acronym/ Abbreviation	Description
LDL	Low Density Lipoprotein
LMCA	Left Main Coronary Artery
LMT	Left Main Trunk
LVEF	Left Ventricular Ejection Fraction
MACE	Major Adverse Cardiac Event
MI	Myocardial Infarction
MLA	Minimal Lumen Area
MLD	Minimum Luminal Diameter
MSCT	Multiple Slice Computer Tomography
MRA	Magnetic Resonance Angiography
NQMI	Non Q-wave Myocardial Infarction
NSTEMI	Non-ST elevation Myocardial Infarction
OCT	Optical Coherence Tomography
PCI	Percutaneous Coronary Intervention
PMS	Post-marketing surveillance
PRU	P2Y12 Reaction Unit
QCA	Quantitative Coronary Angiography
QMI	Q-wave Myocardial Infarction
RCA	Right Coronary Artery
RVD	Reference Vessel Diameter
ST	Scaffold/Stent Thrombosis
STEMI	ST-elevation Myocardial Infarction
SVG	Great Saphenous Vein Graft
TIA	Transient Ischemia Attack
TIMI	Thrombolysis in Myocardial Infarction
TLR	Target Lesion Revascularization
TVF	Target Vessel Failure
TVR	Target Vessel Revascularization

1. PURPOSE

This is a post-marketing use result surveillance (hereinafter referred to as "Surveillance") conducted per the standards required by the Minster of Health, Labour and Welfare provided in the standards for post-marketing surveillances and studies [except for those defined in the Ministerial Ordinance on Good Clinical Practice for Medical Devices (MHLW Ordinance No. 36, 2005)] based on Paragraph 4, Article 23-2-9 (including application *mutatis mutandis* per Article 23-2-19 of Revised PAL) of the Law on Securing Quality, Efficacy and Safety of Pharmaceuticals and Medical Devices, etc. (Law No. 145, 1960, hereinafter referred to as "Revised PAL") by the Marketing Authorization Holder or accredited foreign manufacturer of a medical device defined in Paragraph 1, Article 23-2-5 of Revised PAL. The purpose of the Surveillance is to know the frequency and status of adverse device effects and adverse events in order to assure the safety of the new medical device, and to collect efficacy and safety information for evaluating clinical use results.

2. SURVEILLANCE METHOD

2.1 Subjects

Based on the Ministerial Ordinance on Good Post-marketing Study Practice for Medical Device, the Surveillance will **continuously register** patients with ischemic heart disease potentially indicated for treatment with the Absorb GT1 Bioresorbable Vascular Scaffold System ([redacted] hereinafter referred to as "Absorb GT1").

Only on-label use of the Absorb GT1 will occur in this Surveillance until otherwise allowed by the Sponsor although this is a post-marketing use result surveillance. Detailed patient enrolment eligibility will be determined separately in guidelines.

2.2 Registration Method

- The Surveillance may be conducted per site-specific requirements for patient registration to post-marketing surveillance such as provision of information to patients and signed informed consent by patients, if applicable.
- Patient registration will continuously occur when treatment with Absorb GT1 is attempted.
  - Lesions for which treatment with Absorb GT1 was attempted will be target lesions.
    - If an attempt of Absorb GT1 implantation was failed and the treatment was done with other stent/device instead, the background information and procedure information on the Absorb GT1 will be recorded. Follow-up is not required unless any adverse event occurred in relation to the attempted Absorb GT1 implantation.
  - Lesions treated with other stent during the index procedure will be non-target lesions.

[redacted]

- If planning staged implantation (treatment is divided into several times in stages) is performed, the patient registration will occur at the time when treatment with Absorb GT1 is first attempted.
    - If treatment with Absorb GT1 is attempted for initial procedure, it will be the study procedure.
        - If treatment with Absorb GT1 is attempted for additional procedure in addition to the initial procedure, only additional treatment form will be entered.
        - Follow-up is also required for lesions treated with additional procedure. If any adverse events occur, the information will be recorded.
    - If treatment with Absorb GT1 is not attempted for initial procedure but attempted for additional procedure, the additional procedure will be the study procedure. The initial procedure is treated as history.
- De novo lesions observed during follow-up can be treated with Absorb GT1. Such case will not be considered as a new registration.
    - Before starting commercial sale (if ST rate at 3 months is ≤ 0.9%, commercial sale will be started), if Absorb GT1 is attempted as the additional procedure during follow-up, only the additional treatment form will be entered.
    - Result of use of Absorb GT1 for treatment of in-scaffold restenosis of Absorb GT1 or stent restenosis of other stent is currently unknown. Do not use Absorb GT1 for restenosis treatment until the Sponsor provides updated information.
    - Follow-up is required for lesions treated with additional procedure. If any adverse events occur, the information will be recorded.
- Quantitative measurement of RVD is strongly recommended for treatment with Absorb GT1
    - If IVUS/OCT is used for RVD measurement, RVD may be measured after pre-dilatation (if difficulty in lesion crossing is predicted)
- Post-procedure IVUS/OCT is strongly recommended until operators became familiar with use of Absorb GT1. **If incomplete scaffold expansion or apposition was observed, consider additional post-dilatation** within the maximum balloon pressure of the device.
- It is not recommended that patients registered in the Surveillance participate in any other therapeutic clinical study. Non-surveillance information/data obtained by the standard procedures of Surveillance Sites (eg, intravascular imaging) can separately be analyzed.
- Scheduled imaging follow-up is not required in the Surveillance. However;
    - When a follow-up imaging is conducted as a scheduled or diagnostic test, the Sponsor may request Surveillance Sites for images and related materials. Surveillance sites will cooperate in providing to the Sponsor, if requested.
    - Absorb GT1 loses strength along with progression of bioresorption. Therefore, after proceeding of bioresorption, intravascular imaging is in principle limited for a diagnostic purpose.

- Absorb GT1 is not visible under X-RAY. Therefore, MSCT or MRA can be used as an initial stenotic diagnosis.

2.3 Planned Sample Size

Target sample size of the Surveillance is approximately 2,000 patients. Commercial sale of Absorb GT1 beyond the purpose of the Surveillance will be started if the scaffold thrombosis (ST) rate in the 2,000 patients at 3 month is 0.9% or lower (ST rates for patients with Absorb GT1).

[redacted]

2.4 Method

The surveillance consists of two phases as detailed below. All- patients will be continuously registered in each phases. This means that Absorb GT1 must not be used outside of the Surveillance, except in the case of revascularization to the registered patients.

Phase 1 (All- patients):

- 250 patients (approximately 45 sites)
    - Surveillance Sites:

[redacted]

AVJ-301 investigational sites or medical institutions which have a physician with experience of implantation of Absorb GT1 (or previous types of the device) in or outside of Japan (considering possible move of AVJ-301 investigators to another site)

- Main Purpose: To confirm the efficacy of physician training and to establish optimal training for increasing medical institutions participating in post-marketing evaluation. Procedural results will be evaluated sequentially for early feedback to the sites. Therefore, there will be no quantitative goal established to move to Phase 2. However, recommended procedure may be updated as required in order to achieve optimal acute result.
- Lesions to be treated: Per product IFU
- All cases will be treated by imaging-guided implantation technique using IVUS/OCT
    - At least first 150 cases will be analyzed by the core lab.
- Primary Endpoint 1: Exclusion of very small vessels
    - In the ABSORB III trial, very small vessel with RVD < 2.25 mm per core lab QCA was a risk factor of scaffold thrombosis.
    - In the AVJ-301 and the ABSORB III trials, lesions with RVD < 2.25 mm consisted of 14.4% (59/411) and less than 20% of all the lesions registered respectively. Therefore, goal of the training is to exclude these very small vessels.
    - Angiograms and IVUS/OCT images taken during procedure will be sent immediately to the core lab, which will analyze the images and give feedback to the site. Additional training or revision of registration criteria may occur as required in order to exclude almost all lesions with RVD < 2.5 mm from registration by the last half of Phase 1.
- Primary Endpoint 2: Scaffold apposition and complete expansion evaluated by IVUS/OCT (analyzed by the core lab)
    - Descriptive analysis only

      Numerical goal will not be set because there is currently no imaging-guided BVS implantation technique established.

      However, implantation guidelines will be established upon agreement by Sponsor's medical adviser and the core lab based on results of the clinical studies with this device and imaging-guided metallic stent implantation technique.

      IVUS/OCT images taken during procedure will be sent immediately to the core lab, which will analyze the images and give feedback to the site as required. Images of ST, if occurred, will also be sent to the core lab.
    - All core labs will be those located in Japan in order to fulfill the goals mentioned above.

Phase 2 (All- patients):

- Until 2000 patients are registered (up to 200 sites)
    - Surveillance sites:
        - Phase 1 sites
        - Sites which have a physician accredited by CVIT, and experience of ≥ 100 PCI cases per year.

- Main Purpose: To confirm safety
- Lesions to be treated: Per product IFU unless otherwise instructed
- To be treated by site standard procedure (imaging-guided implantation technique using IVUS/OCT recommended per product IFU)
- Primary Endpoint: ST through 3 months
    - Criteria: ST rate (in 2,000 patients: sum of Phase 1 and Phase 2)
        - ≤ 18 patients (0.9%): To start commercial sale
        - ≥ 19 patients: To investigate the cause and take appropriate actions
- All images of ST, if occurred, will be sent to the core lab.
- At Phase 2, IVUS/OCT images post procedure may be analyzed in the core lab as well. Surveillance sites will cooperate to the Sponsor, if requested.

3. SURVEILLANCE PERIOD

Information will be collected for up to 5 years post procedure. [redacted]

[redacted]

Annual reports will be submitted to the regulatory authority after marketing approval. Data will be collected until all patients complete 5-year follow-up, and application for use result evaluation will then be submitted.

Separately from the annual reports, frequency of ST will be reported as required.

Data will be collected at the following time points:

- Baseline (pre-procedure)
- Procedure
- Post-procedure to discharge
- 3 months (by visit preferred; by telephone is allowed) (Day 90 ± 14 days)
- 1 year (by visit preferred; by telephone is allowed) (Day 365 ± 28 days)
- 2 years (by visit or telephone) (Day 730 ± 28 days)
- 3 years (by visit or telephone) (Day 1095 ± 28 days)
- 4 years (by visit or telephone) (Day 1460 ± 28 days)
- 5 years (by visit or telephone) (Day 1825 ± 28 days)

Scheduled imaging follow-up is not required for this surveillance. If any imaging is performed as site standard practice, the imaging modality and results should be recorded in case report forms. In addition, if any imaging is performed for diagnosis, these should also be recorded in case report forms.

4. TREATMENT OF PATIENTS

Absorb GT1 will be implanted per optimal technique recommended by Abbott Vascular Japan Co., Ltd. Physicians should refer to the warnings, contraindications, and precautions in the most current version of product IFU for optimal treatment of each patient.

Physician will make final decision on antiplatelet therapy. However, product IFU of the Absorb GT1 BVS recommends dual antiplatelet therapy (DAPT) for at least 12 months. However, severe adverse device effect of very late stent thrombosis for more than one year after implantation was reported. Therefore, scheduled follow-up should be performed depending on the patient's condition and necessity of extending antiplatelet therapy should be considered with paying attention to the risk of adverse reactions such as bleeding, patient's background information, and anatomic features of the lesions. In addition to that, physician should also pay full attention to the increasing risk of bleeding due to the combination with anticoagulants. Physician should refer to the most current version of ADP antagonist IFU before treatment of each patient. Laboratory tests and clinical observation required for evaluating adverse reactions to ADP antagonists should be performed per the product IFU.

5. INFORMATION TO BE COLLECTED FOR THE SURVEILLANCE

[redacted]

5.1 Patient Baseline Information

1) Rave System Information
2) Registration Information
3) Demography
4) Ischemic Status and Other Cardiac Complications
5) Risk Factors and Comorbidities
6) Pre-procedural Laboratory Tests (If done, cardiac enzyme to be captured in cardiac enzyme form)
7) Pre-procedural Antiplatelet Medications

5.2 Procedural Information

1) Basic Procedural Information
2) Treated Lesion Information (Per lesion, stenting procedure only. Bifurcation lesion should be regarded as two lesions if both stented)
3) Pre-dilatation/Preparation (to be generated per dilatation/preparation)
4) Stenting Information (Including attempted but not implanted, to be generated per stent)
5) Post-dilatation (to be generated per dilatation)
6) Final Results

5.3 Pre- and Post-procedural Cardiac Enzymes

5.4 Procedural Complications

5.5 Antiplatelet Medications after the Procedure

5.6 Other Medications (Pre/Post-procedure)

5.7 Clinical Follow-up

5.8 Imaging Follow-up (target lesion only)

1) Primary imaging modality
2) If MSCT/MRA, Restenosis assessment
3) CAG
4) Intravascular imaging

5.9 Device Malfunction/Deficiency

5.10 Scaffold/Stent Thrombosis

5.11 Adverse Event Other Than ST (to be reported)

- Coronary Adverse events
  - Ischemia (Angina or ischemic test)
  - Diagnostic Catheter
  - Revascularization
- Bleeding
- Other serious adverse events (including adverse events related to antiplatelet medications)*
- Any adverse events related to Absorb GT1, or their causal relationship is "unknown"

*a serious adverse event: led to death, resulted in a life-threatening illness or injury, requires inpatient hospitalization or prolongation of existing hospitalization for treatment, impairment (e.g. resulted in a permanent impairment of a body structure or a body function) or threatened to impairment, led to a congenital abnormality or birth defect, an important medical event that may not result above but may be considered serious based upon the investigator's appropriate judgment.

For the adverse events described above, the causal relationship with the device or the procedure, adverse events related to antiplatelet medications, and outcomes of every adverse event should be recorded. For serious adverse events, reasons for the judgment of seriousness should be recorded as well.

5.12 Additional Treatment (If done with Absorb GT1)

If Absorb GT1 is used for treatment in the registered patients before starting commercial use (i.e., before ST rate through 3 months is available for all the registered patients, as primary endpoint), the information should be recorded.

1) Type
2) Basic Procedural Information
3) Treated Lesion Information (Per lesion, stenting procedure only. Bifurcation lesion should be regarded as two lesions if both stented)
4) Pre-dilatation/Preparation (to be generated per dilatation/preparation)
5) Stenting Information (Including attempted but not implanted, to be generated per stent)
6) Post-dilatation (to be generated per dilatation)
7) Final Results

6. ENDPOINTS

6.1 Primary Endpoints

- Scaffold thrombosis (Phase-1 + Phase 2 all patients with Absorb GT1):
  - If ST rate at 3 months is ≤ 0.9%, commercial sale will be started.
  - If ST rate at 2 years is ≥ 1.5%, investigation will be implemented to identify the cause.
- Exclusion of very small vessels
  - For Phase-1 patients only
- Scaffold apposition assessed by intravascular imaging:
  - For Phase-1 patients only
- Device deficiency at procedure of implantation (all patients)

6.2 Other Endpoints

To be evaluated per typical DES clinical studies.

6.2.1 Clinical Endpoints

- Component endpoints
  - Death (Cardiac/Vascular/Non-Cardiovascular)
  - Myocardial Infarction (TV-MI/NTV-MI)
  - Target Lesion Revascularization (ID-TLR/NID-TLR)
  - Target Vessel Revascularization (ID-TVR/NID-TVR)
  - All coronary revascularization

- Composite endpoints
  - DMR (All death/All MI/All revascularization)
  - TVF (Cardiac death/All MI/ID-TVR)
  - MACE (Cardiac death/All MI/ID-TLR)
  - TLF (Cardiac death/TV-MI/ID-TLR)
  - Cardiac death/All MI

6.2.2 Angiographic Endpoints (core lab analysis)

Include the following:

- Pre-procedure
  - Morphology
  - TIMI blood flow
  - Lesion length
  - Proximal RVD
  - Distal RVD
  - MLD
  - %DS

- Post-procedure
  - TIMI blood flow
  - Proximal RVD
  - Distal RVD
  - MLD (in-stent/in-segment)
  - %DS (in-stent/in-segment)
  - Acute gain (in-stent/in-segment)

6.2.3 IVUS/OCT Endpoints (core lab analysis)

Include the following:

- Pre-procedure (or after pre-dilatation)
  - Lumen diameter or Lumen area (proximal/distal)

- Post-procedure
  - Lumen diameter or Lumen area (proximal/distal)
  - MLA
  - Incomplete apposition of the Absorb BVS strut
  - Fracture of the Absorb BVS strut

7. ANALYSIS AND REPORTING

7.1 Adverse Event Reporting

When the Surveillance Site obtains the information on occurrence of the following events, capture the information to the case recording form in principle within 48 hours.

- ST or events possibly considered as scaffold or stent thrombosis
- adverse events to be reported, described in Section 5.11
- device malfunction or deficiency

Adjudication of deaths, MIs, and STs is performed by clinical events committee or scaffold thrombosis image-review committee. Surveillance sites will cooperate in providing images and relevant materials for adjudication to the Sponsor.

7.2 Angiographic Core Laboratory

For Phase-1 patients, QCA assessments of baseline and post-procedure angiograms and lesion morphology will be performed also by the angiographic core lab as well as by Surveillance Sites.

In case of ST, angiograms at baseline, procedure and the event will be analyzed by the angiographic core lab.

The Sponsor may request Surveillance Sites for angiograms for any purpose other than the above. Surveillance sites will cooperate in providing the angiograms to the Sponsor, if requested.

7.3 Intravascular Imaging

For Phase-1 patients, intravascular (IVUS/OCT) assessments will be performed by the respective core lab.

In case of ST, IVUS/OCT images at baseline, procedure and the event will be analyzed by the respective core lab.

The Sponsor may request Surveillance Sites for IVUS/OCT images for any purpose other than the above. Surveillance sites will cooperate in providing the IVUS/OCT images to the Sponsor, if requested.

7.4 Scaffold Thrombosis Image-Review Committee

Scaffold thrombosis events occurred during the Surveillance will be adjudicated by a scaffold thrombosis image-review committee. The committee will evaluate events reported by Surveillance Sites as scaffold thrombosis as outlined below:

- **Purpose**

To minimize risk of scaffold thrombosis by informing Surveillance Sites of result of investigation of scaffold thrombosis events occurred during the Surveillance based on all images, patient background information, and other relevant information concerning the events used to assess relationship to Absorb GT1 and complexity of lesions and to identify cause of scaffold thrombosis. Therefore, Surveillance sites will provide the information to the Sponsor as requested.

- **Member Selection**

In cooperation with CVIT, five (5) physicians who are well experienced with Absorb GT1 implantation or intravascular imaging will be selected in advance. Review committee meetings will require attendance of at least three (3) members. One (1) representative of Abbott Vascular may (not mandatory) attend the meetings or may present their opinion in advance. Physicians from relevant core labs may attend meetings or present their opinion depending on individual cases.

- **Review Method**

By teleconference or physical meeting.

7.5 Clinical Observation - Clinical Events Committee (CEC)

Clinical events committee (CEC) will evaluate all deaths and suspicion of MIs for 3 years maximally. Surveillance sites will cooperate in providing materials needed to adjudication (e.g., death report, discharged summary) to the Sponsor, if a patient is dead or is suspected to MI.

7.6 Analysis of Surveillance Results

Analysis and reporting used for annual reports and application for use result evaluation will be performed per the *Yakushokukisanhatsu* Notification No. 1121-44 (November 21, 2014), "Handling of Use Result Evaluation Concerning Marketing Approval of Medical Devices and In-vitro Diagnostic Drugs". Subgroup analysis may be performed as required for demonstrating the safety and efficacy, and the results will be included in the surveillance result overview of the application for use result evaluation. Adverse events other than death/MI/scaffold thrombosis will be adjudicated by Surveillance Sites.

The following populations will be used for clinical evaluation:

- Intent-to-Treat [redacted]
- Full Analysis Set [redacted]
- Absorb Only Population [redacted]

Sub-group analysis includes the following but not limited to:

- Sex
- Diabetes
- Stent diameter

8. PUBLICATION POLICY

The Sponsor shall have the right to access and use all data and results generated during the Surveillance. The publication and/or presentation of results from a single Surveillance Site are not allowed until publication and/or presentation of the multi-center results. The Sponsor acknowledges that the Surveillance's Principal Investigator intends to publish a multi-center publication regarding the Surveillance results. The Sponsor must receive any proposed publication and/or presentation materials at least 60 days prior to the proposed date of the presentation or the initial submission of the proposed publication in order for the materials to be reviewed by the Sponsor in compliance with the Sponsor's publication policy. Prior approval from the Principal Investigator and the Sponsor is required for a live use or case reporting at Sites.

Among the data obtained in the Surveillance, the data that are included in the JPCI Registry will periodically be transferred to the JPCI Registry Database. Therefore, use of these data only will be an exception to the policy above.

[redacted]

9. DEFINITIONS

Definitions in the Surveillance are shown in Attachment 2.

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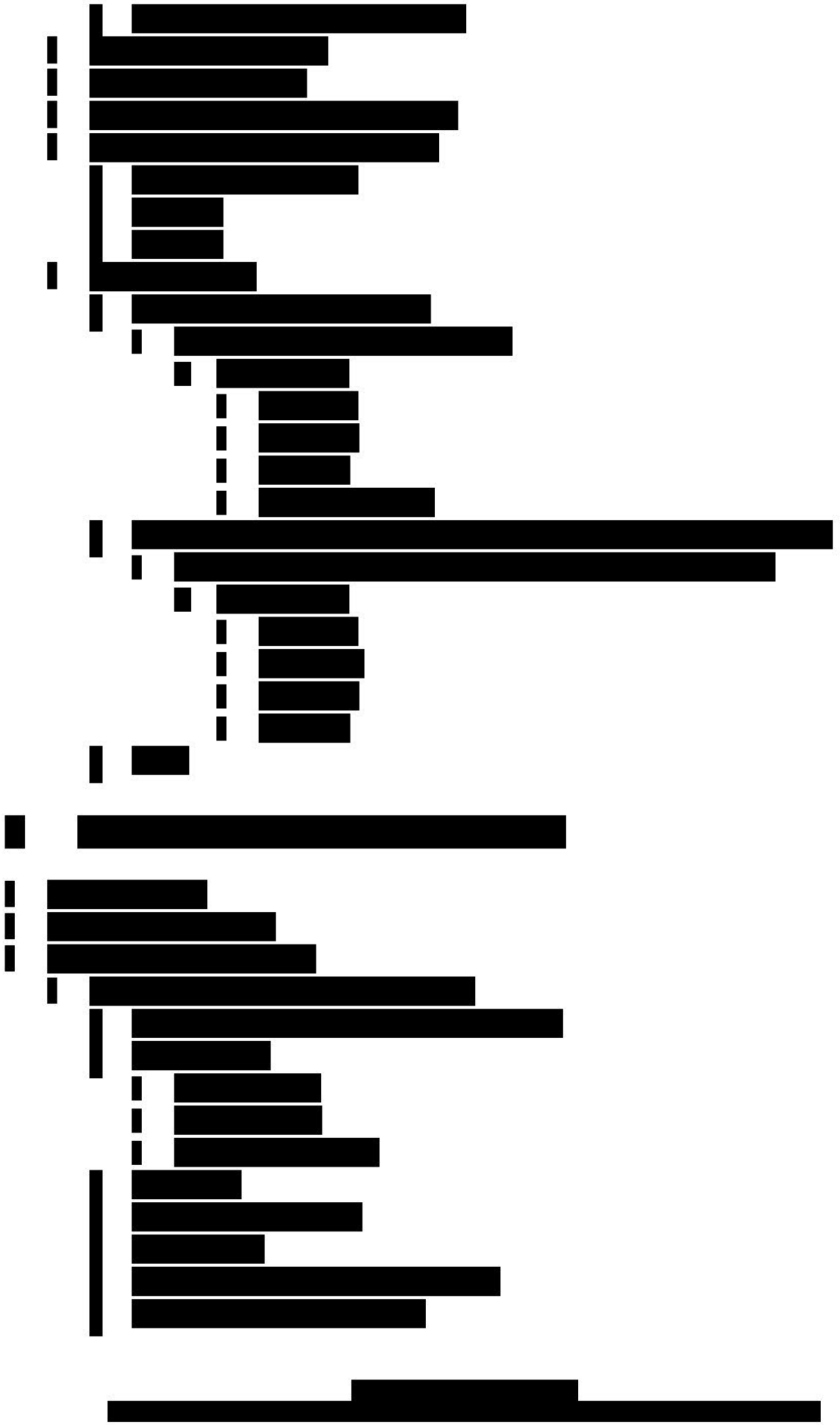
[redacted]

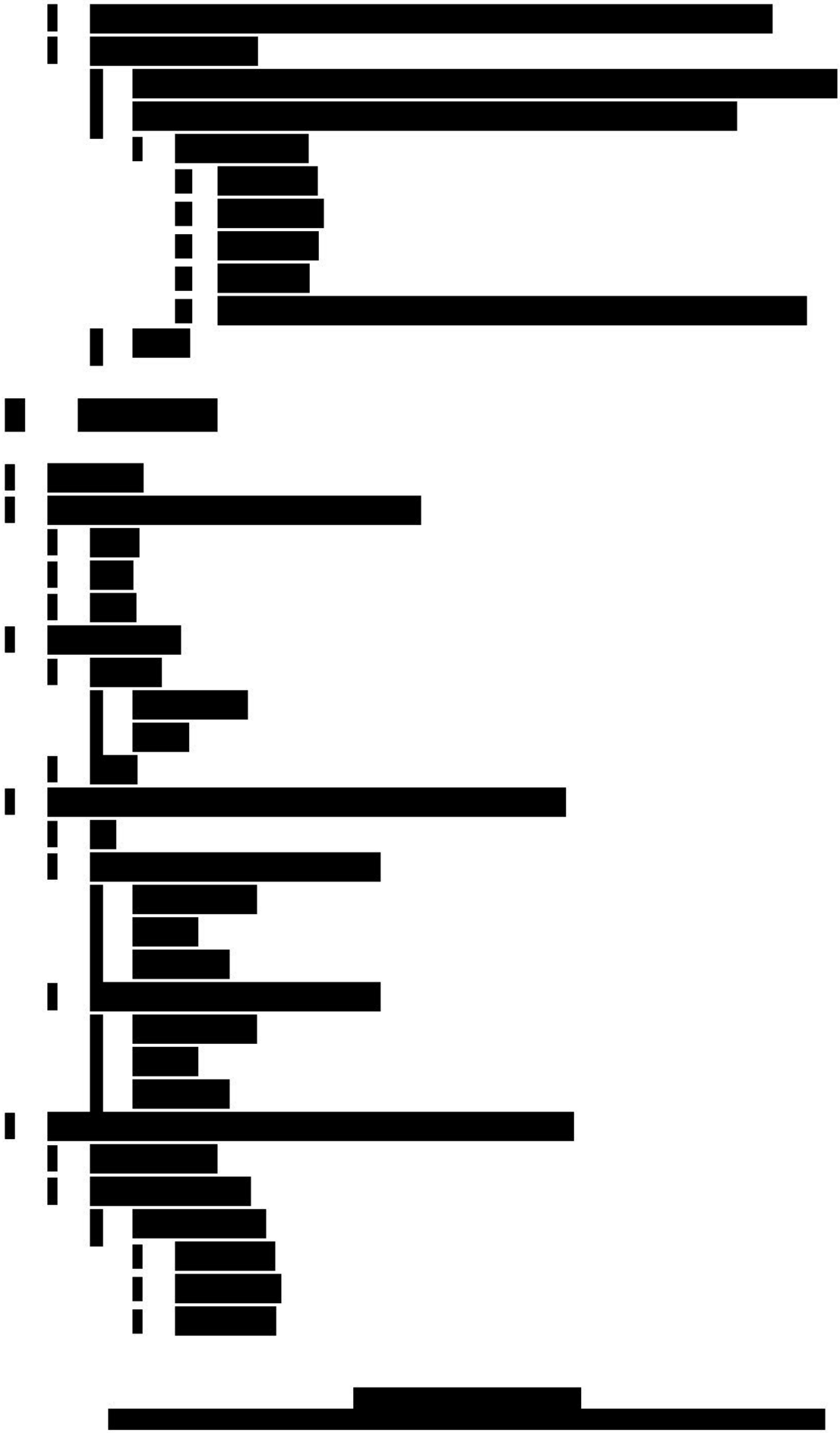
[redacted]

[redacted]

[redacted]

[redacted]





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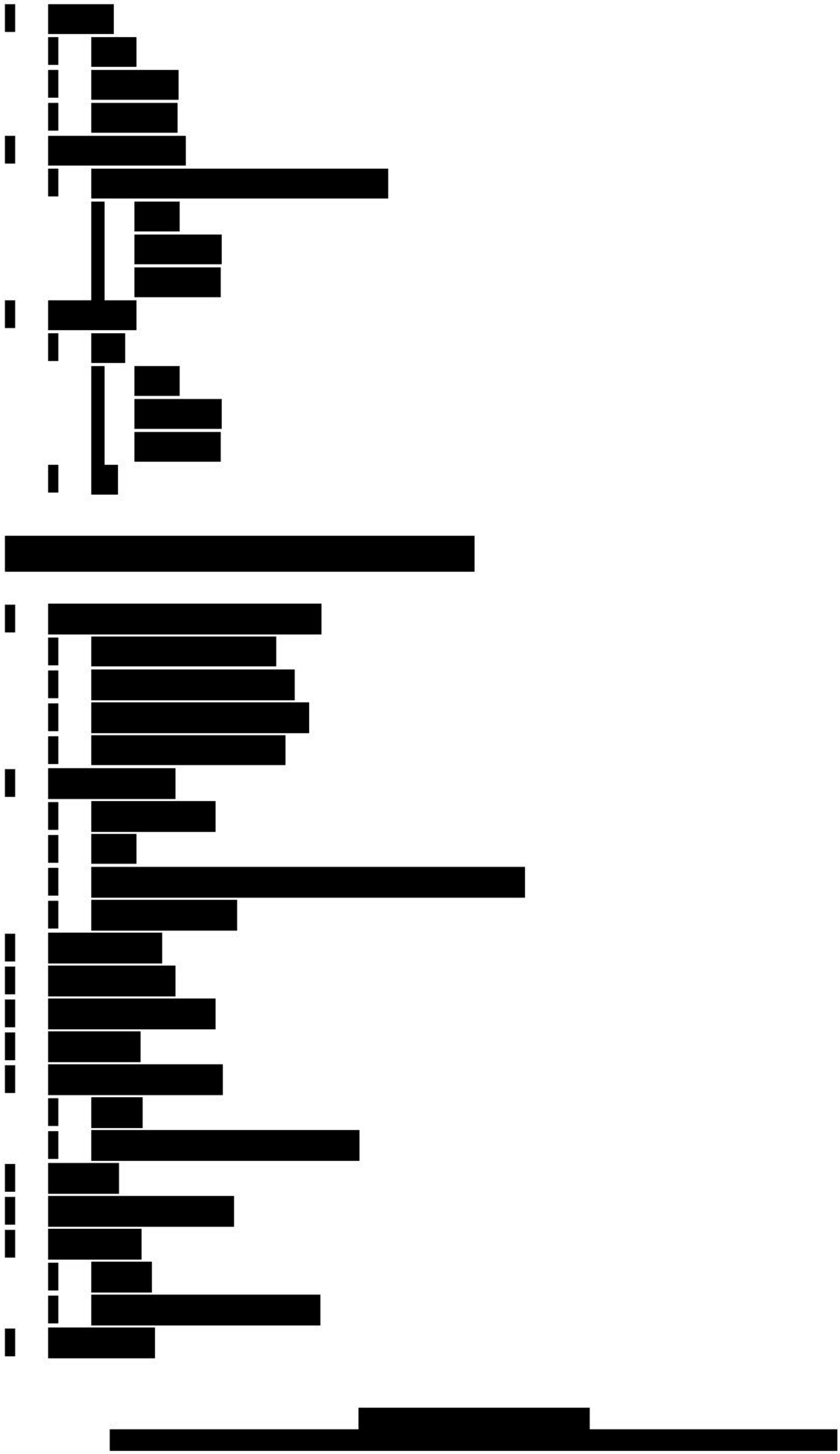

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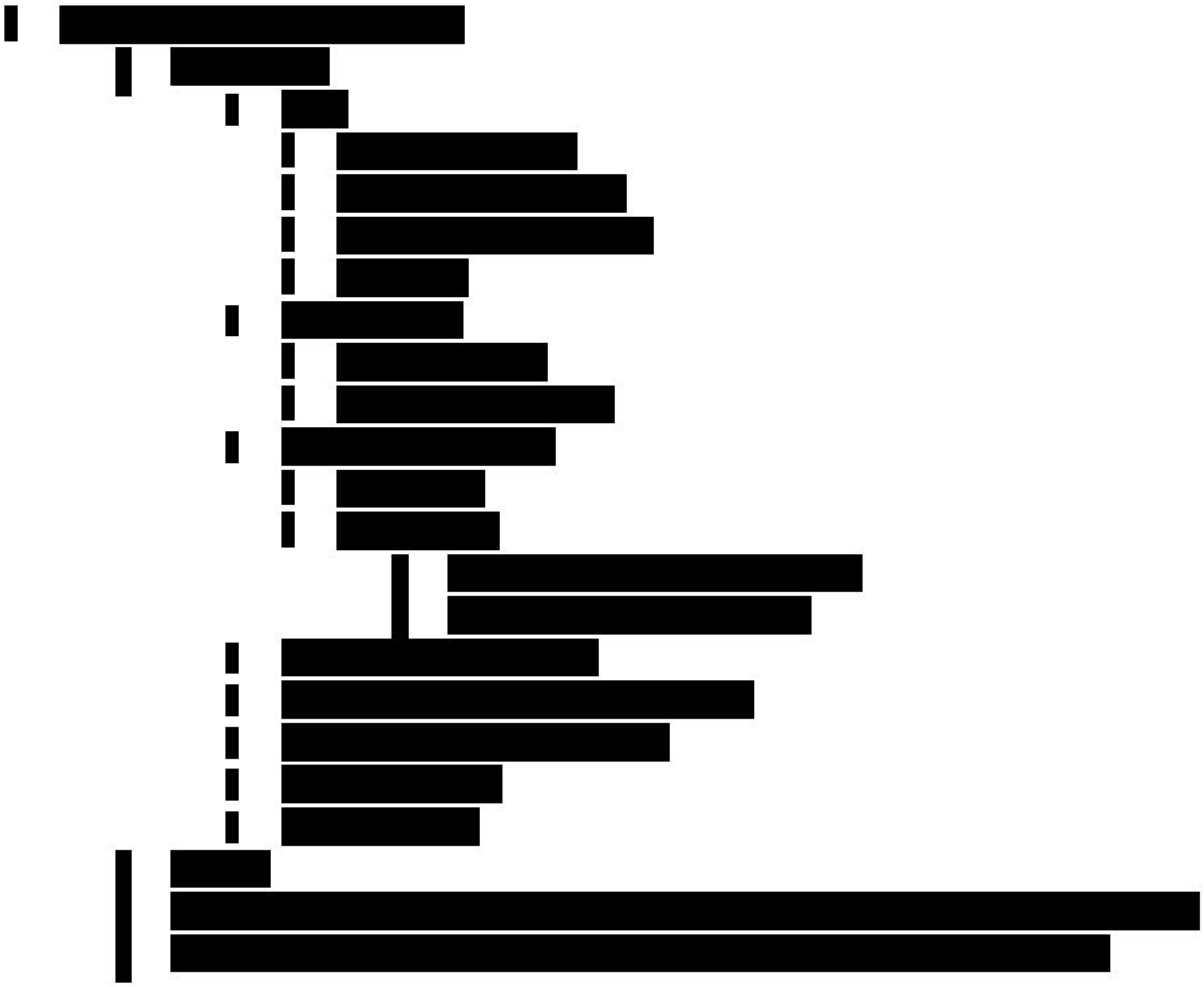

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ATTACHMENT 2: DEFINITION IN THE SURVEILLANCE

Scaffold/Stent Thrombosis

The definition of ARC will be used. The scaffold thrombosis image-review committee will adjudicate scaffold/stent thrombosis reported from the Surveillance Site based on this definition.

Scaffold/Stent thrombosis should be reported as a cumulative value at the different time points and with the different separate time points. Time 0 is defined as the time point after the guiding catheter has been removed and the subject left the catheterization lab.

- **Timing:**
  - Acute scaffold/stent thrombosis*: 0 - 24 hours post stent implantation
  - Subacute scaffold/stent thrombosis*: >24 hours - 30 days post stent implantation
  - Late scaffold/stent thrombosis†: 30 days - 1 year post stent implantation
  - Very late scaffold/stent thrombosis†: >1 year post stent implantation

    *Acute/subacute can also be replaced by early scaffold/stent thrombosis. Early scaffold/stent thrombosis (0 - 30 days) - this definition is currently used in the community.
    †Including "primary" as well as "secondary" late scaffold/stent thrombosis; "secondary" late scaffold/stent thrombosis is a scaffold/stent thrombosis after a target segment revascularization.

- **Categories:**
  - Definite
  - Probable

  Definitions of each category are as follows.

  - **Definite scaffold/stent thrombosis**

    Definite scaffold/stent thrombosis is considered to have occurred by either angiographic or pathologic confirmation.

    Angiographic confirmation of scaffold/stent thrombosis*
    The presence of a thrombus† that originates in the scaffold/stent or in the segment 5 mm proximal or distal to the scaffold/stent and presence of at least one of the following criteria within a 48-hour time window:
    - Acute onset of ischemic symptoms at rest
    - New ischemic ECG changes that suggest acute ischemia
    - Typical elevation or depression in cardiac biomarkers (refer to definition of spontaneous MI)

- Nonocclusive thrombosis
  - Intracoronary thrombus is defined as a (spheric, ovoid, or irregular) noncalcified filling defect or lucency surrounded by contrast material (on 3 sides or within a coronary stenosis) seen in multiple projections, or persistence of contrast material within the lumen, or a visible embolization of intraluminal material downstream.
- Occlusive thrombus
  - TIMI 0 or TIMI 1 in- scaffold/stent or proximal to a scaffold/stent up to the most adjacent proximal side branch or main branch (if originates from the side branch).

*The incidental angiographic documentation of stent occlusion in the absence of clinical signs or symptoms is not considered a confirmed stent thrombosis.
†Intracoronary thrombus.

Pathological confirmation
Evidence of recent thrombus within the scaffold/stent determined at autopsy or via examination of tissue retrieved following thrombectomy.

- **Probable scaffold/stent thrombosis**

Either of the following occurred after scaffold/stent implantation will be considered a probable scaffold/stent thrombosis:

- Any unexplained death within the first 30 days‡
- Irrespective of the time after the index procedure, any MI that is related to documented acute ischemia in the territory of the implanted stent without angiographic confirmation of stent thrombosis and in the absence of any other obvious cause

‡For studies with ST-elevation MI population, one may consider the exclusion of unexplained death within 30 days as evidence of probable stent thrombosis.

For the Surveillance, the principal definition of scaffold/stent thrombosis will be ARC definite or probable scaffold/stent thrombosis.

Death (Per ARC Circulation 2007; 115: 2344-2351)

CEC will adjudicate deaths based on ARC definition.

The deaths in the Surveillance will be adjudicated per the ARC definition. All deaths are considered cardiac unless an unequivocal non-cardiac cause can be established. Specifically, any unexpected death even in

patients with coexisting potentially fatal non-cardiac disease (e.g. cancer, infection) should be classified as cardiac.

- **Cardiac death:**
  Any death due to proximate cardiac cause (e.g. MI, low-output failure, fatal arrhythmia), unwitnessed death and death of unknown cause, all study procedure related deaths including those related to concomitant treatment.

- **Vascular death:**
  Death due to non-coronary vascular causes such as cerebrovascular disease, pulmonary embolism, ruptured aortic aneurysm, dissecting aneurysm, or other vascular cause.

- **Non-cardiovascular death:**
  Any death not covered by the above definitions such as death caused by infection, malignancy, sepsis, pulmonary causes, accident, suicide, or trauma.

Myocardial Infarction

CEC will adjudicate myocardial infarction.

ECG assessment

- Q wave MI (Q-MI)
  Development of new, pathological Q wave on the ECG in ≥ 2 contiguous leads.

- Non-Q wave MI (NQ-MI)
  Not categorized as Q-MI but increasing biomarkers.

Biomarker assessment

If CK-MB is measured by Site-standards, the definition used in Absorb Japan clinical trial will be used. For other cases, use the Modified WHO definition.

Definition used in the Absorb Japan clinical trial

Classification and criteria of NQMI

Classification	Biomarker Criteria	Additional Criteria
Periprocedural PCI (≤48h post-PCI)	CK-MB >5 x URL	Baseline value* < URL
Periprocedural CABG (≤48h post-CABG)	CK-MB >10 x URL	Baseline value < URL, and any of the following: New pathologic Q waves** or LBBB; new native or graft vessel occlusion; imaging evidence of loss of viable myocardium
Spontaneous All late events that are not associated with a revascularization procedure will be considered simply as spontaneous.	CK-MB > URL, or Troponin*** > URL	One or more of the following must also be present: (a) symptoms of ischemia; (b) development of pathological Q waves** (c) ECG changes indicative of new ischemia - (new ST-T changes or new LBBB), (d) or imaging evidence of a new loss of viable myocardium or a new regional wall motion abnormality
Reinfarction (not related to procedure)	If the CK and CK-MB values are stable or decreasing on 2 samples, a 25% or greater increase 3 to 12 hours after second sample is required to diagnose recurrent MI.	If biomarkers are increasing or peak not reached then insufficient data to diagnose recurrent MI.

URL=Upper Reference Limit
LBBB=Left Bundle-branch Block
* Baseline biomarker value is required before study procedure and presumes a typical rise and fall post
** If abnormal Q-wave is observed, then adjudicated as Q-MI
*** If both values are obtained, then CK-MB must be used for adjudication

Modified WHO definition

Elevation of CK > 2 x URL and CK-MB > URL without abnormal Q-wave.

Myocardial infarction - Relation to the Target Vessel

All infarcts that cannot be clearly attributed to a vessel other than the target vessel will be considered related to the target vessel.

Revascularization

The revascularizations in the Surveillance will be adjudicated by Sites per the ARC definition.

- **Location of Revascularization:**

  - **Target Lesion Revascularization (TLR)**
    TLR is defined as any repeat percutaneous intervention of the target lesion or bypass surgery of the target vessel performed for restenosis or other complication of the target lesion. All TLR should be classified prospectively as clinically indicated or not clinically indicated by the investigator prior to repeat angiography. An independent angiographic core laboratory should verify that the severity of percent diameter stenosis meets requirements for clinical indication and will overrule in cases where investigator reports are not in agreement. The target lesion is defined as the treated segment from 5 mm proximal to the stent and to 5 mm distal to the scaffold/stent.

  - **Target Vessel Revascularization (TVR)**
    TVR is defined as any repeat percutaneous intervention or surgical bypass of any segment of the target vessel. The target vessel is defined as the entire major coronary vessel proximal and distal to the target lesion which includes upstream and downstream branches and the target lesion itself.

  - **Non Target Lesion Revascularization (Non-TLR)**
    Any revascularization in the target vessel for a lesion other than the target lesion is considered a non-TLR.

  - **Non Target Vessel Revascularization (Non-TVR)**
    Revascularization of the vessel identified and treated as the non-target vessel at the time of the index procedure.

  - **Non Treated Vessel Revascularization**
    Revascularization of the vessel that is not treated at the time of the index procedure.

Note: TLR and TVR will be adjudicated by the angiographic core laboratory.

- **Ischemia-driven Revascularization (ID-TLR/TVR)**

  - A revascularization is considered ischemia-driven if associated with any of the following:
    - Positive functional ischemia study including positive FFR
    - Ischemic symptoms and angiographic diameter stenosis ≥ 50% by core laboratory QCA
    - Angiographic diameter stenosis ≥ 70% by core laboratory QCA without angina or positive functional study

Other definitions

Other definitions are based on the latest J-PCI definition.