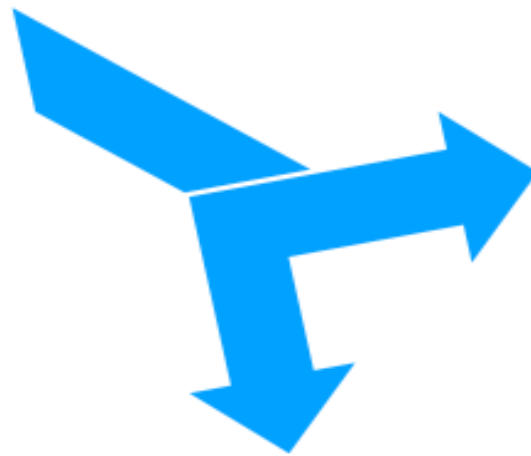


DeTour Sheath System



Anand Brahmandam, MBBS
Division of Vascular Surgery

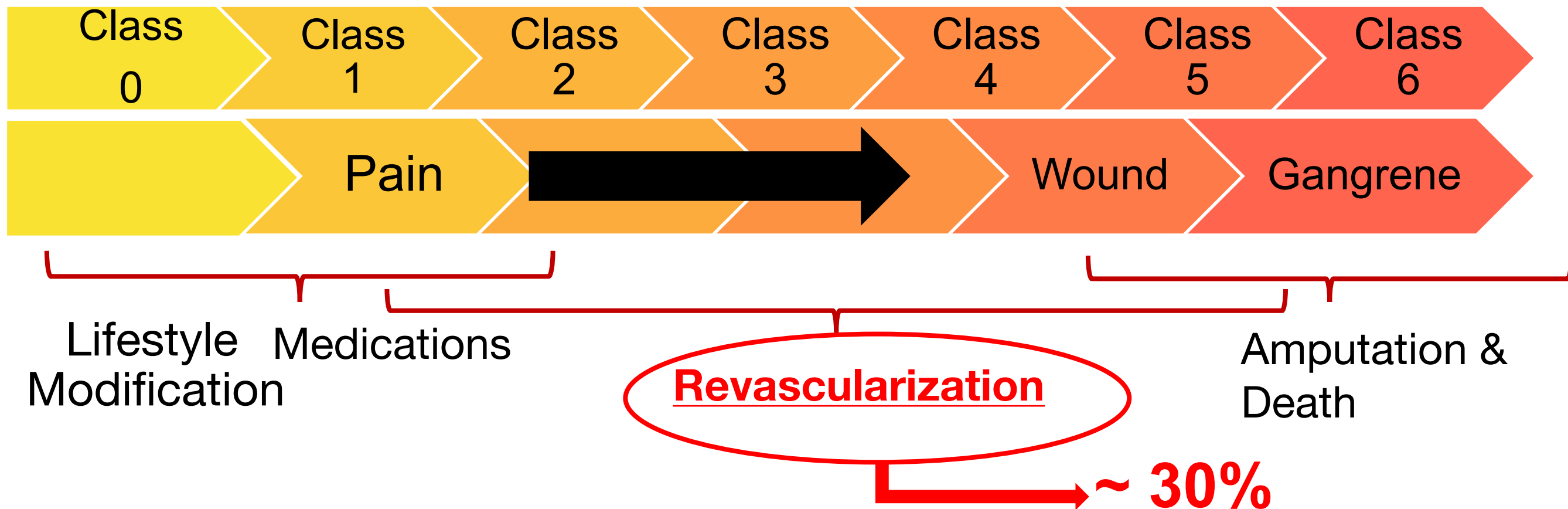
Abhay Ramachandra, PhD
Biomedical Engineering

Alan Dardik, MD PhD
Division of Vascular Surgery

Problem:

PAD is a Major Public Health Crisis

- Peripheral arterial disease: > 200 million persons
- ~900,000 procedures per year
- Estimated Healthcare cost ~\$6 Billion per year



¹ Crique et al Epidemiology of Peripheral arterial disease [Circ Res](#). 2015 Apr 24;116(9):1509-26. doi: 10.1161/CIRCRESAHA.116.303849.

² Jim et al. Population-based analysis of inpatient vascular procedures and predicting future workload and implications for training [J Vasc Surg](#). 2012 May;55(5):1394-9; discussion 1399-400.

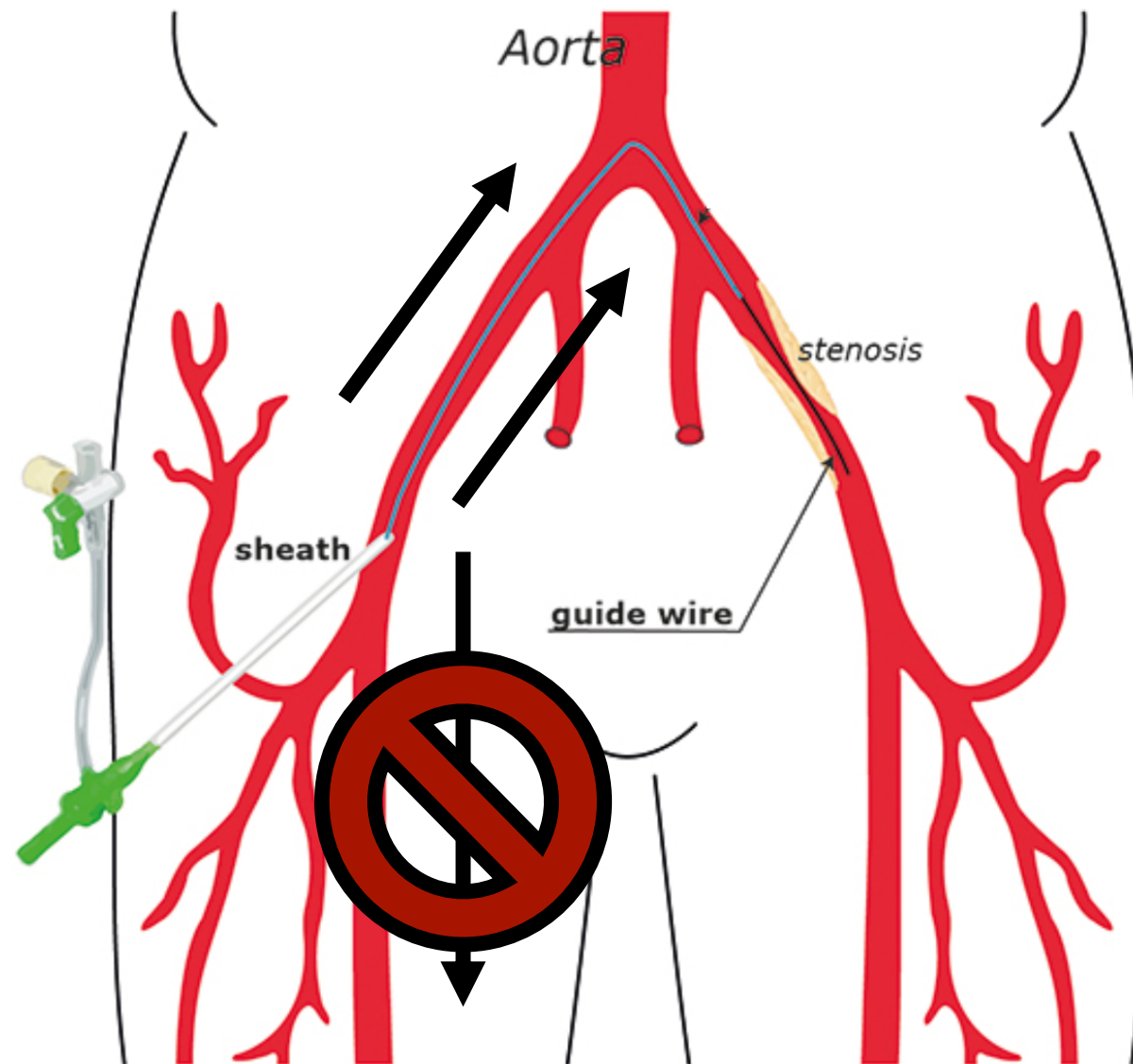


Problem: Angiography Fraught with Risks

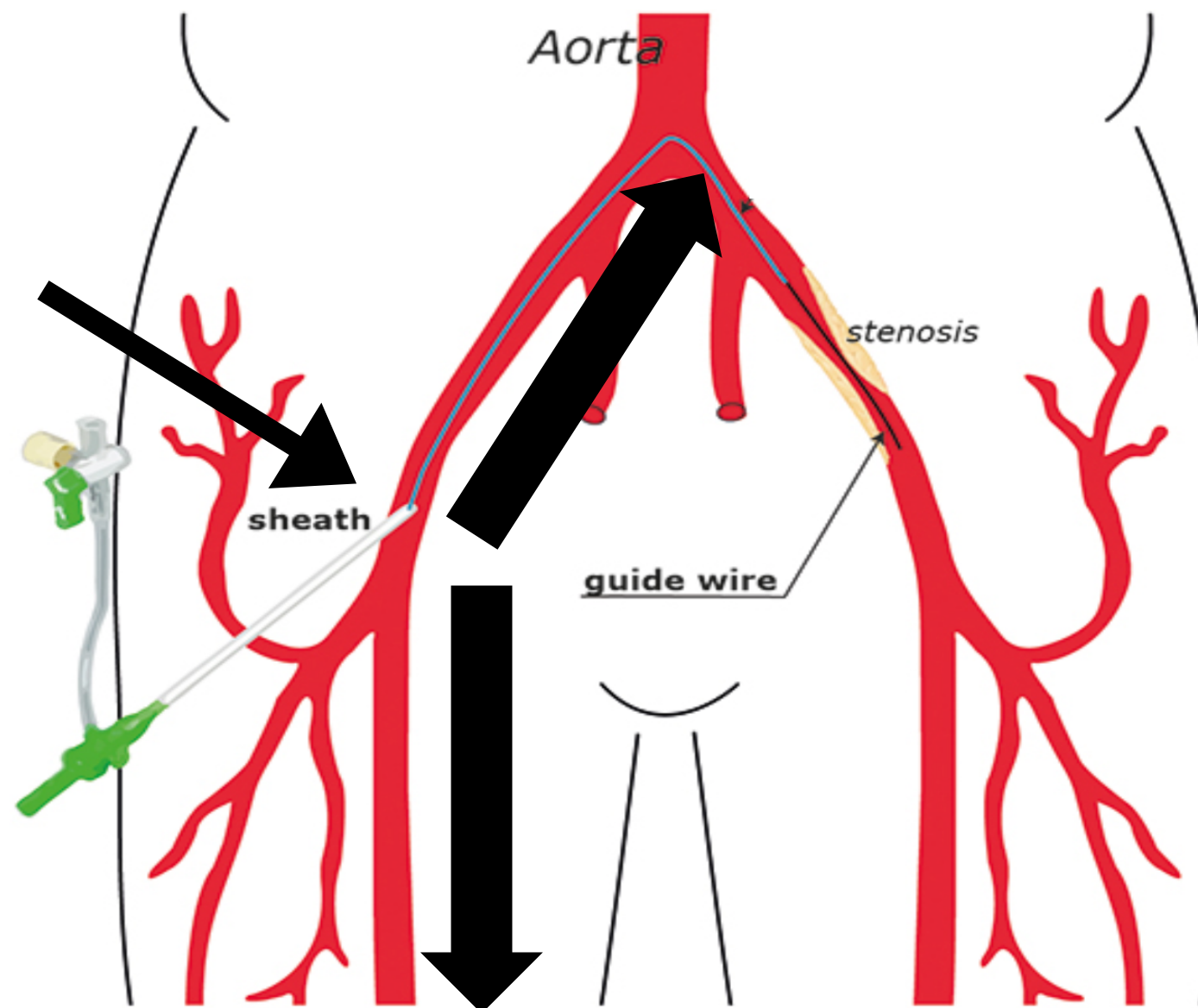
- Groin Hematoma (4.5%)
- Pseudoaneurysm (~1%)
- Closure device related (1%-7%)
- AV Fistula (~1%)
(70% need intervention)
- Arterial Dissection (~ 7%)
- Embolization (~ 1% to 4%)
- In-situ Arterial thrombosis (~1%)
- Acute Renal Injury (Contrast related; ~3%)

→ Cost: ~ \$40,000 per event (~\$ 400 Million per year)

Current Practice: Unidirectional Sheath



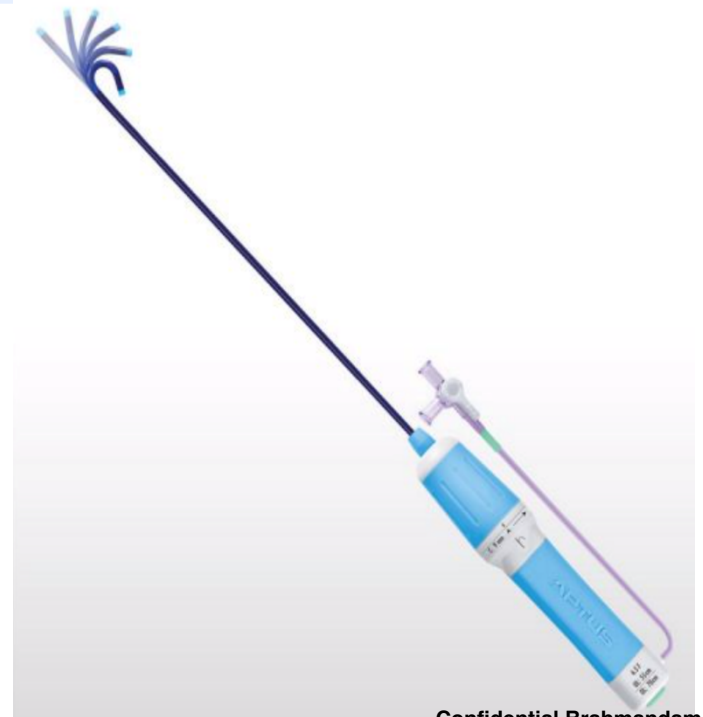
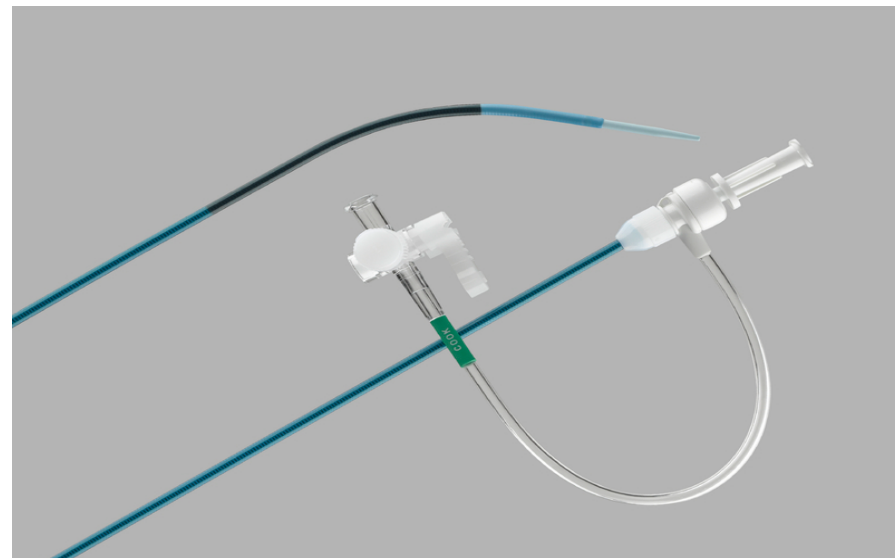
Solution: Single Access Bidirectional Sheath



Current Landscape:

Company	Product	Feature
Cordis Medical	Avanti/Brite Tip	Unidirectional access
Merit Medical	Prelude	Unidirectional access
Cook Medical	Ansel/Reveal	Unidirectional access
Terumo Medical	Terumo FineDuo	Unidirectional access
	Dryseal	Unidirectional access
Medtronic	Tourguide	Unidirectional access

No bi/multi directional access



Market Opportunity/Size:

- Total U.S. market for PAD interventions ~ \$3.4 Billion
- Targeted market ~ \$1.8Billion (53% of all procedures)
- Hepatobiliary Imaging & Treatment
- Non-Medical Uses: Plumbing, ducts

Projected Market:

- Customers:

Hospitals/Health Systems

Outpatient Angiography Suites/Cath labs

Office based Labs (OBLs)

- End users: Vascular Surgeons

Interventional Radiologists

Cardiologists

Interventional Pulmonologists/Nephrologists

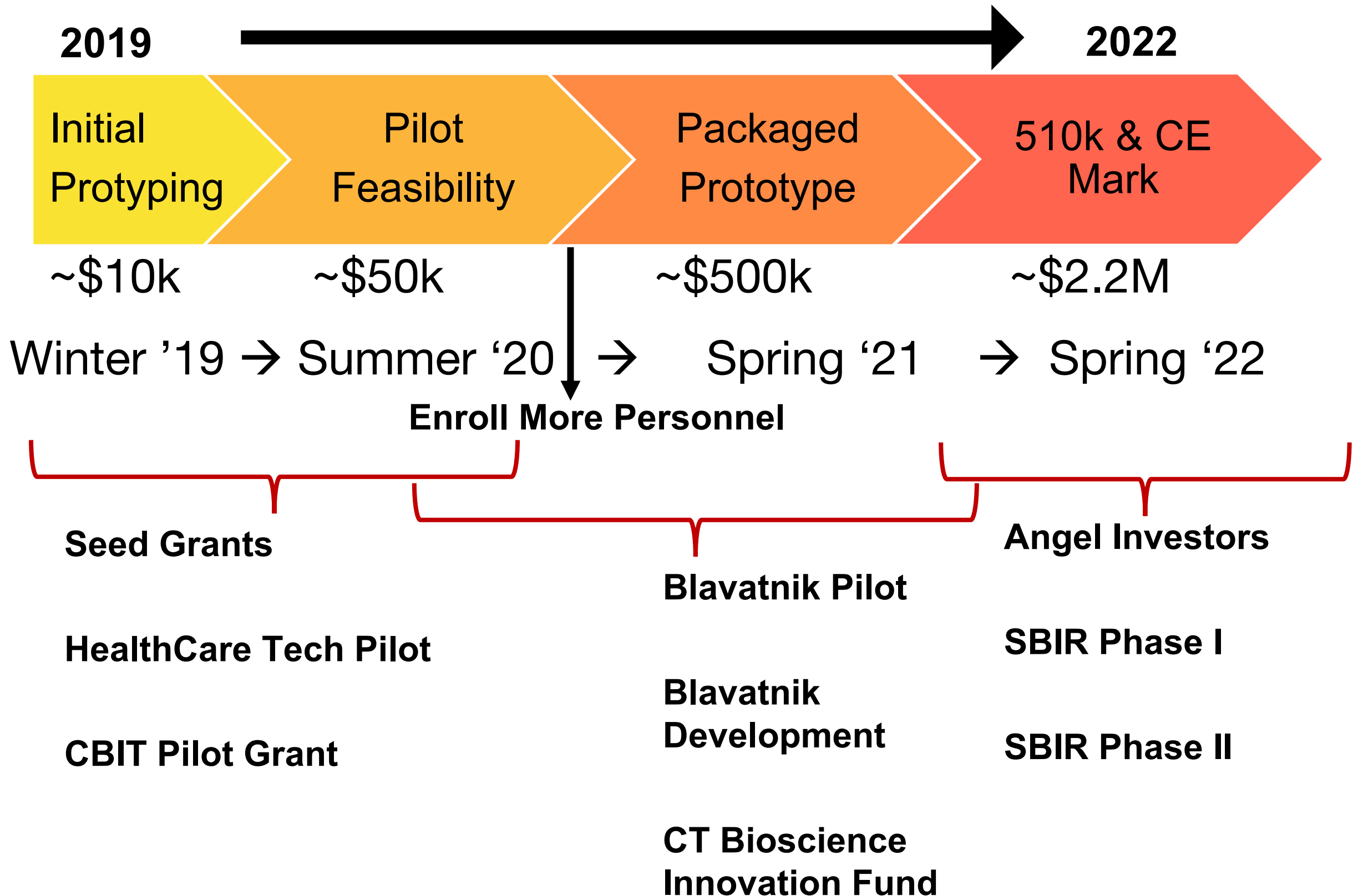
Value Proposition: Large Scale ↓ Interventions/Cost saving

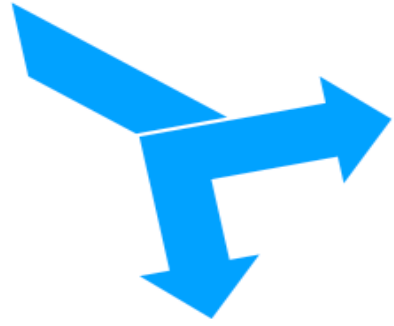
- ↓ **Interventions** (~100,000 procedures per year)
- ↓ **Closure** devices (~\$45 million savings)
- ↓ **Complications** by 50% (~\$100 million savings)
- ↓ **Hospital length of stay** ~2 days (~\$400 million savings)
- Overall **cost savings** for hospitals and outpatient centers (~\$600-800 million per year)

Value Proposition: Seamless Integration with Current Technology

- First generation device aimed at diagnostic procedures
- Seamless integration with existing technologies (Balloons/Stents/Catheters)
- Reimbursed by existing CPT codes (currently only primary procedure reimbursed)
- Projected Sheath Cost → (~ \$350 per unit)

Timeline / Funding Request:





DeTour Team



Anand Brahmandam, MBBS
Vascular Surgery Resident
Division of Vascular Surgery
Yale New Haven Hospital
Yale University
anand.brahmandam@yale.edu



@andybrahm



Abhay Ramachandra, PhD
Postdoctoral Associate
Biomedical Engineering
Yale University



Alan Dardik, MD, PhD
PI – Dardik Lab
Professor of Vascular Surgery
Vice-Chair of Surgery
Yale University
alan.dardik@yale.edu



@adardik