**Optimize short- and long-term patient outcomes using a defined pre- and post-stent criteria with Philips IVUS.**

The treatment of coronary lesions with DES is complicated by the challenges of suboptimal post stent results, such as stent under expansion, incomplete stent apposition, edge dissection and geographic miss, which may contribute to the risk of stent failure.

Recent publications suggest angiography alone is not enough and that the use of IVUS to guide stent planning and optimization delivers enduring reduction in MACE and TVF.

**ULTIMATE trial**

Compared to angiography-guided PCI alone, in all comer patients, ULTIMATE shows that IVUS-guided PCI significantly reduces clinically driven Target Lesion Revascularization (TLR). This benefit was sustained over three years.

*Only 1.6% TVF* at 12 months and 4.2% TVF at 3 years when optimal IVUS-guided PCI criteria was met.

**IVUS-XPL 5-yr follow up**

Patients in the IVUS-guided stent group who did not meet IVUS criteria for stent optimization had a significantly higher incidence of MACE at 5 years compared with those who met IVUS criteria for stent optimization.

**MACE 7.4% vs 4.0% (p=0.048)**

*Only 1.5% MACE at 12 months and 4.0% at 5 years when optimal IVUS-guided PCI criteria was met.*

Study outcomes were strongest when specified criteria for an optimal PCI procedure were met.
Plan, land and expand

Plan the procedure with pre-stent IVUS to size stents and identify the optimal landing zone. Perform post-stent IVUS to confirm good stent expansion, apposition and no edge dissection.

Plan
Pre-stent IVUS to guide procedural planning

Stent/vessel diameter
- Measure distal reference and determine stent diameter
- Measure proximal reference to guide post stent dilation

Landing zone/stent length
Identify most normal segments adjacent to target lesion, with plaque burden <50% at 5mm. Measure distance between distal and proximal reference point, round up to the nearest stent length.

Lesion
Assess lesion characteristics to guide plaque modification strategy.

Land and expand
Post-stent IVUS to guide and confirm stent optimization

Landing zone
Plaque burden <50% at 5 mm proximal and distal to stent edge.

Expansion and apposition
MSA ≥90% of the distal reference lumen area and full stent apposition throughout.

Stent edges
No edge dissection involving media with length > 3mm and arc ≥ 60°.

Criteria used for IMPact on Revascularization Outcomes of IntraVascular Ultrasound Guided Treatment of Complex Lesions and Economic Impact (IMPROVE) trial. Shlofmitz et al. 4

2. Hong et al. 5-Year Follow-Up of the IVUS-XPL Randomized Trial. JACC; 13 Jan, 2020:62 –7 1.