1 year Outcomes of the C-GUARDIANS Pivotal IDE Trial of the C-GUARD MicroNet Stent

D. Chris Metzger, MD

OhioHealth Riverside Methodist Hospital

Columbus, Ohio, USA

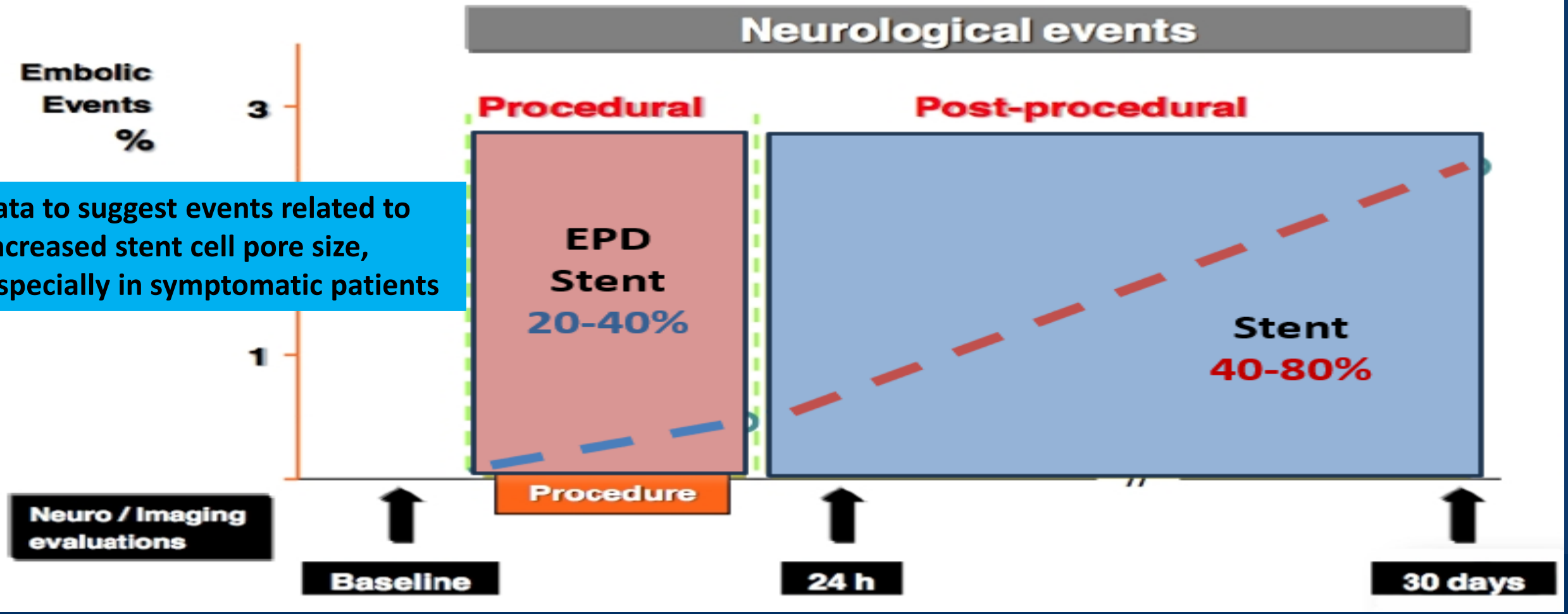
On Behalf of the C-GUARDIANS Investigators

Disclosures

- ***Symposia Honoraria & Proctor Fees***:
  - Abbott, Endologix
- ***Symposia Honoraria***:
  - Boston Scientific, Medtronic, Penumbra, Shockwave
- ***VIVA Board Member***
- ***National PI/Co-PI***: C-GUARDIANS, Confidence, SAPPHIRE WW, CANOPY, PERFORMANCE 3
- ***Stock Options:*** INSPIRE MD
- ***Research Grants, Stocks, Equity:*** None

LINC

Two-Thirds of 30-Day Stroke Events Occur after the CAS Procedure



Data to suggest events related to increased stent cell pore size, especially in symptomatic patients

*Adapted from McCormick TCT 2012

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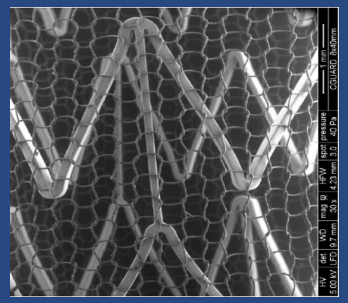
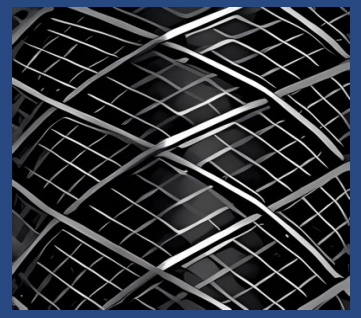
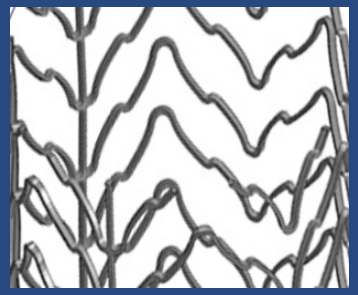
“Pore Size” Comparison of Carotid Artery Stents



CGUARD™

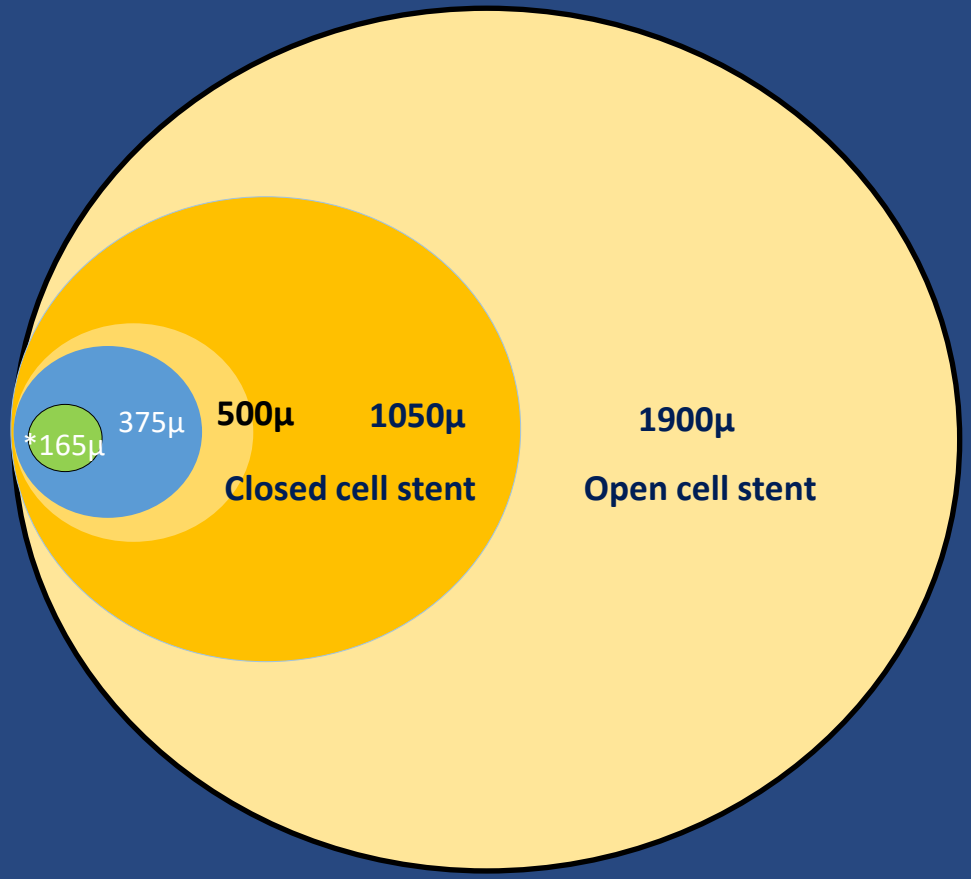


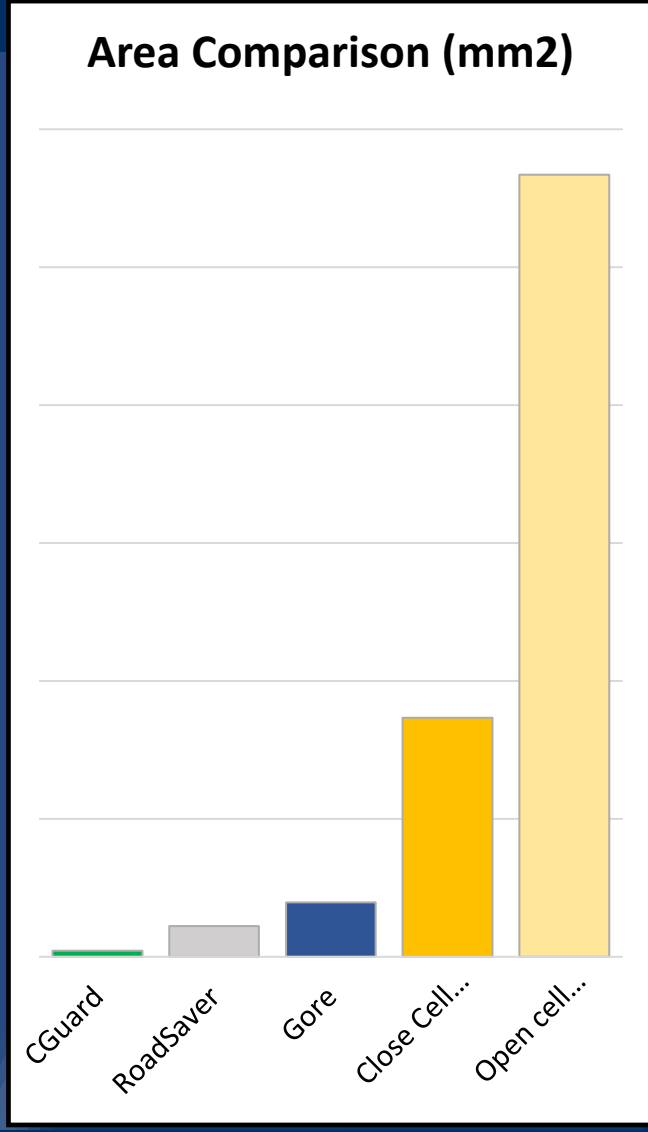
CASPER®



ACCULINK™

WallStent™





** Bench test results may not necessarily be indicative of clinical performance. Stent images approximately at scale but not exact*

** Average in lesion at expanded state*

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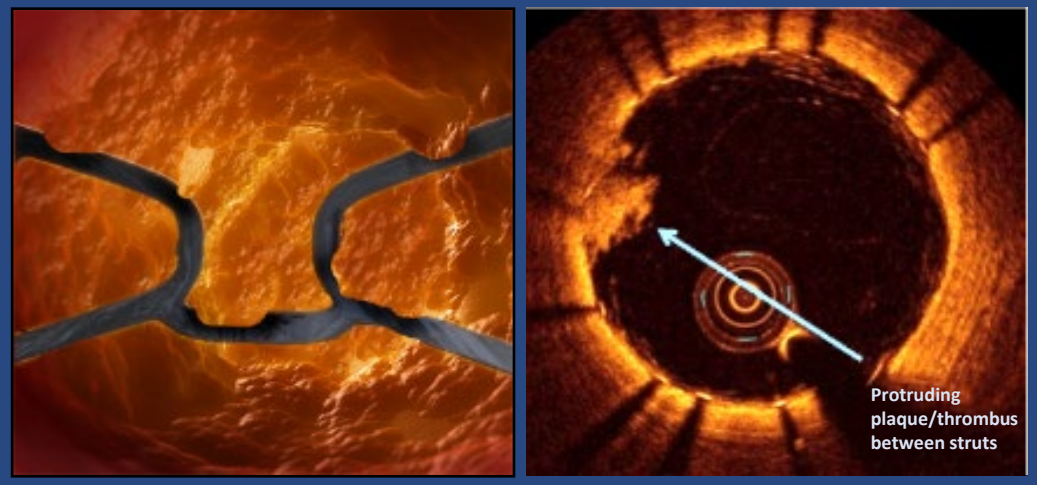
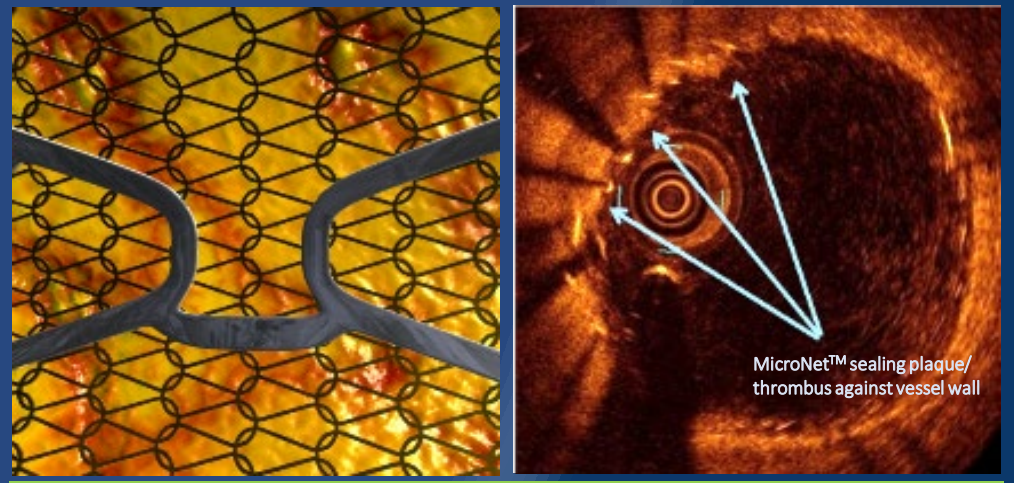
The CGuard Stent: Designed to Address Peri-procedural Microembolization with Mesh Technology



Conventional Open Cell Stent (1St GEN):

Larger cell sizes increase risk of plaque protrusion

VS



CGuard Stent (2nd GEN):

MicroNet™ mesh minimizes risk of plaque prolapse

MicroNet captures and locks thrombus & plaque material against the arterial wall, deterring debris from entering the bloodstream while also acting as a mechanical barrier to prevent plaque protrusion

[1] Tomoyuki Umemoto, MD. Optical coherence tomography assessment of new generation mesh-covered stents after carotid stenting. Eurointerventional 2017;1348-1355 (published online)

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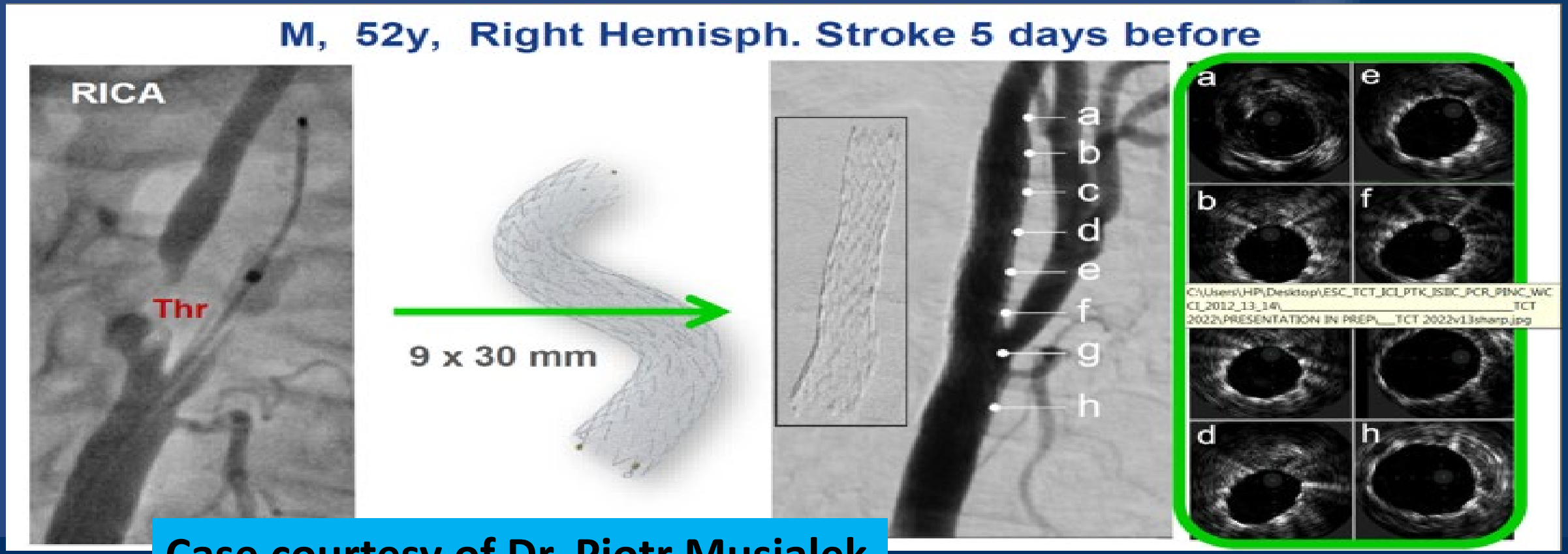
The CGuard Stent Combines the Conformability of Open Cell Design with the High Plaque Coverage of MicroNet™



Case courtesy of Dr. Piotr Musialek

dural Angio

IVUS

Designed to minimize plaque protrusion *during and after* the procedure

Clinical Data Supporting CGuard *Peri-procedural* Safety

CGuard commercially available in Europe since 2015 (CE Mark)

Study	Year	N	DS 30-day % (n)	DSMI 30-day % (n)
CARENET	2015	30	0.0% (0)	0.0% (0)
PARADIGM	2016	101	0.0% (0)	0.0% (0)
CASANA	2017	82	1.22% (1)	1.22% (1)
WISSGOTT I	2017	30	0.0% (0)	0.0% (0)
IRONGUARD I	2018	200	2.50% (5)	2.50% (5)
WISSGOTT II	2019	30	0.0% (0)	0.0% (0)
IRONGUARD 2	2020	733	0.05% (4)	1.09% (8)
GREEK Study	2021	103	0.0% (0)	0.0% (0)
SIBERIA	2021	50	0.0% (0)	0.0% (0)
TOTAL		***1359***	***0.80% (11)***	***1.03% (14)***

1. Schofer, J. et al. JACC Cardiovasc. Interv. 2015.
2. Casana, R. et al. Eur. J. Vasc. Endovasc. 2017.
3. Musialek, P. et al. Interv. Cardiol. 2016
4. Wissgott, C. et al. Int. Soc. Endovasc. Spec. 2017
5. Speziale, F. et al. EuroIntervention 2018
6. Wissgott, C. et al. J Endovasc Ther. 2019
7. Sirignano, P et al. Cardiovascular Interventions 2020
8. Tigkiropoulos, K. et al. Journal of EndoTherapy 2021
9. Karpenko, A. et al JACC Cardiovasc. Interv.

1359

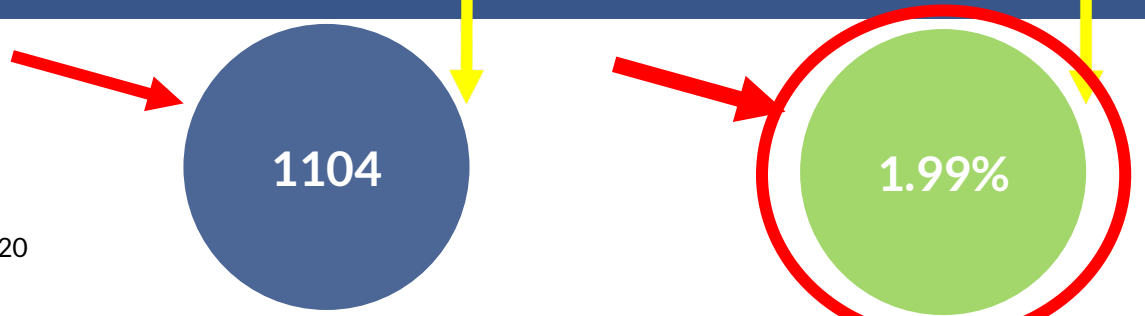
0.80%

1.03%

Clinical Data Supporting CGuard at *1-year*

Extensive body of literature from independent studies in peer-reviewed journals

Study	N	DSMI at 30-d and Ipsilateral Stroke at 1-Y % (n)
CARENET	28	0.0% (0)
IRONGUARD I	199	3.01% (6)
IRONGUARD II	726	2.20% (16)
PARADIGM	101	0.0% (0)
SIBERIA	50	0.0% (0)
TOTAL	*1104*	*1.99% (22)*



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L I N C

C-GUARDIANS Pivotal IDE Approval Trial

Theoretical concept of conformable stent combined with maximal plaque coverage, and experience with:

- 50,000+ stents sold since 2015 CE Mark in Europe
- Extensive 30- day, 1 year- , and 5-year peer-reviewed published data
- All serve as precursors for the IDE Trial

C-GUARDIANS Trial Design

Design	Prospective, multicenter, international, single-arm clinical trial comparing the primary endpoint to a performance goal derived from literature
Trial Objective	Evaluate the safety and efficacy of the CGuard Prime™ Carotid Stent System in the treatment of carotid artery stenosis in symptomatic and asymptomatic patients ***at high risk for CEA*** undergoing carotid artery stenting (CAS)
Principal Investigators	**Dr. Chris Metzger, MD** OhioHealth Riverside Methodist Hospital. Columbus, Ohio, USA **Dr. Piotr Musialek, MD, PhD** Jagiellonian University, John Paul II Hospital, Kraków, Poland
Sample Size & Population	316 subjects 24 US and EU sites Symptomatic with ≥ 50% stenosis or asymptomatic with ≥ 80% stenosis ≤ 80 years of age at high risk for CEA Pre-specified 25% symptomatic
Primary Endpoint	Incidence of death (all-cause mortality), all stroke, and myocardial infarction (DSMI) through 30-days post-index procedure or Ipsilateral stroke from 31 to 365 days

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C-GUARDIANS: Other Trial Features

Secondary Endpoints	• Technical success and treatment success • Death, stroke, minor stroke, major stroke, MI through 30-day • Ipsilateral stroke through 30 days, 1-, 2-, 3-year follow-up • TLR through 1-, 2-, 3-year follow-up
Embolic Protection	Distal EPD (NAV6), Proximal Protection (MoMA), or both
Medications	DAPT required for 30-days post-procedure
Trial Conduct	• Physician screening committee • Independent CEC for MAE adjudication • Independent DSMB • Independent CoreLab by Syntropic

Patient Demographics

Characteristic	ITT (N=316)
Age (mean SD)	69.0 ± 6.6
% Symptomatic	24.3%
% Male	63.9%
Diabetes Mellitus	41.8%
Hypertension	92.6%
Dyslipidemia	90.0%
CAD	52.1%
COPD	23.8%
Current Smoker	26.4%
PVD	28.6%

Lesions Characteristics

Characteristic	ITT (N=316)
Stenosis	
Pre-procedure	89.9%
Post-procedure	7.3%
Calcification	
None/mild	64.8%
Moderate	20.3%
Severe	14.8%
Lesion length (mm)	18.7

Core lab adjudicated

Procedural Data

Characteristic	ITT (N=316)
Pre-dilatation	93.0%
Post-dilatation	96.8%
Embolic protection utilized	
Emboshield NAV 6	261
MoMA	78
Both (Nav6 and MoMA)	24
Other EPD	1

C-GUARDIANS: 30-Day Major Adverse Events (LBCT VIVA 2023)

Event rate in % (n)	ITT (N=316)	Per Protocol^
Death, Stroke or MI*	0.95% (3)	0.63% (2)
Death#	0.32% (1)	0.00% (0)
Any stroke#	0.95% (3)	0.63% (2)
Major Stroke#	0.63% (1)	0.32% (1)
Minor Stroke#	0.32% (2)	0.32% (1)
MI#	0.00% (0)	0.00% (0)
Death or any stroke*	0.95% (3)	0.63% (2)
Death or major stroke*	0.63% (2)	0.32% (1)

30-day S/D/MI

** Hierarchical: patient count (each patient first occurrence of the most serious event). # Non-hierarchical: event count (multiple events in each patient are counted individually).*

^ Per Protocol Analysis excludes 1 patient (did not take dual antiplatelet therapy; had a major stroke and died).

The CEC independently adjudicated all neurological, cardiac events:

- 1 major fatal stroke on post procedural day 10 after all DAPT stopped contrary to protocol requirements.
- 1 minor stroke. (NIHSS 2, post procedure). NIHSS 1, CDU patent 30 days, NIHSS 0 at 6 and 12 months
- 1 retinal infarct in a patient presenting with amaurosis fugax, adjudicated as a minor stroke. (NIHSS 1). NIHSS 0, CDU patent 30 days

C-GUARDIANS Trial 1-Year Primary Endpoint Results

Event*	ITT	Per Protocol**
30-day DSMI + Ipsilateral stroke between 31 and 365 days	1.95 % (6)	1.70% (5)
30-day DSMI	0.95% (3)	0.63% (2)
Ipsilateral stroke between 31 and 365 days	1.00% (3)	1.04% (3)
TLR	0.98% (3)	1.01% (3)

** Kaplan-Meier estimate for all 1-year endpoints*

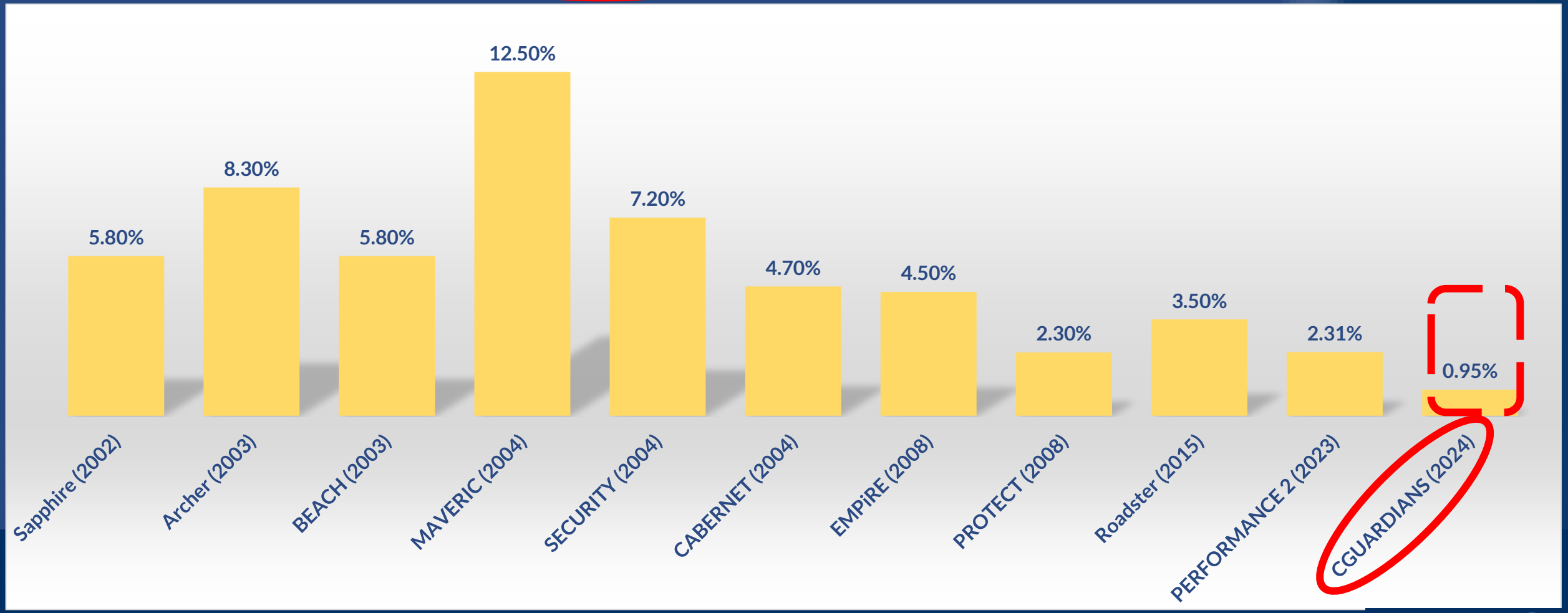
*** Per Protocol Analysis excludes 15 patients with Major Protocol Deviations*

The CEC independently adjudicated all neurological, cardiac events:

- *1 minor stroke (retinal) on POD 189.*
- *1 major stroke on POD 280: Prostatectomy (Antiplatelet therapy stopped).*
- *1 major stroke on POD 307: Stent patent; A Fib discovered.*

LINC

C-GUARDIANS: 30-Day DSMI in Context of CAS, TCAR Trials



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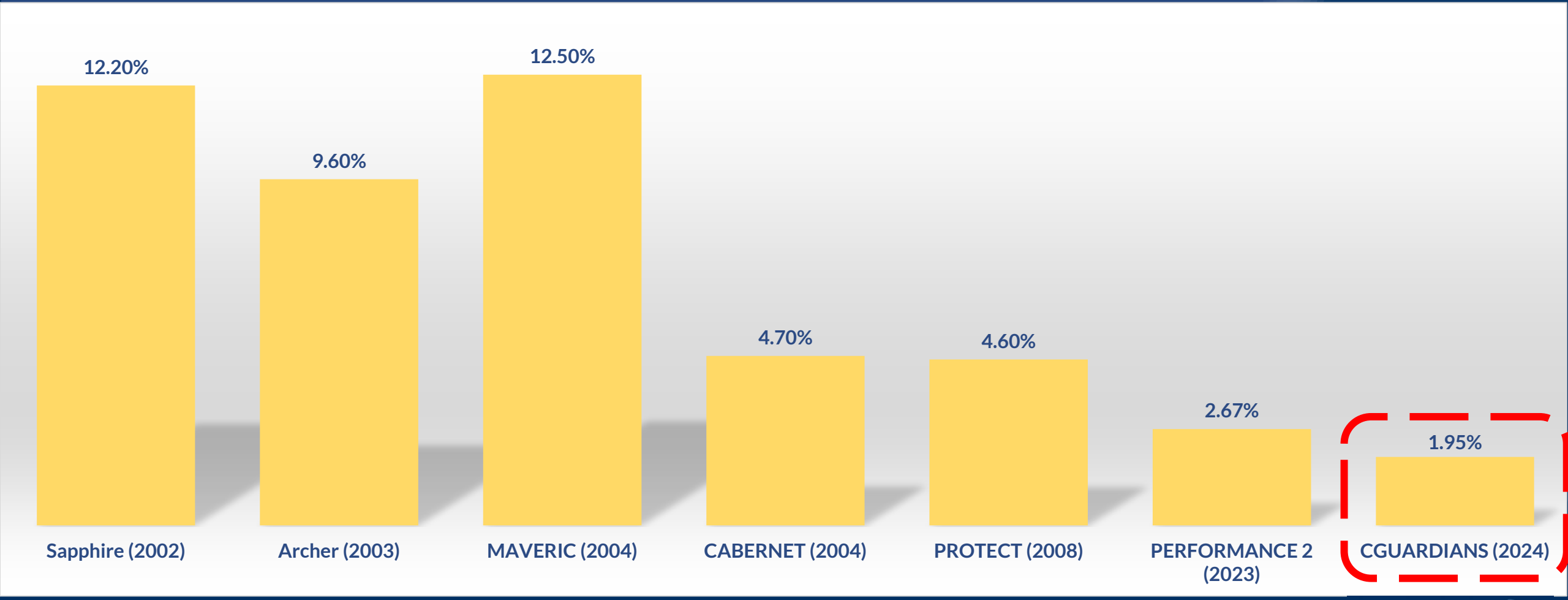
C-GUARDIANS: 1-Year Outcomes in Context

(D/S/MI @ 30 days and ipsilateral stroke to 1 year)



Summary of C-GUARDIANS 1 Year Outcomes

- **30-Day Outcomes**
  * DSMI: **ITT 0.95%, PP 0.63%**
  * No MI, No contralateral stroke

- **1-Year Outcomes**

  Follow up compliance rate at 1-year: 97%

  30-day DSMI or ipsilateral stroke between 31 and 365 days:
  * **ITT 1.95%, PP 1.7%**
  * **TLR (any target revascularization up to 365 days): 1% (3)**

Conclusions

- The C-GUARDIANS Pivotal IDE results demonstrate extremely low event rates for 30 –day stroke/death/MI (0.95%) and 1 -year S/D/MI at 30 dates plus ipsilateral strokes (1.95%), representing the lowest event rates in published trials of CAS, TCAR, and CEA
- These data are consistent with previously published European data
- These results appear to confirm the proposed “neuro-protective” benefits of this stent design.
- The results support consideration of CAS with this stent as a front-line therapeutic option for appropriate patients being considered for carotid revascularization

LINC

Thank You for Your Attention!