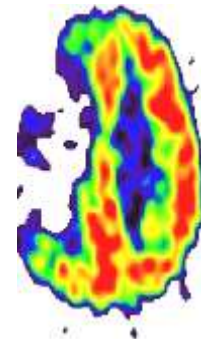


# Essential Imaging for Treatment of Acute Ischemic Stroke

Stephan Duda



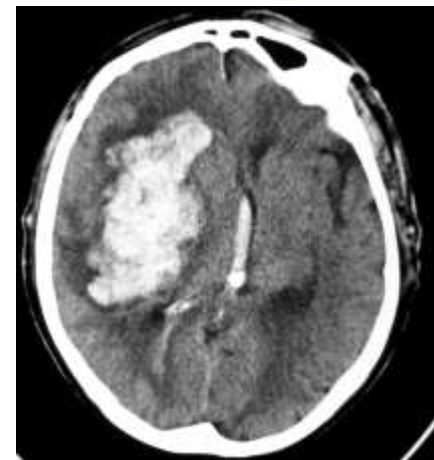
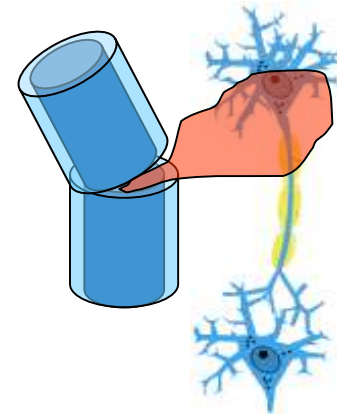
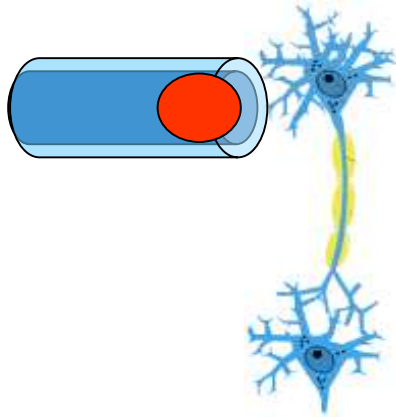
**IHRE RADIOLOGEN**



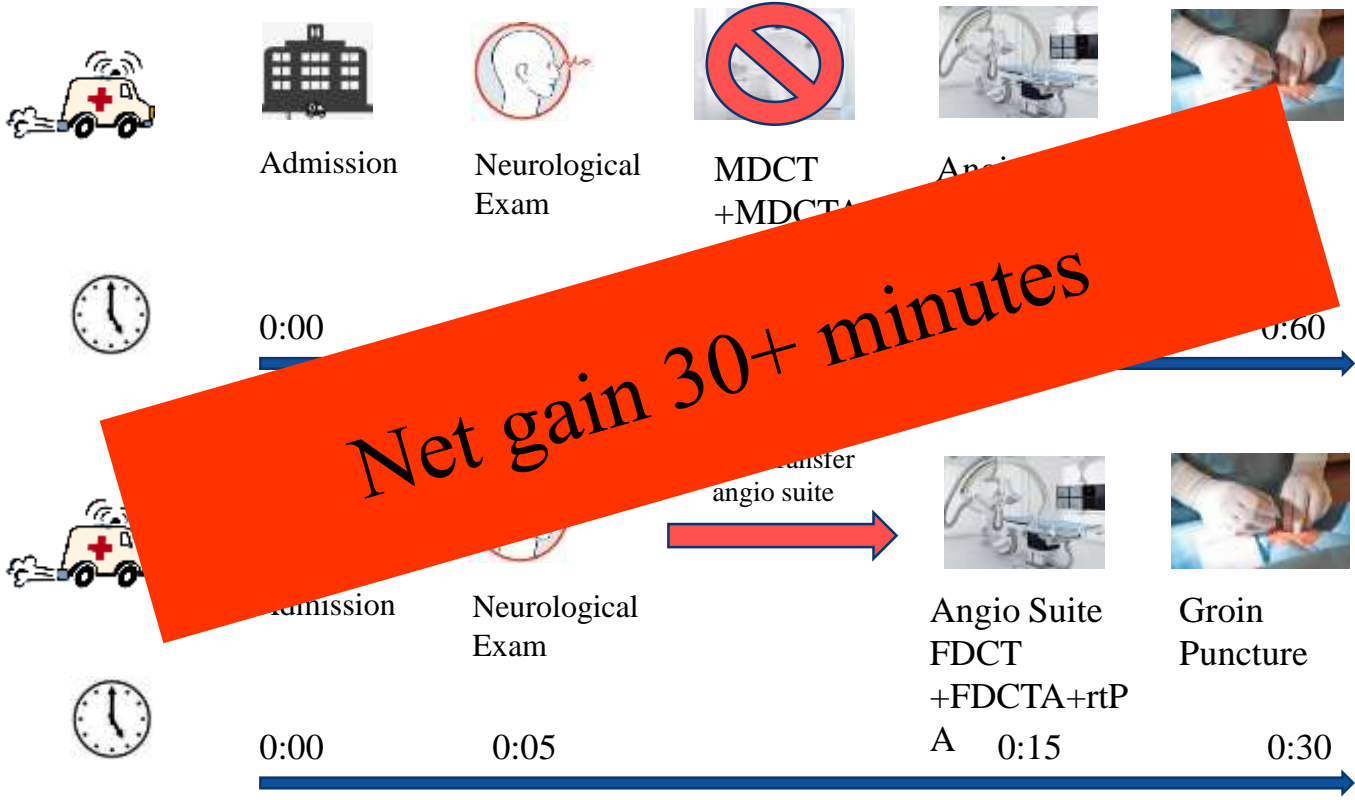
# Disclosures

None

# What do we need to know in acute stroke ?

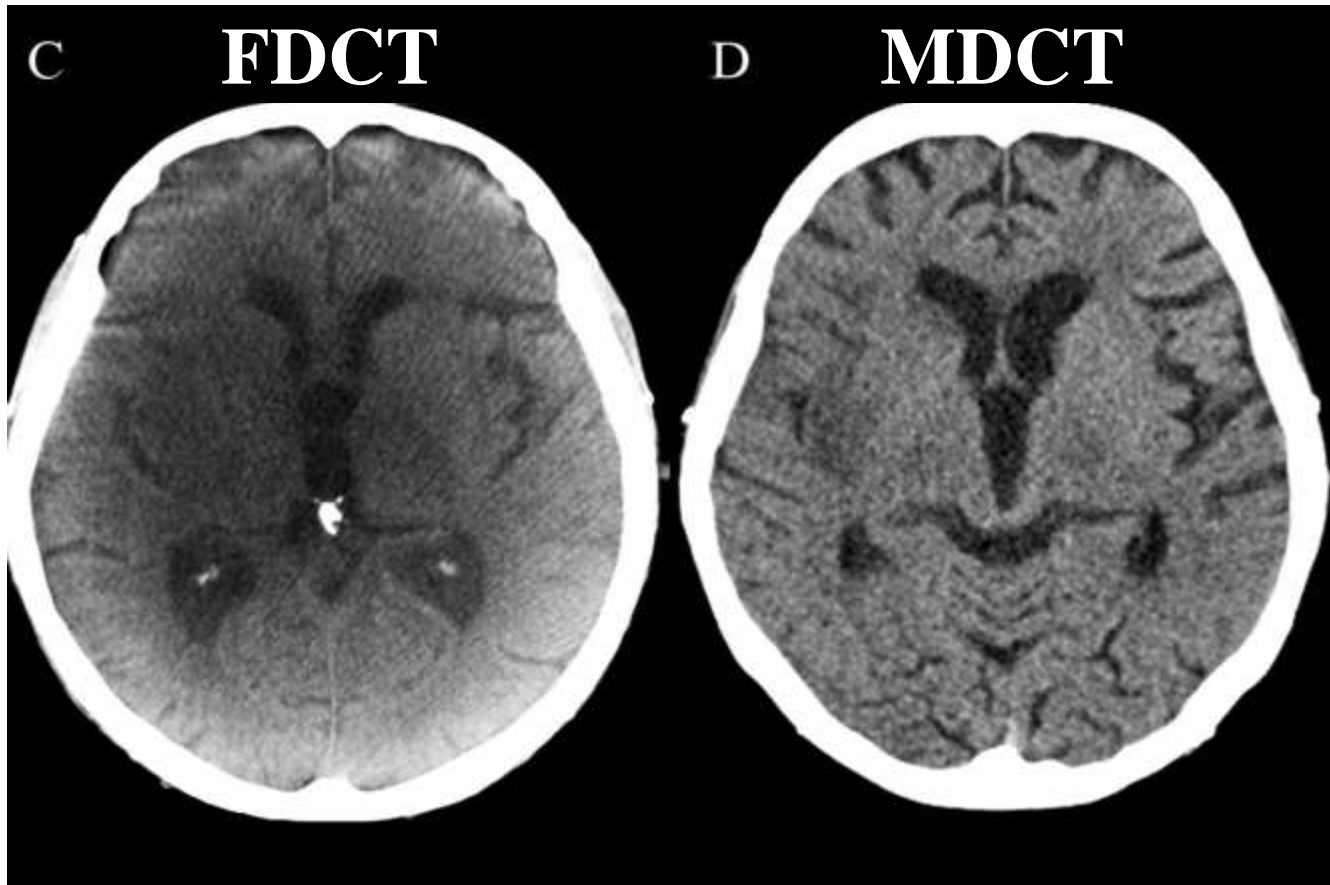


# One-stop management?!?



# Flat-Detector CT (FDCT)

Cone-beam CT, C-arm CT, DynaCT, XperCT



# Validation for hemorrhage



Downloaded from <http://jn.bmj.com/> on December 21, 2016 - Published by group.bmj.com

Neuroimaging

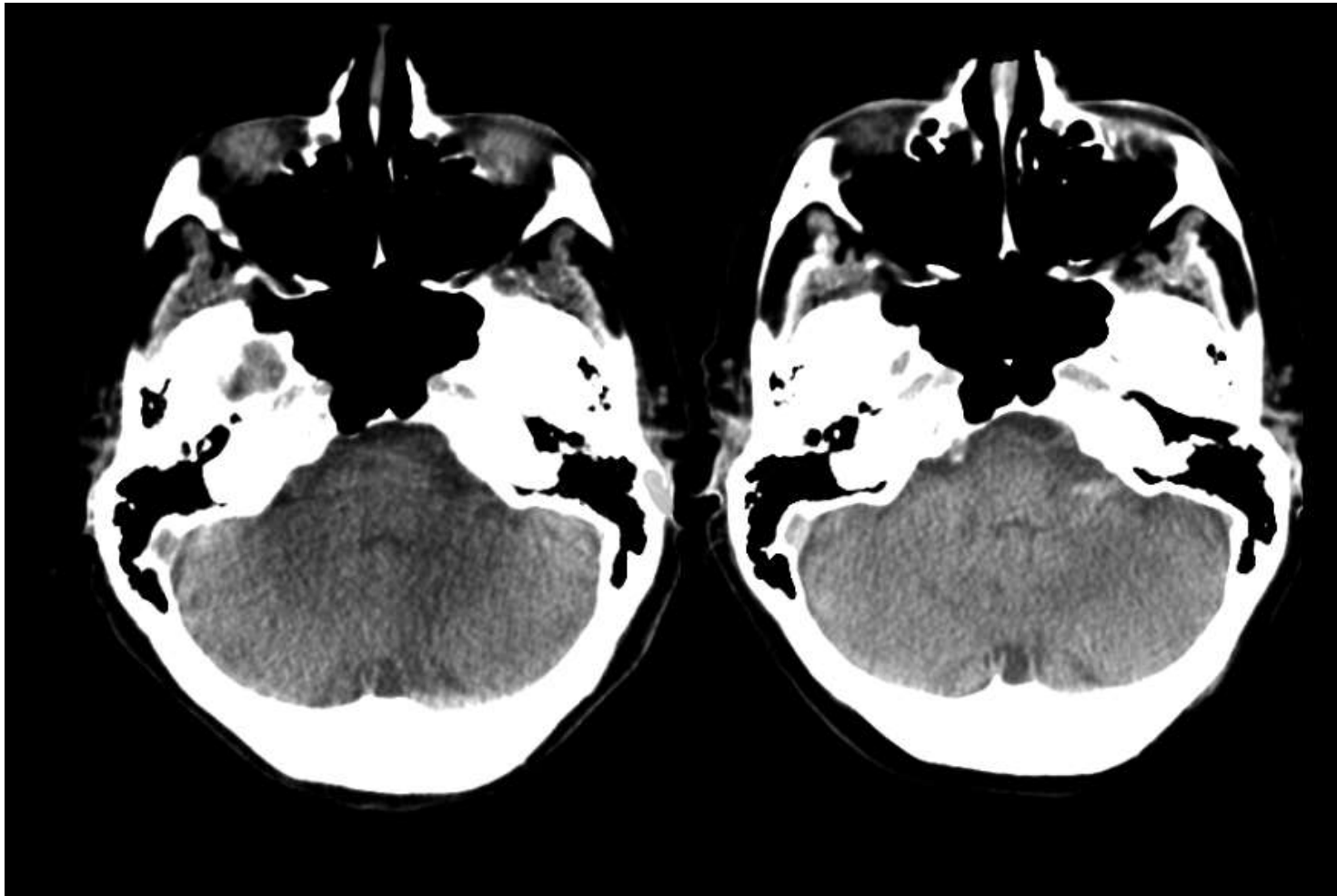
ORIGINAL RESEARCH

## Latest generation of flat detector CT as a peri-interventional diagnostic tool: a comparative study with multidetector CT

Johanna Rosemarie Leyhe,<sup>1</sup> Ioannis Tsogkas,<sup>1</sup> Amélie Carolina Hesse,<sup>1</sup> Daniel Behme,<sup>1</sup> Katharina Schregel,<sup>1</sup> Ismini Papageorgiou,<sup>1</sup> Jan Liman,<sup>2</sup> Michael Knauth,<sup>1</sup> Marios-Nikos Psychogios<sup>1</sup>

		Detection of intracranial hemorrhage			
		MDCT (-)	MDCT (+)	Sensitivity	Specificity
SAH	FDCT (-)	61	2	95%	97%
	FDCT (+)	2	37		
IVH	FDCT (-)	68	1	97%	100%
	FDCT (+)	0	33		
PH	FDCT (-)	79	0	100%	99%
	FDCT (+)	1	22		

# Comprehensive Stroke Diagnosis based on 3 Flat Detector CT Scans



Enhanced XperCT

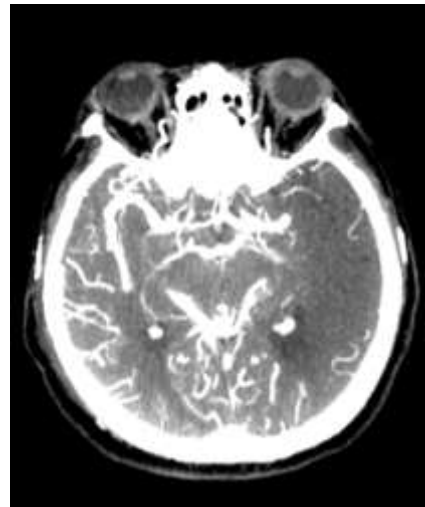
Multi Detector CT

# Comprehensive Stroke Diagnosis based on 3 Flat Detector CT Scans



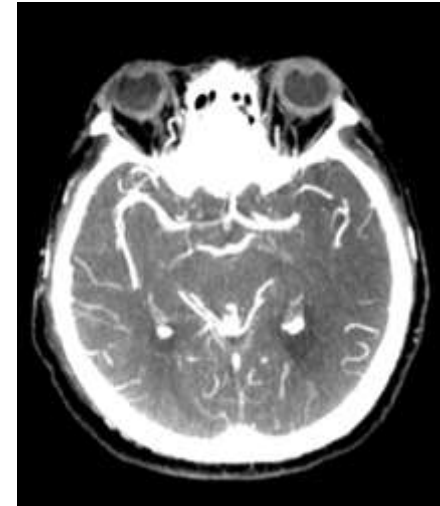
*Non-contrast XperCT*

Identify bleeding  
and ischemic changes



*Early phase CE-XperCT*

Identify proximal occlusion



*Late phase CE-XperCT*

Identify collaterals





## One-Stop Management of Acute Stroke Patients Minimizing Door-to-Reperfusion Times

Marios-Nikos Psychogios, MD, PD; Daniel Behme, MD; Katharina Schregel, MD; Ioannis Tsogkas, MD; Ilko L. Maier, MD; Johanna Rosemarie Leyhe, MS; Antonia Zapf, PD; Julia Tran, MS; Mathias Bähr, MD; Jan Liman, MD, PD\*; Michael Knauth, MD\*

**Conclusions**—In this small series, a one-stop management protocol of selected stroke patients using latest generation flat detector CT led to a significant reduction of intrahospital times. (*Stroke*. 2017;48:00-00. DOI: 10.1161/STROKEAHA.117.018077.)

**Key Words:** cerebral angiography ■ cerebral hemorrhage ■ cone-beam computed tomography ■ stroke ■ thrombectomy

Stroke

# Results 2016-2018



<b>One-stop cases</b>	<b>210</b>	<b>100</b>
<b>Door-to-CT</b>	<b>13 min</b>	<b>10 min</b>
<b>Door-to-Groin</b>	<b>26</b>	<b>25</b>
<b>Door-to-Reperf</b>	<b>70</b>	<b>68</b>
<b>Door-to-Reperf M1 only</b>	<b>60</b>	<b>59</b>

courtesy of M. Psychogios

# AHA/ASA Guideline

## Guidelines for the Early Management of Patients With Acute Ischemic Stroke: 2019 Update to the 2018 Guidelines for the Early Management of Acute Ischemic Stroke

A Guideline for Healthcare Professionals From the American Heart Association/American Stroke Association

3. In patients with suspected intracranial LVO and no history of renal impairment, who otherwise meet criteria for mechanical thrombectomy, it is reasonable to proceed with CTA if indicated before obtaining a serum creatinine concentration.

IIa

B-NR

5. It may be reasonable to incorporate collateral flow status into clinical decision-making in some candidates to determine eligibility for mechanical thrombectomy.

IIb

C-LD



# Conclusion

## Time management of stroke patients...

- ✓ ...starts with symptom onset. If FAST-ED\*  $\geq 4$ , the EMS should call the neurointerventionalist
- ✓ One-stop management is safe, with comparable sICH rates even for „mothership“ patients without prior imaging
- ✓ “Direct to angio” leads to **door-to-reperfusion** times of ~60-70min and improved clinical outcomes of patients with LVO

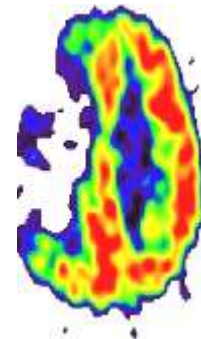
\*FAST-ED: Field Assessment Stroke Triage for Emergency Destination



Thank you!

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