



NIRflex™ Premounted Coronary Stent System

Instructions for Use

NIRflex™ Premounted Coronary Stent System

Caution: Federal Law (USA) restricts this device to sale by or on the order of a physician.

Table of Contents

1	DEVICE DESCRIPTION	3
	Table 1. NIRflex™ Premounted Coronary Stent System Device Specifications	3
2	INDICATIONS	3
3	CONTRAINDICATIONS	4
4	WARNINGS and PRECAUTIONS	4
4.1	Use in Specific Patient Population – Precautions	4
4.2	Stent Handling – Precautions (see also 9 Clinician Use Information)	5
4.3	Stent Placement – Precautions	5
4.4	Stent/System Removal – Precautions	6
4.5	Post Implant – Precautions	6
5	ADVERSE EVENTS	6
5.1	Observed Adverse Events	6
	Table 2. Adverse Events during 6 Months Follow-Up	7
5.2	Potential Adverse Events	9
6	CLINICAL STUDIES	10
	Table 3. Principal Effectiveness and Safety Results	11
7	PATIENT SELECTION AND TREATMENT	12
7.1	Individualization of Treatment	12
8	HOW SUPPLIED	12
9	CLINICIAN USE INFORMATION	13
9.1	Inspection Prior to Use	13
9.2	Materials Required	13
9.3	Preparation	13
9.3.1	Guidewire lumen flash	13
9.3.2	Stent System preparation	13
9.4	Delivery Procedure	14
9.5	Stent Deployment Procedure	14
9.6	Removal Procedure	15
9.7	<i>in vitro</i> Information	15
	Table 4. NIRflex™ Compliance Data	15
10	PATIENT INFORMATION (UNITED STATES ONLY)	16

1 DEVICE DESCRIPTION

The NIRflex™ Premounted Coronary Stent System includes:

- A 316LS surgical grade stainless steel NIRflex™ stent, premounted on a rapid exchange balloon catheter (the Delivery System);
- Two radiopaque markers, which aid in the accurate placement of the stent.

Table 1. NIRflex™ Premounted Coronary Stent System Device Specifications

Catalog #	Stent Diameter	Stent Length	Minimum I.D. of Guiding Catheter* (in./mm)	Nominal Pressure (atm)	Rated Burst Pressure (atm)	Stent Free % Area
421250090001	2.5 mm	9 mm	0.065 / 1.65	9	16	86
421250120001		12 mm	0.065 / 1.65	9	16	86
421250160001		16 mm	0.065 / 1.65	9	16	86
421250200001		20 mm	0.065 / 1.65	9	16	86
422275090001	2.75 mm	9 mm	0.065 / 1.65	7	16	86
422275120001		12 mm	0.065 / 1.65	7	16	86
422275160001		16 mm	0.065 / 1.65	7	16	86
422275200001		20 mm	0.065 / 1.65	7	16	86
422275240001		24 mm	0.065 / 1.65	7	16	86
422275320001		32 mm	0.065 / 1.65	7	16	86
422300090001	3.0 mm	9 mm	0.065 / 1.65	7	16	87
422300120001		12 mm	0.065 / 1.65	7	16	87
422300160001		16 mm	0.065 / 1.65	7	16	87
422300200001		20 mm	0.065 / 1.65	7	16	87
422300240001		24 mm	0.065 / 1.65	7	16	87
422300320001		32 mm	0.065 / 1.65	7	16	87
422350090001	3.5 mm	9 mm	0.065 / 1.65	7	16	89
422350120001		12 mm	0.065 / 1.65	7	16	89
422350160001		16 mm	0.065 / 1.65	7	16	89
422350200001		20 mm	0.065 / 1.65	7	16	89
422350240001		24 mm	0.065 / 1.65	7	16	89
422350320001		32 mm	0.065 / 1.65	7	16	89
420400090001	4.0 mm	9 mm	0.065 / 1.65	7	14	87
420400120001		12 mm	0.065 / 1.65	7	14	87
420400160001		16 mm	0.065 / 1.65	7	14	87
420400200001		20 mm	0.065 / 1.65	7	14	87
420400240001		24 mm	0.065 / 1.65	7	14	87
420400320001		32 mm	0.065 / 1.65	7	14	87

* See individual manufacturer specifications for (F) equivalent

2 INDICATIONS

(see also 7.1 Individualization of Treatment)

The NIRflex™ Premounted Coronary Stent System is indicated for improving coronary luminal diameter in patients with symptomatic ischemic disease due to discrete *de novo* and restenotic lesions in native coronary arteries (length ≤25mm) with a reference vessel diameter from 2.5 mm to 4.0 mm.

Long-term outcome (beyond 6 months) for this permanent implant is unknown at present.

3 CONTRAINDICATIONS

Do not use the NIRflex™ Premounted Coronary Stent System in:

- Patients in whom antiplatelet and/or anticoagulant therapy is contraindicated.
- Patients who are judged to have a lesion that prevents complete inflation of an angioplasty balloon.
- Patients with known allergies to stainless steel
(see 7.1 Individualization of Treatment).

4 WARNINGS and PRECAUTIONS

(See also 7.1 Individualization of Treatment)

WARNINGS

- Judicious selection of patients is necessary since the use of this device carries the associated risk of subacute thrombosis, vascular complications and/or bleeding events.
- Only physicians who have received appropriate training should perform this procedure.
- Stent placement should only be performed at hospitals where emergency coronary artery bypass surgery can be readily performed.
- Subsequent restenosis may require repeat dilatation of the arterial segment containing the stent. The long-term outcome following repeat dilatation of endothelialized stents is unknown at present.
- When multiple stents are required, stent materials should be of similar composition.

4.1 Use in Specific Patient Population – Precautions

The safety and effectiveness of the NIRflex™ Premounted Coronary Stent System has not been established because it has not been adequately studied in:

- Patients with **unresolved vessel thrombus at the lesion site.**
- Patients with coronary artery **reference vessel diameters < 2.5 mm.**
- Patients with **lesions located in the unprotected left main coronary artery, ostial lesions, or lesions located at a bifurcation.**
- Patients with diffuse disease or **poor outflow distal** to the identified lesions.
- Patients with recent **acute myocardial infarction** where there is evidence of thrombus.
- Patients with **more than two overlapping stents** due to risk of thrombus or poor flow.

The safety and effectiveness of using mechanical atherectomy devices (directional atherectomy catheters, rotational atherectomy catheters), or laser angioplasty catheters, to treat in-stent stenosis has not been established.

4.2 Stent Handling – Precautions (see also 9 Clinician Use Information)

- **For single use only.** Do not resterilize or reuse.
- Use prior to the product "Use By" date.
- **Do not remove stent from its Delivery System** as removal may damage the stent and/or lead to stent embolization. The Premounted Stent is intended to perform as a system.
- Stent Delivery System should not be used in conjunction with any other stents.
- Care must be taken not to disrupt the stent on the balloon. This could occur when the catheter is removed from the packaging, placed over the guide wire, or advanced through the rotating hemostatic valve adapter and the guiding catheter hub.
- Do not "roll" the mounted stent with your fingers as this action may loosen the stent from the delivery balloon.
- Use only contrast media diluted 1:1 with normal heparinized saline as the balloon inflation media. Do not use air or any gaseous medium to inflate the balloon as this may cause uneven expansion and difficulty in deployment of the stent.

4.3 Stent Placement – Precautions

- **Do not pre-inflate balloon prior to stent deployment** other than as directed. Use balloon purging technique described in section 9.3.2 Premounted Stent Preparation.
- Never advance the Delivery System without the guidewire extending from the tip.
- Implanting a stent may lead to dissection of the vessel distal and/or proximal to the stent and may cause acute closure of the vessel requiring additional intervention (CABG, further dilatation, placement of additional stents, or other).
- When treating multiple lesions, the distal lesion should be initially stented, followed by stenting of the proximal lesion. Stenting in this order obviates the need to cross the proximal stent in placement of the distal stent and reduces the chances for dislodging the proximal stent.
- Do not expand the stent if it is not properly positioned in the vessel.
- Placement of a stent has the potential to compromise side branch patency.
- Balloon pressures should be monitored during inflation. **Do not exceed the rated burst pressure as indicated on product label.** Use of pressures higher than specified on the product label may result in a ruptured balloon and potential intimal damage and dissection.
- An unexpanded stent may be retracted into the guiding catheter one time only. Subsequent movement in and out through the distal end of the guiding catheter should not be performed as the stent may be damaged when retracting the undeployed stent back into the guiding catheter. Should **any resistance** be felt **at any time** during withdrawal of the Premounted Stent System, the entire system should be **removed as a single unit.**
- Stent retrieval methods (use of additional wires, snares and/or forceps) may result in additional trauma to the coronary vasculature and/or the vascular access site. Complications may include bleeding, hematoma or pseudoaneurysm.

4.4 Stent/System Removal – Precautions

Should unusual resistance be felt **at any time** during either lesion access or removal of the Delivery System post-stent implantation, the entire Delivery System, and the guiding catheter should be **removed as a single unit**. This must be done under direct visualization with fluoroscopy.

When removing the entire Delivery System as a single unit:

- DO NOT retract the Delivery System into the guiding catheter.
- Position the proximal balloon marker just distal to the tip of the guiding catheter.
- Advance the guide wire into the coronary anatomy as far distally as safely possible.
- Tighten the rotating hemostatic valve to secure the Delivery System to the guiding catheter, and then remove the guiding catheter and Delivery System as a single unit.

Failure to follow these steps and/or applying excessive force to the Delivery System can potentially result in loss or damage to the stent and/or Delivery System components.

4.5 Post Implant – Precautions

- Care must be exercised when crossing a newly deployed stent with an intravascular ultrasound (IVUS) catheter, guidewire or a balloon catheter to avoid disrupting the stent geometry.
- Do not perform **magnetic resonance imaging (MRI) scan** on patients post-stent implantation until the stent has been completely endothelialized (approximately eight weeks) to minimize the potential for stent migration. The stent may cause artifacts in MRI scans due to distortion of the magnetic field.

5 ADVERSE EVENTS

5.1 Observed Adverse Events

A total of 205 patients were enrolled in a multi-center clinical study, to collect information about the safety and effectiveness of the NIRflex™ Premounted Coronary Stent System in the treatment of stenotic lesions in native coronary arteries (NIRflex™ US Study). These results were compared to results of the 848 patients treated with the NIR® PRIMO Stent System and the JJIS Palmaz-Schatz® Stent in the NIRVANA Randomized Clinical Trial (NIRVANA RCT). These patients form the basis of the observed events reported (see 6 Clinical Studies).

Table 2 shows the results of patients receiving NIRflex™ Premounted Coronary Stent System (NIRflex™ US Study) along with those receiving the NIR® Primo Stent system and the Palmaz-Schatz® Stent (NIRVANA Study) during 6 months.

Table 2. Adverse Events during 6 Months Follow-Up
All patients in NIRflex™ US Study and NIRVANA RCT

Event	NIRflex™ US (N=205 pts)	NIRVANA (N=848 pts)	Difference [95% C.I.]
MACE (Death, MI, TLR)	10.5% (21/205)	11.1% (94/848)	-0.8% [-5.5%, 3.8%]
Early (in-hospital)	2.9% (6/205)	4.1% (35/848)	-1.2% [-3.9%, 1.5%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.2% (2/848)	-0.2% [-0.6%, 0.1%]
Out-of-hospital (180-Days)	7.3% (15/205)	7.0% (59/848)	0.4% [-3.6%, 4.3%]
Death – Total	0.5% (1/205)	0.7% (6/848)	-0.2% [-1.3%, 0.9%]
Early (in-hospital)	0.0% (0/205)	0.1% (1/848)	-0.1% [-0.3%, 0.1%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.0% (0/848)	-0.0% [0.0%, 0.0%]
Out-of-hospital (180-Days)	0.5% (1/205)	0.6% (5/848)	-0.1% [-1.2%, 1.0%]
MI – Total	3.9% (4/205)	4.2% (36/848)	-0.3% [-3.3%, 2.6%]
Early (in-hospital)	2.9% (6/205)	3.8% (32/848)	-0.8% [-3.5%, 1.8%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.1% (1/848)	-0.1% [-0.3%, 0.1%]
Out-of-hospital (180-Days)	1.0% (2/205)	0.5% (4/848)	0.5% [-0.9%, 1.9%]
Q-wave MI – Total	0.5% (1/205)	0.7% (6/848)	-0.2% [-1.3%, 0.9%]
Early (in-hospital)	0.0% (0/205)	0.7% (6/848)	-0.7% [-1.3%, -0.1%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.0% (0/848)	0.0% [0.0%, 0.0%]
Out-of-hospital (180-Days)	0.5% (1/205)	0.0% (0/848)	0.5% [-0.5%, 1.4%]
Non Q-wave MI – Total	3.4% (7/205)	3.5% (30/848)	-0.1% [-2.9%, 0.7%]
Early (in-hospital)	2.9% (6/205)	3.1% (26/848)	-0.1% [-2.7%, 2.4%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.1% (1/848)	-0.1% [-0.3%, 0.1%]
Out-of-hospital (180-Days)	0.5% (1/205)	0.5% (4/848)	0.0% [-1.0%, 1.1%]
Emergent CABG – Total	0.5% (1/205)	0.1% (1/848)	0.4% [-0.6%, 1.4%]
Early (in-hospital)	0.5% (1/205)	0.1% (1/848)	0.4% [-0.6%, 1.4%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.0% (0/848)	0.0% [0.0%, 0.0%]
Out-of-hospital (180-Days)	0.0% (0/205)	0.0% (0/848)	0.0% [0.0%, 0.0%]
TLR – Total	6.3% (13/205)	7.3% (62/848)	-1.0% [-4.7%, 2.8%]
Early (in-hospital)	0.5% (1/205)	0.7% (6/848)	-0.2% [-1.3%, 0.9%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.2% (2/848)	-0.2% [-0.6%, 0.1%]
Out-of-hospital (180-Days)	5.9% (12/205)	6.6% (56/848)	-0.8% [-4.4%, 2.9%]
TL-CABG – Total	1.0% (2/205)	6.0% (51/848)	-5.0% [-7.1%, -2.9%]
Early (in-hospital)	0.5% (1/205)	0.5% (4/848)	0.0% [-1.0%, 1.1%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.2% (2/848)	-0.2% [-0.6%, 0.1%]
Out-of-hospital (180-Days)	0.5% (1/205)	5.5% (47/848)	-5.1% [-6.9%, -3.2%]
TL-PTCA – Total	5.9% (12/205)	2.0% (17/848)	3.8% [0.5%, 7.2%]
Early (in-hospital)	0.5% (1/205)	0.2% (2/848)	0.3% [-0.8%, 1.3%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.0% (0/848)	0.0% [0.0%, 0.0%]
Out-of-hospital (180-Days)	5.4% (11/205)	1.8% (15/848)	3.6% [0.4%, 6.8%]
TVR not involving the Target Lesion – Total	2.0% (4/205)	2.0% (17/848)	-0.1% [-2.2%, 2.1%]
Early (in-hospital)	0.0% (0/205)	0.2% (2/848)	-0.2% [-0.6%, 0.1%]
Out-of-hospital (30-Days)	0.5% (1/205)	0.2% (2/848)	0.3% [-0.8%, 1.3%]
Out-of-hospital (180-Days)	2.0% (4/205)	1.8% (15/848)	0.2% [-1.9%, 2.3%]
TV/non-TL-CABG – Total	0.5% (1/205)	1.9% (16/848)	-1.4% [-2.7%, -0.1%]
Early (in-hospital)	0.0% (0/205)	0.2% (2/848)	-0.2% [-0.6%, 0.1%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.2% (2/848)	-0.2% [-0.6%, 0.1%]
Out-of-hospital (180-Days)	0.5% (1/205)	1.7% (14/848)	-1.2% [-2.4%, 0.1%]
TV/non-TL-PTCA – Total	1.5% (3/205)	0.1% (1/848)	1.3% [-0.3%, 3.0%]
Early (in-hospital)	0.0% (0/205)	0.0% (0/848)	0.0% [0.0%, 0.0%]
Out-of-hospital (30-Days)	0.5% (1/205)	0.0% (0/848)	0.5% [-0.5%, 1.4%]
Out-of-hospital (180-Days)	1.5% (3/205)	0.1% (1/848)	1.3% [-0.3%, 3.0%]

32

Table 2 – Continue –

Event	NIRflex™ US (N=205 pts)	NIRVANA (N=848 pts)	Difference [95% C.I.]
Stent thrombosis – Total	0.5% (1/205)	0.5% (4/848)	0.0% [-1.0%, 1.1%]
Early (in-hospital)	0.5% (1/205)	0.4% (3/848)	0.1% [-0.9%, 1.2%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.1% (1/848)	-0.1% [-0.3%, 0.1%]
Out-of-hospital (180-Days)	0.0% (0/205)	0.1% (1/848)	-0.1% [-0.3%, 0.1%]
Perforation – Total	0.0% (0/205)	0.5% (4/848)	-0.5% [-0.9%, 0.0%]
Early (in-hospital)	0.0% (0/205)	0.5% (4/848)	-0.5% [-0.9%, 0.0%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.0% (0/848)	0.0% [0.0%, 0.0%]
Out-of-hospital (180-Days)	0.0% (0/205)	0.0% (0/848)	0.0% [0.0%, 0.0%]
Bleeding complications – Total	1.5% (3/205)	1.2% (10/848)	0.3% [-1.5%, 2.1%]
Early (in-hospital)	1.0% (2/205)	1.1% (9/848)	-0.1% [-1.6%, 1.4%]
Out-of-hospital (30-Days)	0.5% (1/205)	0.1% (1/848)	0.4% [-0.6%, 1.4%]
Out-of-hospital (180-Days)	0.5% (1/205)	0.1% (1/848)	0.4% [-0.6%, 1.4%]
Vascular complications – Total	3.4% (7/205)	4.5% (38/848)	-1.1% [-3.9%, 1.8%]
Early (in-hospital)	2.9% (6/205)	3.9% (33/848)	-1.0% [-3.6%, 1.7%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.6% (5/848)	-0.6% [-1.1%, -0.1%]
Out-of-hospital (180-Days)	0.5% (1/205)	0.6% (5/848)	-0.1% [-1.2%, 1.0%]
CVA – Total	0.0% (0/205)	0.4% (3/848)	-0.4% [-0.8%, 0.0%]
Early (in-hospital)	0.0% (0/205)	0.0% (0/848)	0.0% [0.0%, 0.0%]
Out-of-hospital (30-Days)	0.0% (0/205)	0.1% (1/848)	-0.1% [-0.3%, 0.1%]
Out-of-hospital (180-Days)	0.0% (0/205)	0.4% (3/848)	-0.4% [-0.8%, 0.0%]

More than one event may be reported for a given patient in this table

Adverse Events Definitions:

Major Adverse Cardiac Events (MACE): Death, myocardial infarction, and target lesion revascularization.

Death: *Cardiac Death* was defined as death due to any of the following: 1) Acute myocardial infarction; 2) Cardiac perforation/pericardial tamponade; 3) Arrhythmia or conduction abnormality; 4) Cerebrovascular accident within 30 days of the procedure or cerebrovascular accident suspected of being related to the procedure; 5) Death due to complication of the procedure, including bleeding, vascular repair, transfusion reaction, or bypass surgery; 6) Death due to suspected cardiogenic shock or other causes of shock suspected of being related to the procedure; 7) Any death in which a cardiac cause cannot be fully excluded; *Non-cardiac death* was defined as death not due to cardiac causes (as defined above)

Myocardial Infarction (MI): Myocardial infarction was classified as follows: *Q wave MI:* development of new, pathological Q waves in 2 or more contiguous leads (as assessed by the ECG core laboratory) with post-procedure CK or CKMB levels elevated above normal; *Non-Q wave MI:* elevation of post-procedure CK levels to >2 times normal with CKMB elevated above normal in the absence of pathological Q waves; if no assay for CKMB was performed, elevation of CK levels to >2 times normal without new Q waves was also considered a non-Q wave MI.

Target Lesion Revascularization (TLR): Any "clinically driven" repeat percutaneous intervention of the target lesion or bypass surgery of the target vessel.

CABG: Coronary Artery Bypass Graft surgery.

PTCA: Percutaneous Transluminal Coronary Angioplasty.

Stent thrombosis: Angiographic documentation of stent occlusion within 30 days of the index procedure; or, any death within 30 days of the index procedure that is not clearly related to causes other than stent occlusion.

Perforation: Perforations were classified as follows: *Angiographic perforation:* perforation detected by the clinical site or the core laboratory at any point during the procedure; *Clinical perforation:* perforation requiring additional treatment (including efforts to seal the perforation or pericardial drainage), or resulting in significant pericardial effusion, abrupt closure, myocardial infarction, or death; *Pericardial hemorrhage/tamponade:* perforation causing tamponade.

Bleeding complications: Transfusions of blood products due to blood loss resulting from the percutaneous revascularization procedure.

Vascular complications: Vascular complication is defined as the occurrence of any of the following in relation to the index procedure: 1) Hematoma at access site >5 cm; 2) False aneurysm; 3) AV fistula; 4) Retroperitoneal bleed; 5) Peripheral ischemia/nerve injury; 6) Procedure related transfusion; 7) Vascular surgical repair; 8) Ultrasound guided therapy (e.g. compression thrombin injection).

CVA: Acute neurologic deficit that is consistent with focal cerebral ischemia and persists >24 hours or is associated with new area of "infarct" on cerebral imaging study.

5.2 Potential Adverse Events

Adverse events may be associated with the use of a coronary stent in native coronary arteries (including those listed in Table 2):

- Acute myocardial infarction
- Arrhythmias, including VF and VT
- Death
- Dissection
- Drug reactions to anti-platelet agents/contrast medium
- Emboli, distal (air, tissue or thrombotic emboli)
- Emergent Coronary Artery Bypass Surgery
- Hemorrhage, requiring transfusion
- Hypotension/Hypertension
- Infection and pain at insertion site
- Ischemia, myocardial
- Perforation
- Pseudoaneurysm, femoral
- Restenosis of stented segment
- Spasm
- Stent embolization
- Stent thrombosis/occlusion
- Stroke/cerebrovascular accident
- Total occlusion of coronary artery

6 CLINICAL STUDIES

Study: The NIRflex™ Premounted Coronary Stent System was used to treat a total of 205 patients at 11 North American investigational sites in the NIRflex™ US Study. These patients are compared to a total of 848 patients that were treated with the NIR® stent or Palmaz-Schatz (PS®) stent in the NIRVANA Randomized Clinical Trial (RCT).

Purpose: To collect information about the safety and effectiveness of the NIRflex™ Premounted Coronary Stent System in the treatment of *de novo* and restenotic native coronary artery lesions, at 30 days, 6 months and 1 year post index stenting procedure. The primary endpoint was Major Adverse Cardiac Events (MACE) Rate at 30 days post procedure, as compared to the 30-day MACE rate of the pooled NIR stent and PS® stent arms from the NIRVANA Randomized Clinical Trial (NIRVANA RCT).

Conclusions: Multi-center (11 Investigational Sites) clinical data demonstrated the safety and effectiveness at 180 days of the NIRflex™ Premounted Coronary Stent System in the treatment of native *de novo* and restenotic coronary artery lesions (length less than or equal to 25mm).

Design: The NIRflex™ US Study is a non-randomized, prospective, multicenter registry.

Demography: Patients with ischemic coronary artery disease who were candidates for elective stenting procedure of a single stenotic (*de novo* or non-instant restenotic) lesion in a native coronary artery were eligible for inclusion. All lesions were to be ≤ 25 mm in length with visual reference vessel diameter of ≥ 2.5 mm and ≤ 4.0 mm.

Methods: The patients underwent balloon angioplasty with an appropriate balloon diameter up to 0.5 mm smaller than the reference vessel diameter. A NIRflex™ Premounted Coronary Stent System of the appropriate size was then selected and deployed in the native coronary artery. If stent sizing/apposition required optimization, the Premounted Stent balloon, or another balloon catheter of the appropriate size, was to be re-deployed to the stented area using standard angioplasty techniques. Inflations were to be repeated until the desired result was achieved. All patients received the hospital's standard anticoagulant and anti-platelet regimen for coronary stent implantation. Patients were clinically followed for 30 days and 6 months. An independent Clinical Events Committee (CEC) adjudicated all major clinical endpoints for the Study.

Results: Table 3 shows the principal effectiveness and safety results for the NIRflex™ US patients compared with the NIRVANA RCT patients.

Gender Bias: Of the 205 patients enrolled, 140 (68.3%) were male. The ratio of males to females in this study is consistent with other trials of coronary stents. Univariate logistic regression analyses were conducted to evaluate the effect of gender on the following clinical outcomes: 30-day MACE, 180-day MACE, technical success, and procedural success. One-way analysis of variance was used to assess effect of gender on the angiographic outcomes final in-stent minimal lumen diameter (MLD) and final in-stent percent diameter stenosis. Gender was not significantly associated with any of the clinical outcomes ($p > 0.30$). It was not associated with final in-stent MLD ($p = 0.98$) and was only marginally associated with final in-stent diameter stenosis ($p = 0.09$). The average difference (calculated as males minus females) in percent diameter stenosis was 2.65% (95% confidence interval of -0.47% to 5.77%). Since outcomes were not associated with gender, these data demonstrated that gender was not an influencing factor on safety or effectiveness.

Table 3. Principal Effectiveness and Safety Results
All patients in NIRflex™ US Study and NIRVANA RCT
%, [95% Confidence Interval], (Number)

Efficacy Measures	NIRFLEX™ US	NIRVANA	Difference [95% C.I.]*	Pvalue
	(N=205 Patients, N=207 Lesions)	(N=848 Patients, N=851 Lesions)		
Technical Success	96.5% (194 / 201)	98.7% (819 / 830)	-2.2% [-4.0%, 0.0%]	0.10
Procedural Success	94.0% (189 / 201)	94.8% (787 / 830)	-0.8% [-5.2%, 2.3%]	0.62
Post-Procedure In-Stent Minimal Lumen Diameter (MLD, in mm)				
Mean±SD (N)	2.72±0.47 (203)	2.79±0.43 (833)		
Range (min,max)	(1.50,3.92)	(0.00,4.30)	-0.06 [-0.13,0.01]	0.59
Post-Procedure In-Stent Percent Diameter Stenosis (% DS)				
Mean±SD (N)	4.22%±10.72% (203)	8.26%±11.68% (833)		
Range (min,max)	(-40.94%,37.42%)	(-38.81%,100.00%)	-4.0% [-5.8%,-2.3%]	0.09
TLR-Free at 30 days	99.5%	99.1%	0.4% [-0.9%,1.7%]	0.92
TLR-Free at 180 days	93.4%	92.6%	0.8% [-3.2%,4.8%]	0.38
TVR-Free at 30 days	99.0%	98.6%	0.4% [-1.4%,2.2%]	0.91
TVR-Free at 180 days	92.4%	91.2%	1.2% [-3.1%,5.5%]	0.37
TVF-Free at 30 days	96.4%	95.3%	1.1% [-2.1%,4.4%]	0.40
TVF-Free at 180 days	88.3%	87.5%	0.8% [-4.4%,5.9%]	0.43
MACE-Free at 30 days	96.9%	95.6%	1.3% [-1.8%,4.3%]	0.25
MACE-Free at 180 days	89.3%	88.8%	0.5% [-4.4%,5.5%]	0.44
Safety Measures and Other Clinical Events (to 180 days)	NIRFLEX™ US	NIRVANA	Difference [95% C.I.]	Pvalue
	(N=205 Patients, N=207 Lesions)	(N=848 Patients, N=851 Lesions)		
In-Hospital MACE	2.9% (6 / 205)	4.1% (35 / 848)	-1.2% [-3.4%, 2.5%]	0.70
Out-of-Hospital MACE	7.3% (15 / 205)	7.0% (59 / 848)	0.4% [-3.1%, 5.0%]	0.55
Cumulative Incidence of MACE	10.2% (21 / 205)	11.1% (94 / 848)	-0.8% [-5.0%, 4.6%]	0.35
Stent Thrombosis	0.5% (1 / 205)	0.5% (4 / 848)	0.0% [-2.3%, 2.4%]	-
Perforation	0.0% (0 / 205)	0.5% (4 / 848)	-0.5% [-2.5%, 1.6%]	-
Bleeding Complications	1.5% (3 / 205)	1.2% (10 / 848)	0.3% [-1.1%, 3.2%]	0.33
Vascular Complications	3.4% (7 / 205)	4.5% (38 / 848)	-1.1% [-4.9%, 2.6%]	0.57
CVA	0.0% (0 / 205)	0.4% (3 / 848)	-0.4% [-2.3%, 1.7%]	-

* Technical Success, Procedural Success and Safety Measures confidence intervals for proportions calculated using the method of Newcombe (*Statistics in Medicine*, 1998). Remaining confidence intervals for proportions calculated using approximation to normal distribution.

Definitions:

Technical Success: Successful delivery and deployment of the NIRflex™ stent to the intended site without use of a device outside the treatment strategy, and achievement of less than 50% final residual diameter stenosis.

Procedural Success: Technical success without in-hospital MACE.

QCA: Quantitative Coronary Angiography

% DS: Diameter Stenosis

The following survival estimates are by Kaplan-Meier methods:

TLR-Free: No target lesion revascularization.

TVR-Free: No target vessel revascularization.

TVF-Free: No death, myocardial infarction, or target vessel revascularization.

MACE-Free: No death, myocardial infarction, or target lesion revascularization.

Refer to table 2 for adverse events definitions.

7 PATIENT SELECTION AND TREATMENT

7.1 Individualization of Treatment

The risks and benefits described above should be carefully considered for each patient before use of the NIRflex™ Premounted Coronary Stent System. Patient selection factors to be assessed should include a judgment regarding risk of anti-platelet and/or anticoagulant therapy.

Thrombosis following stent implantation is affected by several baseline angiographic and procedural factors. These include vessel diameter less than 3.0 mm, intra-procedural thrombosis, poor distal flow, dissection following stent implantation and/or cessation of anti-platelet therapy. In patients that have undergone coronary stenting, the persistence of a thrombus or dissection is considered a marker for subsequent thrombotic occlusion. These patients should be monitored very carefully during the first month after stent implantation because stent thrombosis may occur during this period.

8 HOW SUPPLIED

STERILE. Sterilized with ethylene oxide gas. Non-pyrogenic. Do not use if the package was open or damaged.

CONTENTS. One (1) NIRflex™ Premounted Coronary Stent System

STORAGE. Store in a cool, dry, dark place.

9 CLINICIAN USE INFORMATION

9.1 Inspection Prior to Use

Carefully inspect the sterile package before opening. If the integrity of the sterile package has been compromised, use another package and contact Medinol for return information. Verify that the stent is positioned between the proximal and distal balloon markers. Check for bends, kinks and other damage. Do not use if any defects are noted.

9.2 Materials Required

Quantity	Material
	Appropriate guiding catheter(s) (see Table 1 – device specification)
1	Hemostasis introducer sheath
1	Rotating hemostatic valve
1	≤0.014 in./0.36mm guidewire
	Normal heparinized saline
	Contrast medium diluted 1:1 with normal heparinized saline
1	Syringe
1	Inflation device with manometer
1	Torque device
1	Three-way stopcock

9.3 Preparation

9.3.1 Guidewire lumen flush

Step	Action
1	Remove the protective sheath covering from the premounted stent.
2	Flush Stent System guidewire lumen with normal heparinized saline until fluid exits the distal tip.

9.3.2 Stent System preparation

Step	Action
1	Rinse the stent in sterile saline.
2	Prepare inflation device/syringe with diluted contrast medium.
3	Attach inflation device/syringe to stopcock; attach to inflation port.
4	With tip down, orient Stent System vertically.
5	Open stopcock to Stent System; pull negative for 15 seconds; release to neutral for contrast fill.
6	Close stopcock to Stent System; purge inflation device/syringe of all air.
7	Repeat steps 4 through 6 until all air is expelled. Note: If bubbles persist, do not use the Stent System.
8	If a syringe was used, attach a prepared inflation device to stopcock.
9	Open stopcock to Stent System.
10	Leave on neutral.

9.4 Delivery Procedure

Step	Action
1	Prepare and cannulate arterial access site according to standard PTCA practice. Standard PTCA techniques for placement of hemostasis introducer sheath, guiding catheter and guidewire should be employed.
2	Pre-dilate the target lesion with PTCA catheter.
3	Maintain neutral pressure on inflation device. Fully open rotating hemostatic valve to allow for easy passage of the stent and prevent damage to the stent.
4	Backload Stent System onto proximal portion of guidewire while maintaining guidewire position across target lesion.
5	Advance Stent System over the guidewire to target lesion under direct fluoroscopic visualization. Utilize the proximal and distal radiopaque balloon markers as reference points to position stent. Note: Should any resistance be felt at any time during either lesion access or removal of Delivery System post-stent implantation, the entire system should be removed as a single unit . See Stent/System Removal – Precautions for specific Delivery System removal instructions.
6	Sufficiently tighten the rotating hemostatic valve. Stent is now ready to be deployed.

9.5 Stent Deployment Procedure

Step	Action								
1	<p>Deploy stent slowly by pressurizing Delivery System until stent is completely expanded.</p> <p>Caution. Refer to Table 4 for <i>in vitro</i> stent outer diameter, nominal pressure and RBP. Maintain pressure for 15-30 seconds. If necessary, the Delivery System can be repressurized or further pressurized to assure complete apposition of the stent to the artery wall. Do not exceed RBP.</p> <p>FURTHER EXPANSION OF THE DEPLOYED STENT:</p> <p>If the deployed stent size is still inadequate with respect to reference vessel diameter, a larger balloon may be used to further expand the stent. If the initial angiographic appearance is sub-optimal, the stent may be further expanded using a low profile, high pressure, non-compliant balloon dilatation catheter. If this is required, the stented segment should be carefully recrossed with a prolapsed guidewire to avoid disrupting the stent geometry. Deployed stents should not be left under-dilated.</p> <p>Caution: Do not dilate the stent beyond the following limits:</p> <table border="1"> <thead> <tr> <th><u>Nominal Stent Diameter</u></th> <th><u>Dilatation Limit</u></th> </tr> </thead> <tbody> <tr> <td>2.5 mm</td> <td>3.25 mm</td> </tr> <tr> <td>2.75 to 3.5 mm</td> <td>4.25 mm</td> </tr> <tr> <td>4.0 mm</td> <td>5.75 mm</td> </tr> </tbody> </table>	<u>Nominal Stent Diameter</u>	<u>Dilatation Limit</u>	2.5 mm	3.25 mm	2.75 to 3.5 mm	4.25 mm	4.0 mm	5.75 mm
<u>Nominal Stent Diameter</u>	<u>Dilatation Limit</u>								
2.5 mm	3.25 mm								
2.75 to 3.5 mm	4.25 mm								
4.0 mm	5.75 mm								
2	Deflate balloon by pulling negative on inflation device for 30 sec.								

9.6 Removal Procedure

Step	Action
1	Ensure Delivery System is fully deflated.
2	Fully open rotating hemostatic valve.
3	While maintaining guidewire position and negative pressure on inflation device, withdraw Delivery System. Note: Should any resistance be felt at any time during either lesion access or removal of Delivery System post-stent implantation, the entire system should be removed as a single unit . See Stent/System Removal – Precautions for specific Delivery System removal instructions.
4	Tighten rotating hemostatic valve.
5	Repeat angiography to assess stented area.
6	If post dilatation is necessary, ensure final stent diameter matches reference vessel diameter. ASSURE STENT IS NOT UNDERDILATED.

9.7 *in vitro* Information

Table 4. NIRflex™ Compliance Data

Pressure (atm)	Stent Outer Diameter (mm)				
	2.5 mm	2.75 mm	3.0 mm	3.5 mm	4.0 mm
5	2.30	2.64	2.82	3.30	3.75
6	2.36	2.70	2.88	3.39	3.83
7	2.43	2.77	2.94	3.46	3.92
8	2.49	2.82	3.01	3.53	4.01
9	2.54	2.87	3.06	3.59	4.08
10	2.59	2.92	3.11	3.65	4.15
11	2.64	2.97	3.17	3.71	4.21
12	2.68	3.00	3.21	3.76	4.27
13	2.72	3.04	3.25	3.80	4.32
14	2.74	3.07	3.29	3.83	4.36
15	2.77	3.10	3.32	3.87	
16	2.81	3.13	3.34	3.90	

NOTE: These nominal, *in vitro* device specifications do not take into account lesion resistance. The stent sizing should be confirmed angiographically. Do not exceed the Rated Burst Pressure.

Stent Nominal Pressure

Rated Burst Pressure

10 PATIENT INFORMATION (UNITED STATES ONLY)

In addition to this DIRECTIONS FOR USE MANUAL, the NIRflex™ Premounted coronary Stent System is packaged with additional patient specific information which includes:

- A Patient Implant Card that includes both patient information and stent implant information. All patients will be expected to keep this card in their possession at all times for procedure/stent identification.
- A Patient Guide, which includes information on coronary artery disease, the implant procedure and the NIRflex™ Premounted Coronary Stent System. Copies may be obtained directly from Medinol's web site (www.medinol.com).

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PATENTS

This product and its use are protected by one or more of the following patents. United States, 5,733,303; 5,972,018; 6,461,381; 6,464,722; 5,836,964; 5,922,005; 6,156,052; 6,197,048; 5,843,120; 6,443,982 B1; Other U.S. patents pending. Foreign patents issued and pending.

NIRflex™ is a trademark of Medinol Ltd., Jerusalem, Israel

GRAPHICAL SYMBOLS FOR MEDICAL LABELING



Refer to accompanying
Instructions for Use



For one (1) procedure only



Sterilized with ethylene oxide



Use by



Lot number



Catalog No



Nominal Pressure



Sterile



Rated Burst Pressure



Contents

Medinol
Ingenuity for Life

**The NIRflex™ Premounted Coronary
Stent System is manufactured by:**

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