



Evropská unie
Evropský sociální fond
Operační program Zaměstnanost



Development of Czech National Stroke Guidelines

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Masaryk University
GRADE
Centre



Cochrane
Czech Republic



Czech CEHC JBI
Centre of Excellence

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Disclosure

- I have no conflicts of interest



Development of Czech National Stroke Guidelines

**WHY WE DID
WHAT WE DID?**



YLLs = years of life lost

Leading causes 1990	Leading causes 2005	% change	Median all-age % change	Age-standardised % change	Leading causes 2015	% change	Median all-age % change	Age-standardised % change
1 Lower respiratory infections	1 Ischaemic heart disease	25.8	2.3	-12.6	1 Ischaemic heart disease	-10.2	-2.5	-14.8
2 Neonatal preterm birth complications	2 Lower respiratory infections	-37.3	-49.0	-37.5	2 Cerebrovascular disease	-0.9	-12.4	-23.0
3 Diarrhoeal diseases	3 Cerebrovascular disease	21.2	-1.4	-13.3	3 Lower respiratory infections	-23.9	-32.7	-31.1
4 Ischaemic heart disease	4 HIV/AIDS	597.5	467.3	458.7	4 Neonatal preterm birth complications	-25.9	-34.5	-29.8
5 Cerebrovascular disease	5 Neonatal preterm birth complications	-39.4	-50.7	-37.4	5 Diarrhoeal diseases	-29.2	-37.4	-35.8
6 Neonatal encephalopathy	6 Diarrhoeal diseases	-38.5	-50.0	-40.4	6 Neonatal encephalopathy	-16.1	-25.8	-20.5
7 Malaria	7 Malaria	21.1	-1.5	19.1	7 HIV/AIDS	-33.9	-41.5	-41.4
8 Measles	8 Neonatal encephalopathy	-3.5	-21.6	-0.3	8 Road injuries	-8.1	-18.7	-18.5
9 Congenital anomalies	9 Road injuries	11.0	-9.7	-7.8	9 Malaria	-40.1	-47.0	-44.7
10 Road injuries	10 COPD	-4.6	-22.4	-30.1	10 COPD	-3.0	-14.2	-25.0

1990

Communicable, maternal, neonatal, nutritional

Non-communicable disease

Injuries

YLLs = years of life lost

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6 Neonatal encephalopathy	6 Diarrhoeal diseases	-38.5	-50.0	-40.4	6 Neonatal encephalopathy	-16.1	-25.8	-20.5
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2017

Non-communicable disease

Communicable, maternal, neonatal, nutritional

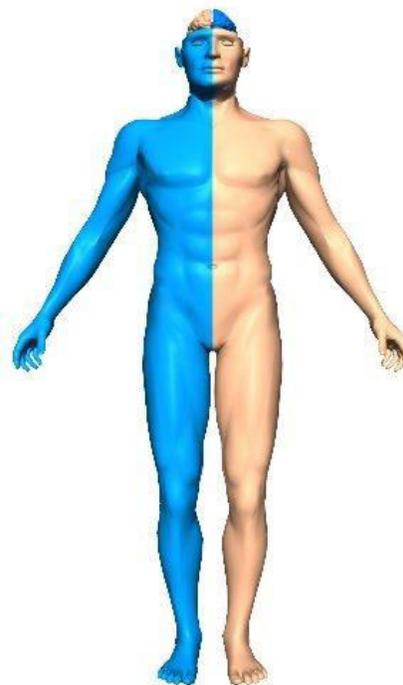
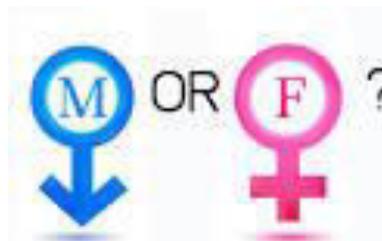
Injuries

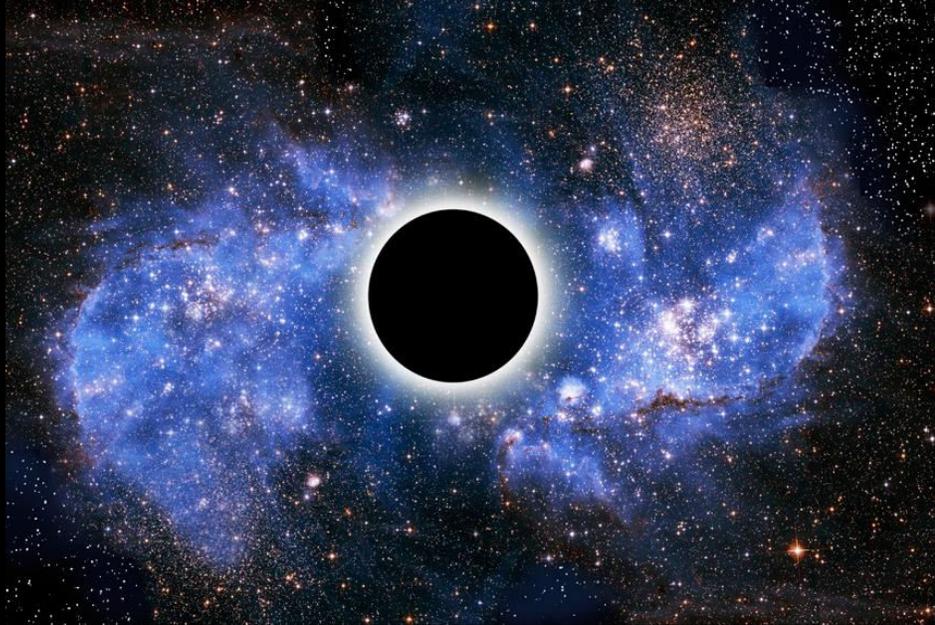
Leading ten causes of YLLs

	1	2	3	4	5	6	7
Global	IHD (0-98)	Stroke (0-98)	LRI (0-67)	NN preterm (0-72)	Diarrhoea (0-74)	NN encephalitis (1-18)	HIV (0-63)
High SDI	IHD (1-58)	Stroke (1-09)	Lung C (1-08)	Self-harm (0-94)	Alzheimer's (0-98)	LRI (0-81)	Colorect C (0-86)
High-middle SDI	IHD (0-88)	Stroke (0-92)	Road injuries (0-9)	Lung C (0-93)	LRI (0-81)	HIV (0-51)	COPD (1-12)
Middle SDI	IHD (0-8)	Stroke (1-15)	Road injuries (0-73)	COPD (1-37)	LRI (0-6)	NN preterm (0-7)	Congenital (0-74)
Low-middle SDI	LRI (0-77)	NN encephalitis (1-5)	Diarrhoea (1-02)	NN preterm (0-79)	IHD (1-02)	HIV (0-71)	Malaria (15-93)
Low SDI	LRI (0-53)	Malaria (2-96)	Diarrhoea (0-45)	HIV (1-62)	NN preterm (0-51)	NN encephalitis (0-68)	Congenital (0-93)
High income	IHD (1-08)	Lung C (1-05)	Stroke (0-7)	Alzheimer's (1-04)	Self-harm (0-81)	COPD (1-46)	LRI (0-75)

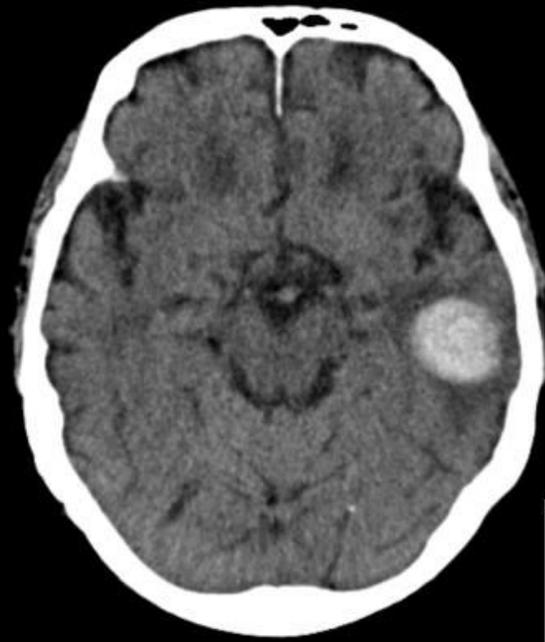


TOILETS





Big black or big white hole

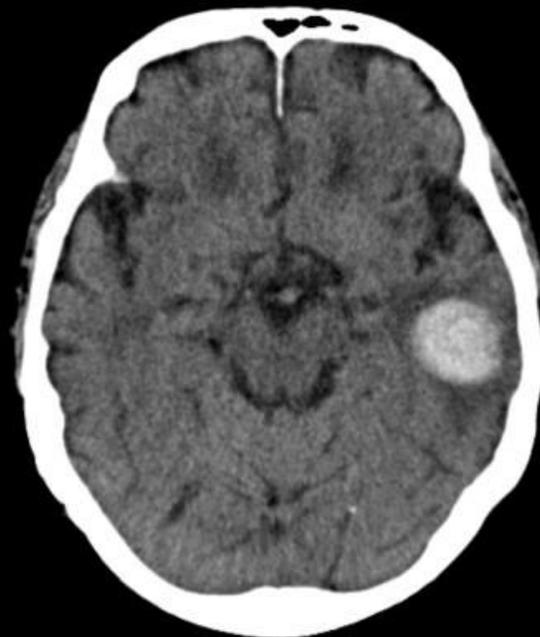
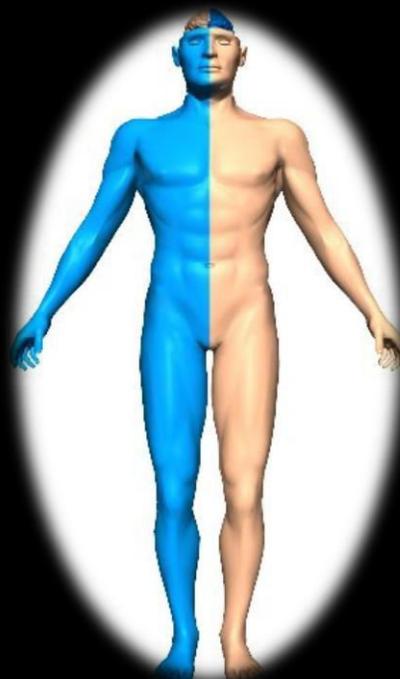




BLACK

or

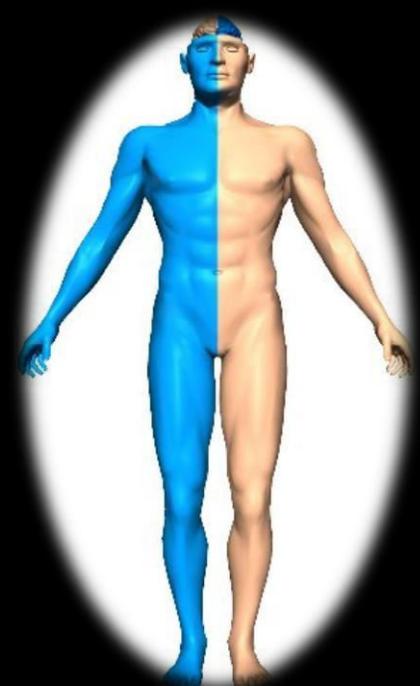
WHITE





BLACK or WHITE

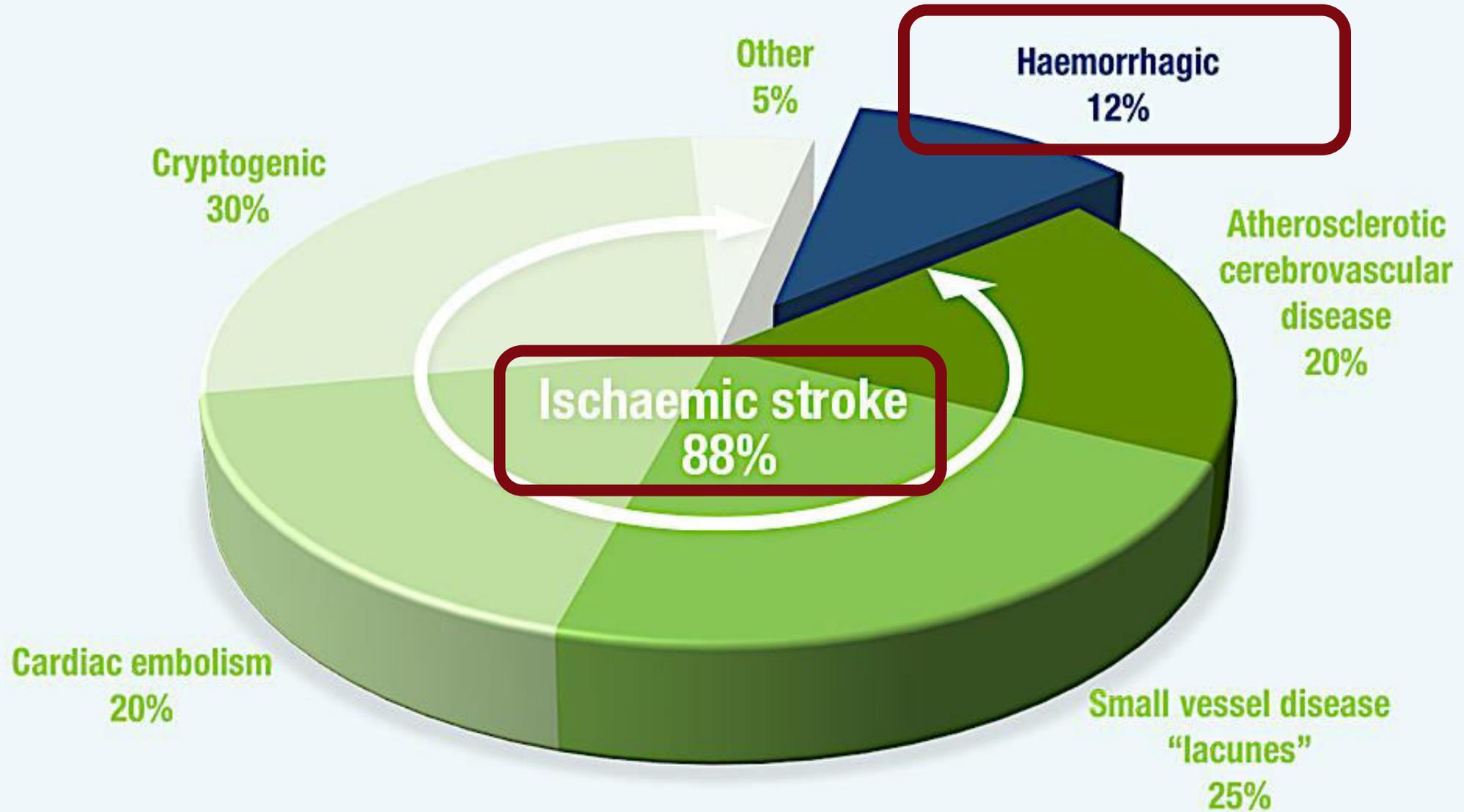
CLOT



BLOOD

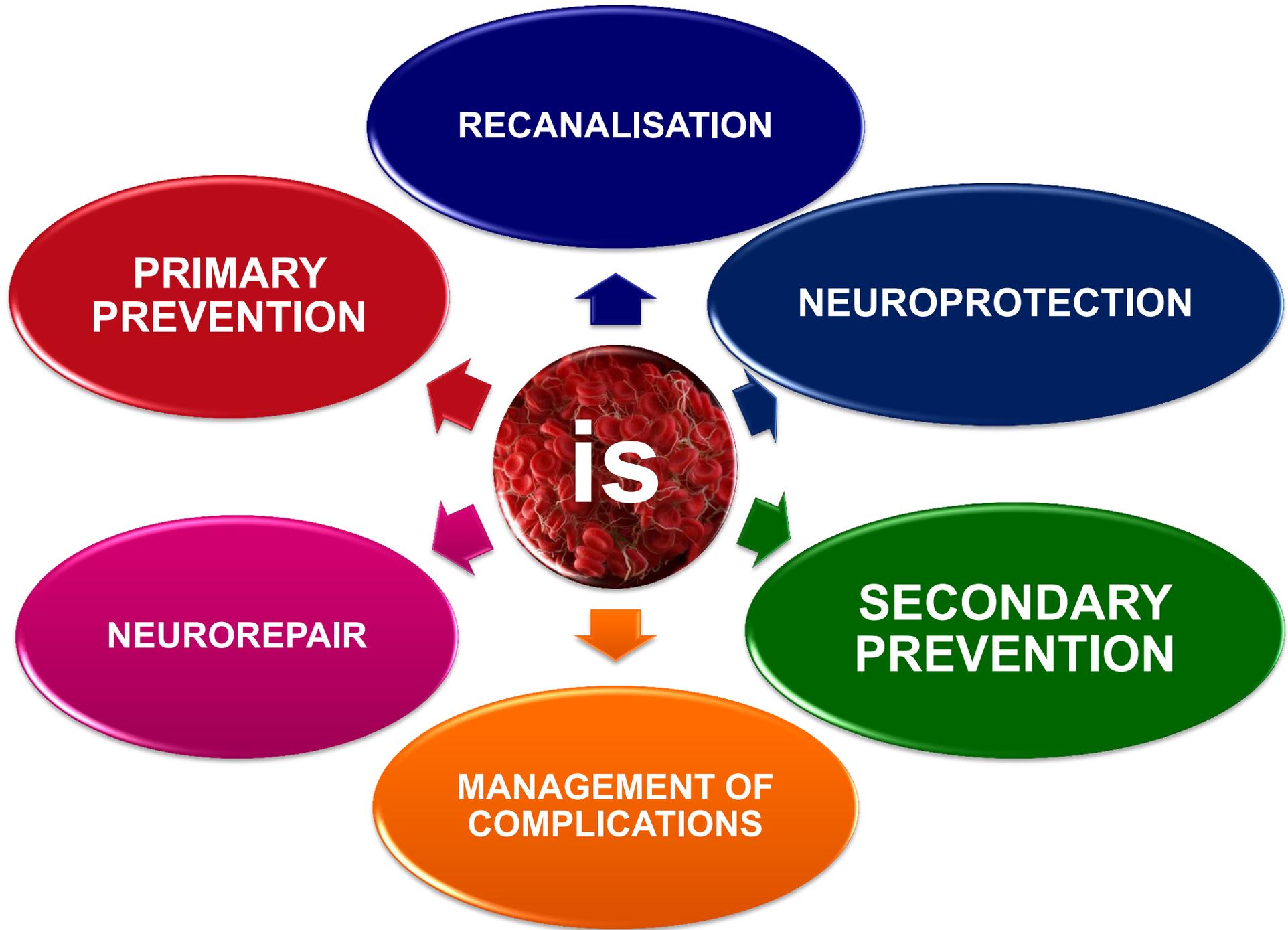


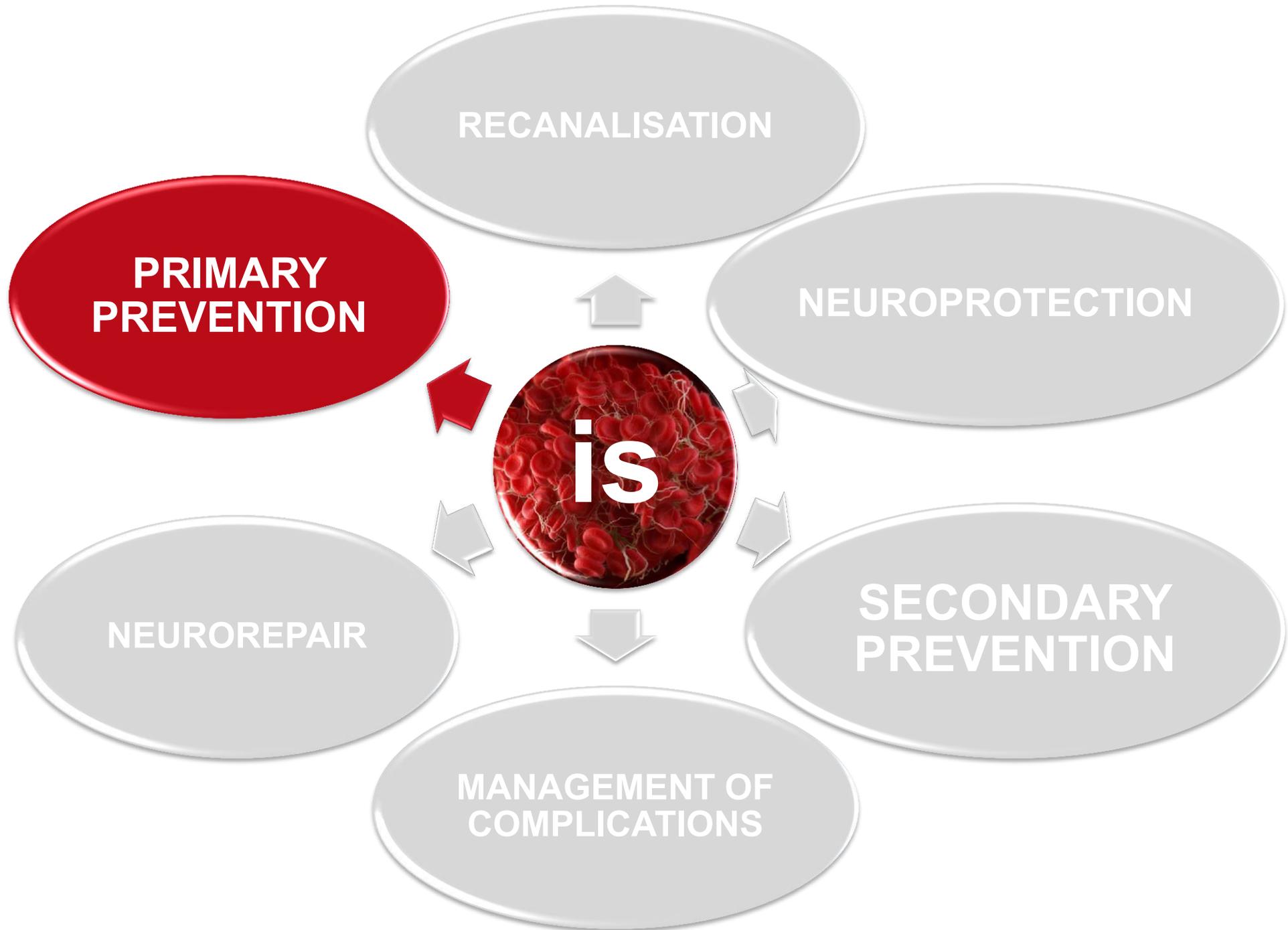
TYPES OF STOKES

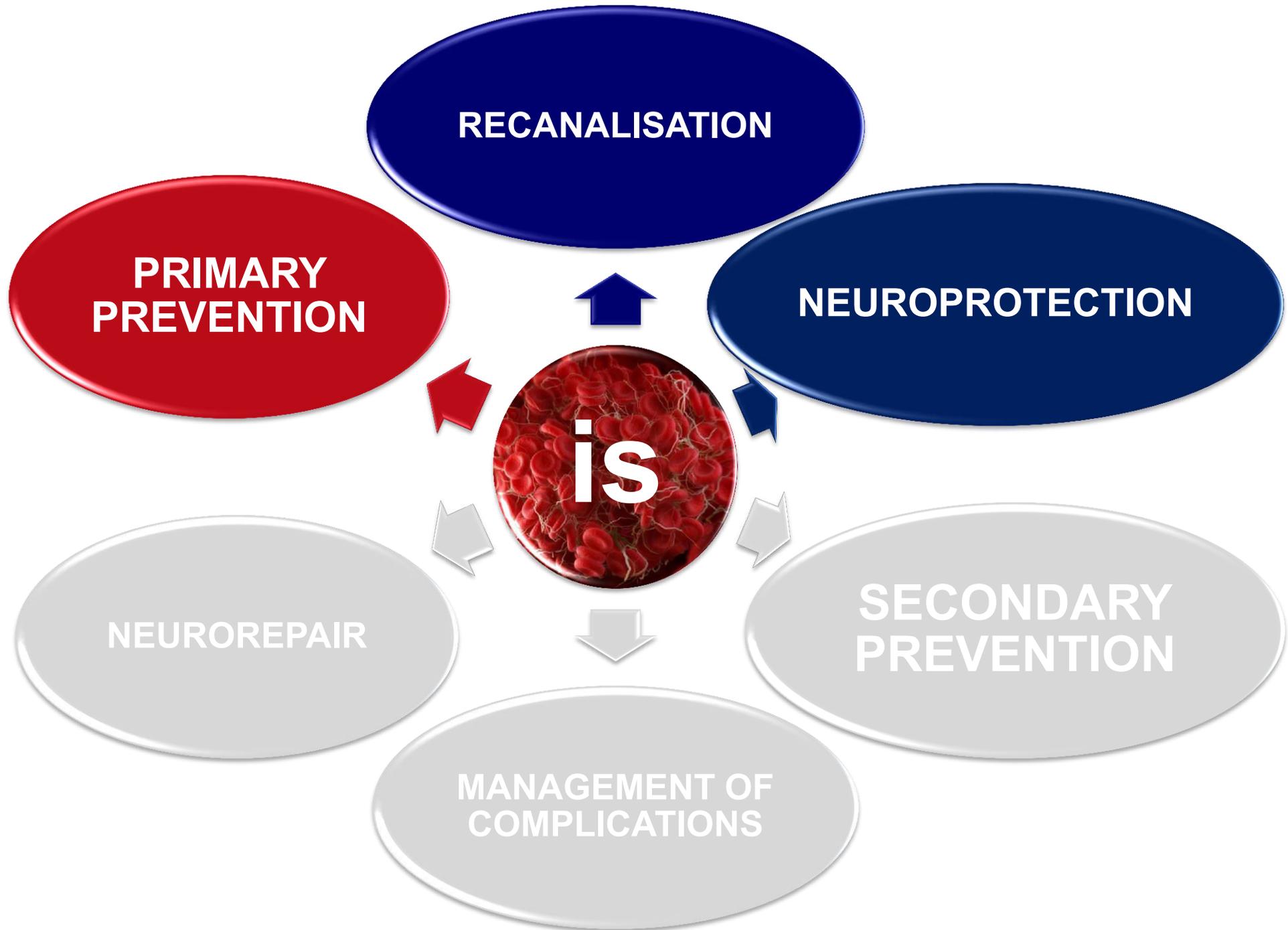


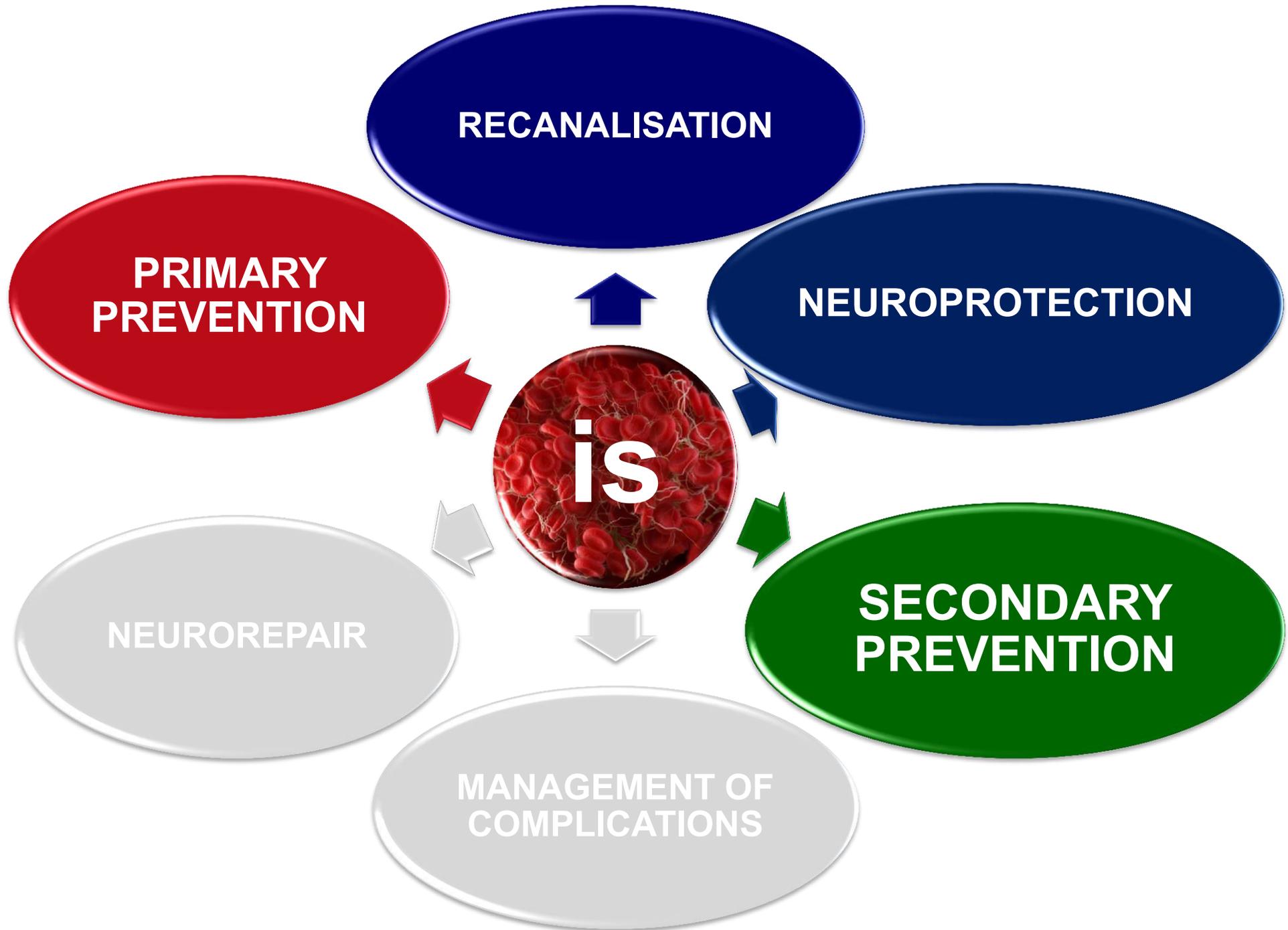


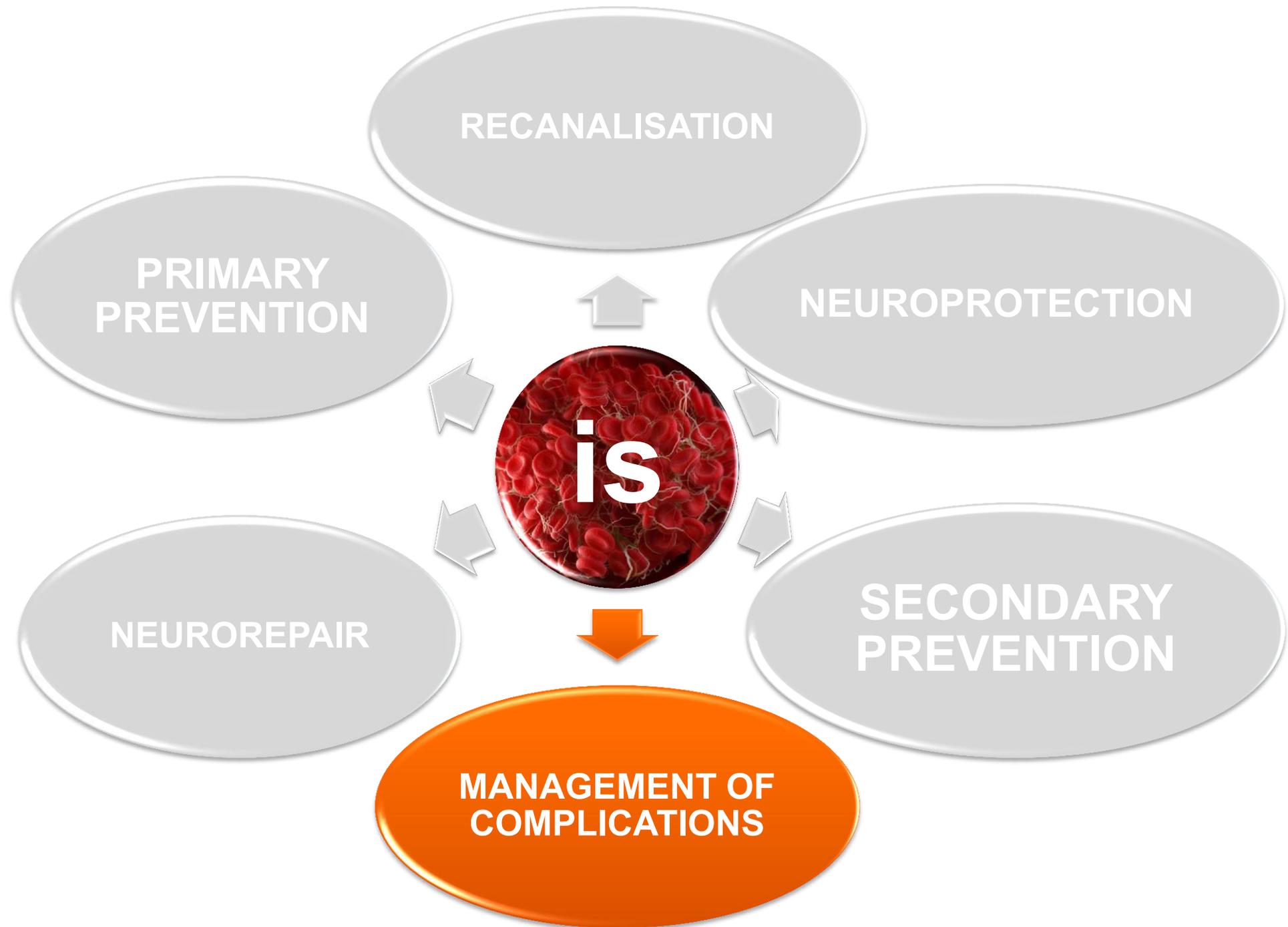
MANAGEMENT OF ISCHAEMIC STROKE OR TIA

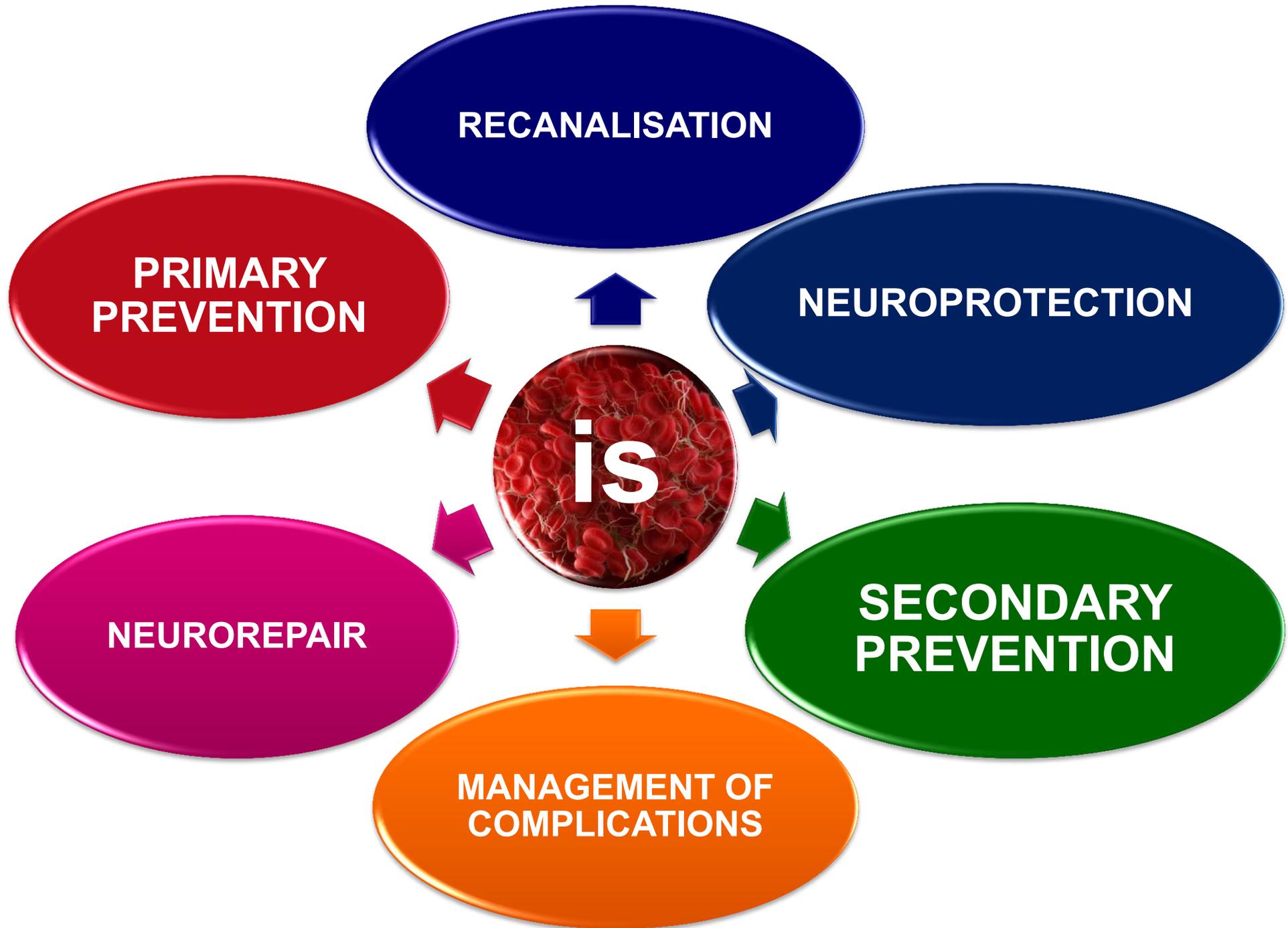




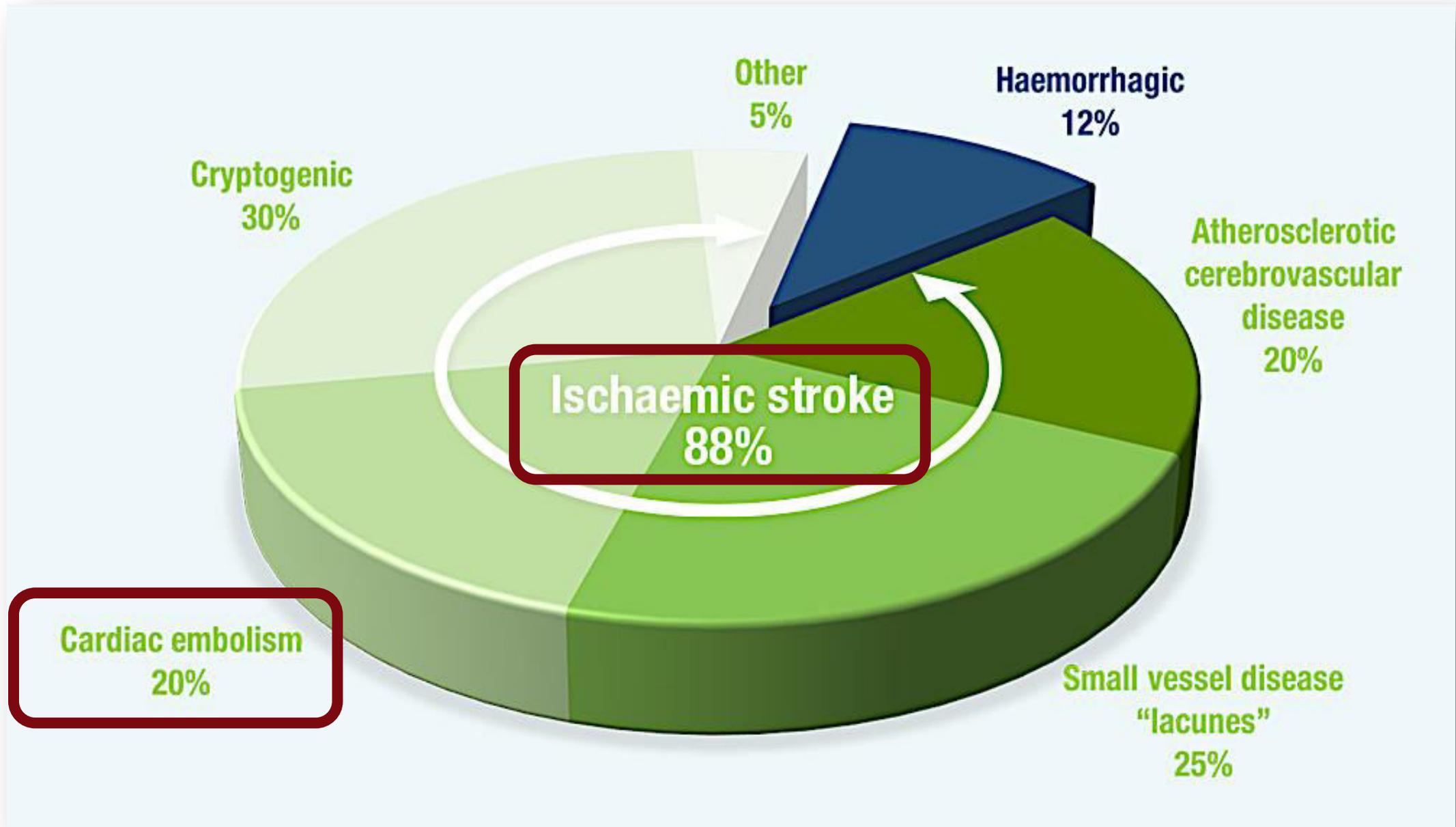








TYPES AND CAUSES OF STOKES

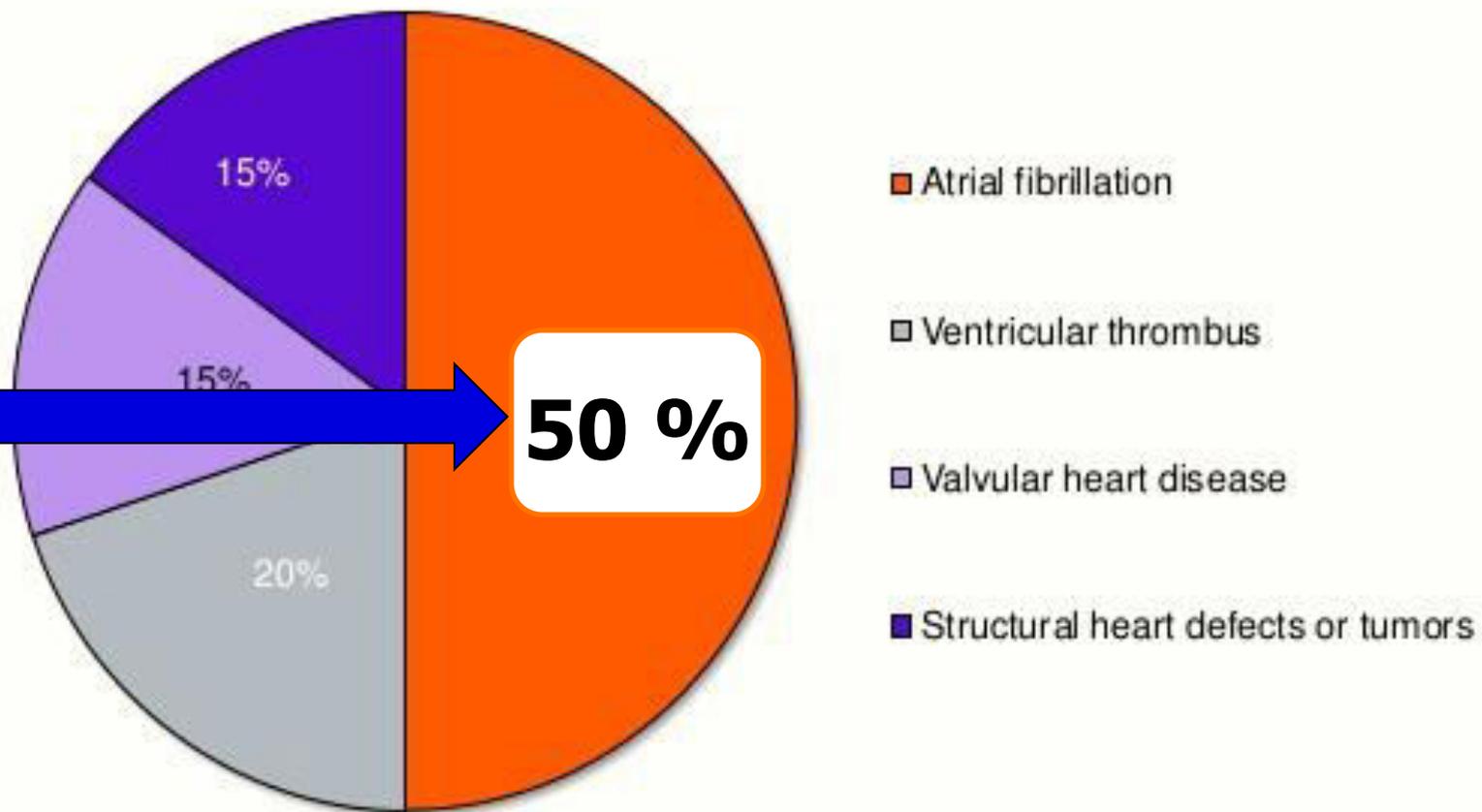


Atrial Fibrillation Is the Most Common Cause of Cardioembolic Ischemic Stroke

Cryptogenic
30%

Cardiac embolism
20%

Cardiac Diseases Leading to Cardioembolic Events



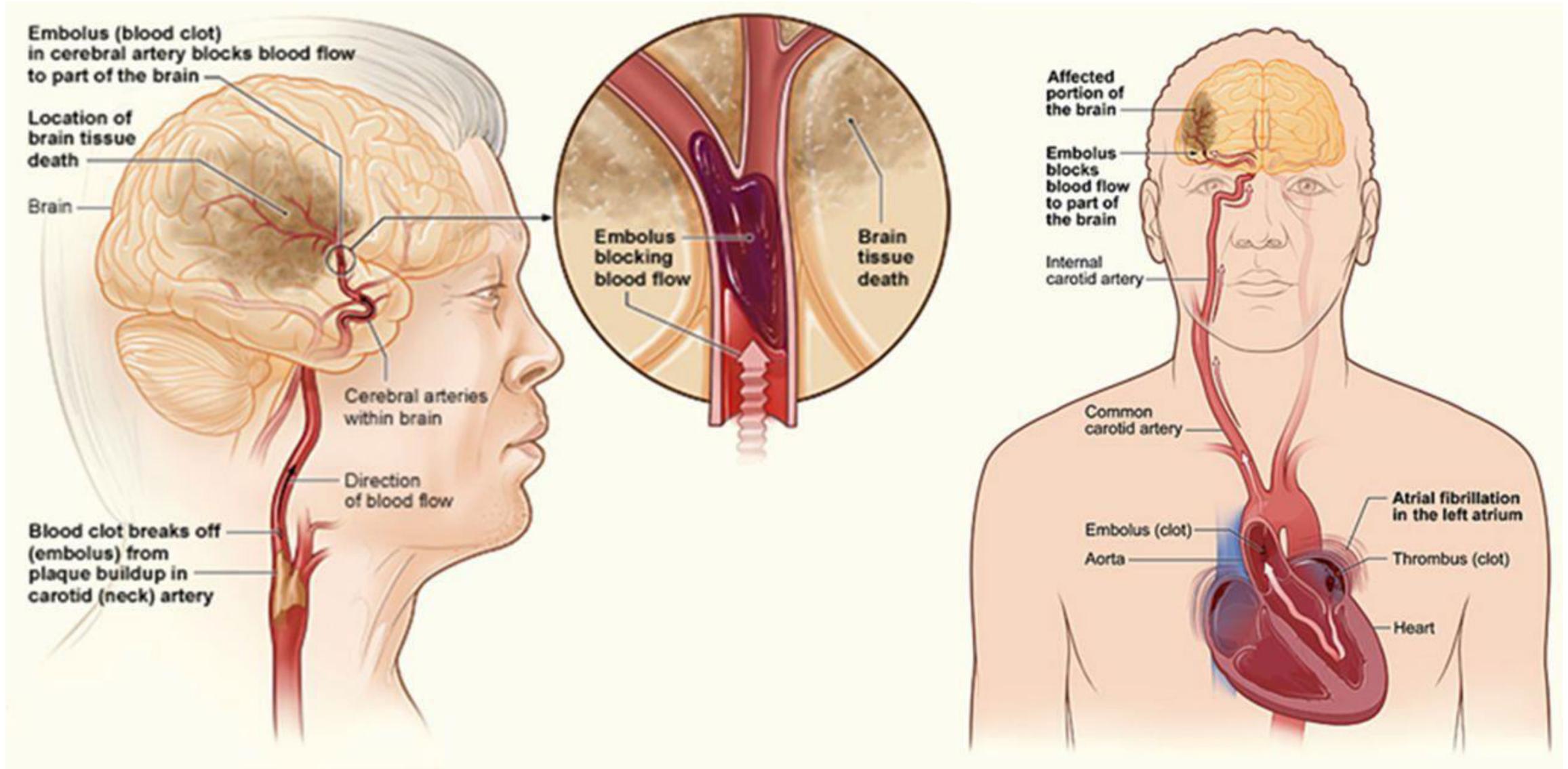
■ Atrial fibrillation

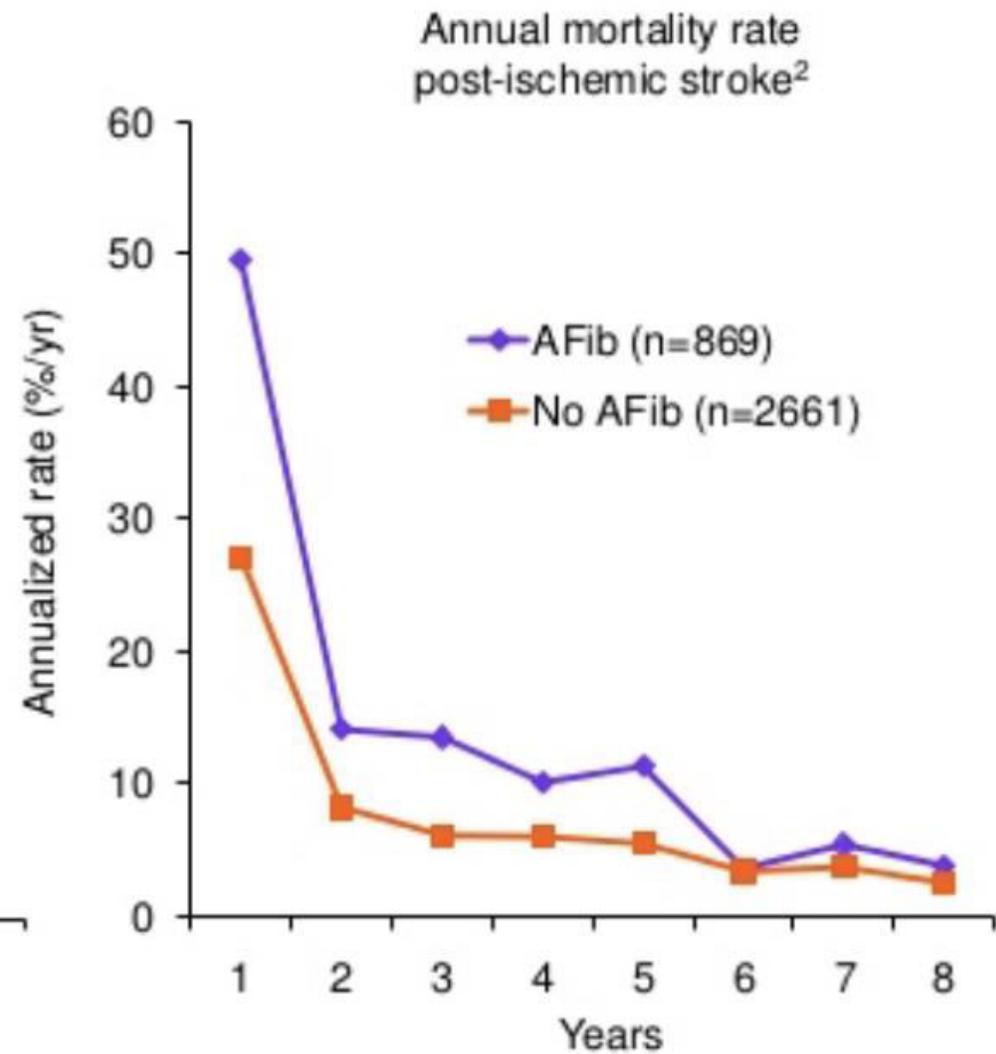
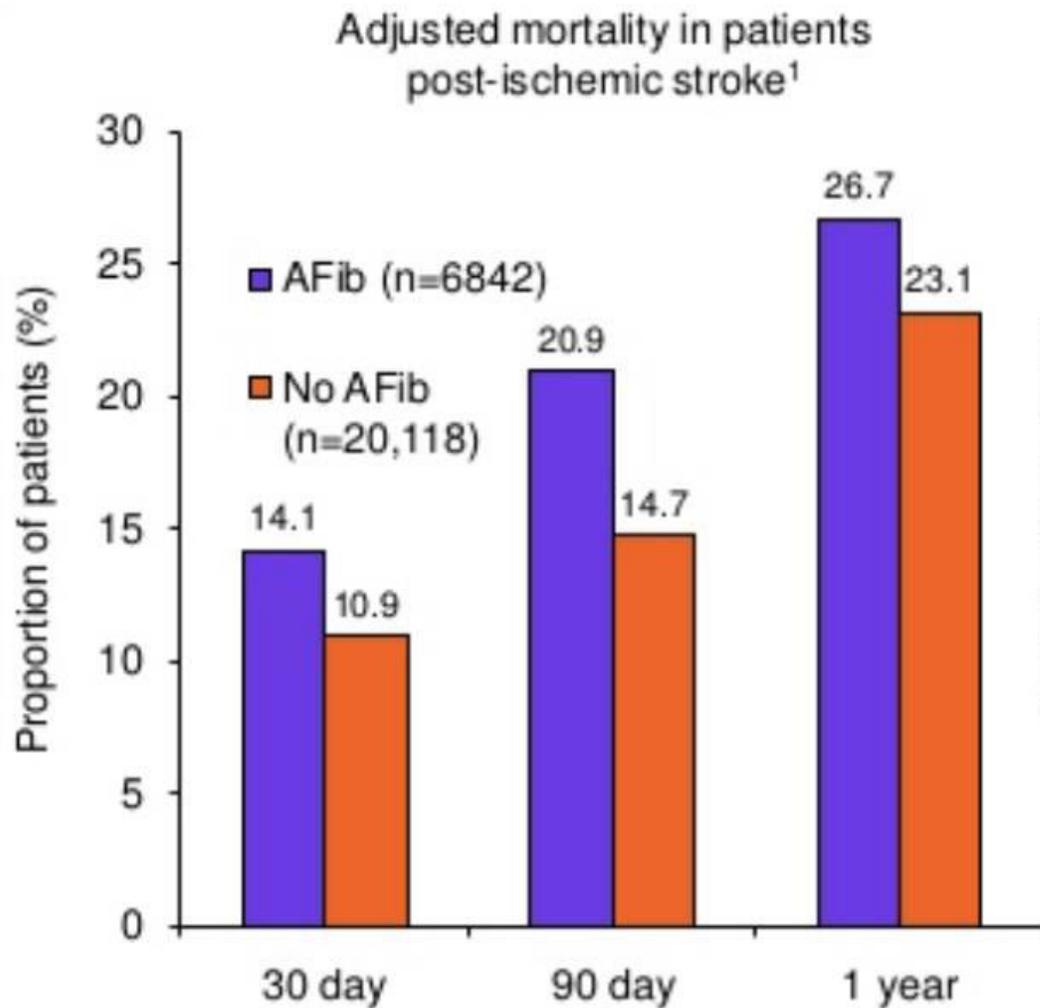
■ Ventricular thrombus

■ Valvular heart disease

■ Structural heart defects or tumors

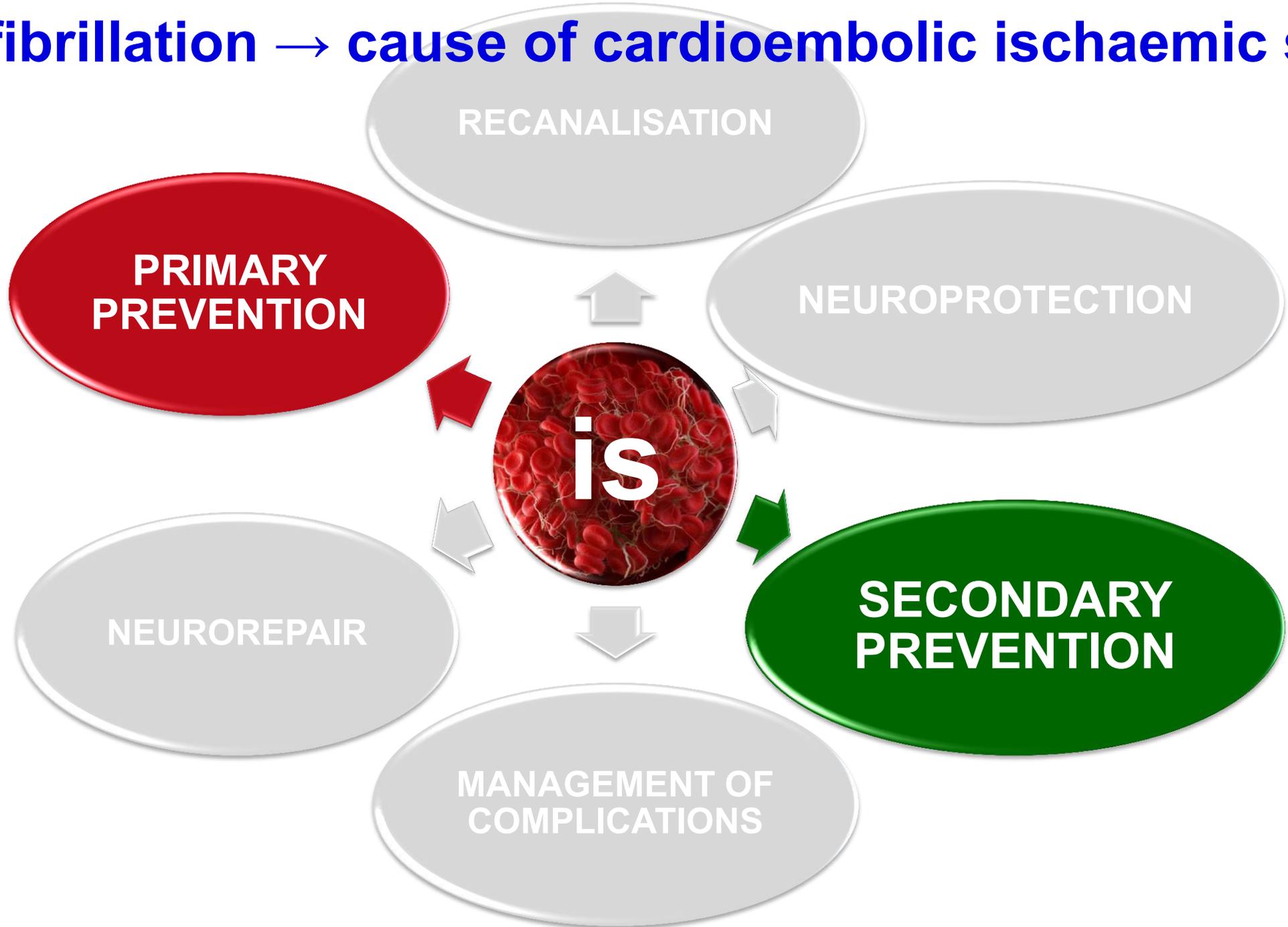
Atrial fibrillation → cause of cardioembolic ischaemic stroke





1. Gattellari M et al. *Cerebrovasc Dis.* 2011;32:370-382.
 2. Marini C et al. *Stroke.* 2005;36:1115-1119.

Atrial fibrillation → cause of cardioembolic ischaemic stroke



1. Direct oral anticoagulants





2. Vitamin k antagonists



**WHY WE DID
WHAT WE DID?**





HIGH PREVALENCE SEVERE CONSEQUENCES

- STROKE



ISCHAEMIC STROKE

- **CARDIOEMBOLIC
ATRIAL FIBRILLATION**



PRIMARY & SECONDARY PREVENTION

- **ANTICOAGULANTS**



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CZECH NATIONAL GUIDELINE DEVELOPMENT PROGRAMME

1918
100
2018

CZECH INDEPENDENCE

2018

2022

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Clinical practice guidelines development

YESTERDAY ... **TODAY** ... **TOMORROW**

... from 1990's

> 2000 CPG's



> 300 CPG's



... to the 21st century



More systematic approach was needed.



Six topics for pilot guidelines development

CARDIOVASCULAR
ACS

NEUROLOGY
STROKE

DIABETES
MELLITUS

ONCOLOGY
COLORECTAL CA

HAEMATOLOGY
CLL

ONE DAY
SURGERY



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CZECH NATIONAL STROKE GUIDELINE DEVELOPMENT

1918
100
2018



2018

2022

Masaryk University
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Process of guideline development

1. Planning and preparation
2. Development
3. Dissemination – publication



4. Evaluation and update

Planning and preparation phase – guideline development group

Guarantor

Prof J Bednarik, *President of the Czech Neurological Society*

Authors

Dr A Tomek

**Stroke
neurologists**

Prof M Bar

Prof D Sanak

Dr J Neumann

Methodologists

Dr R Licenik

Dr T Necas

Dr P Burilova



Planning and preparation phase – multidisciplinary panel

Cardiologist

Prof M Taborsky

President of the Czech Society of Cardiology

**Clinical
pharmacologist**

Dr J Strojil

**GP, general
internal
and emergency
medicine**

Dr D Stoszek

**Non-health care
professional;
researcher,
immunologist**

Prof V Horejsi

Development phase

– health question determination 1

P

Adult patients with cardiembolic stroke

I

Anticoagulation

C

No treatment

O

Mortality, hospitalization, stroke recurrence, haemorrhagic complications

Development phase

– health question determination 2

P

Adult patients with cardiembolic stroke and non-valvular atrial fibrillation

I

Direct oral anticoagulants

C

Warfarin

O

Ischaemic stroke, systemic embolisation, major haemorrhage

Development phase

– health question determination 3

P

Adult patients with cardiembolic stroke and non-valvular atrial fibrillation

I

Warfarin

C

Antiplatelets

O

Ischaemic stroke, systemic embolisation, intracranial and major extracranial haemorrhage

Development phase – search guidelines

- ✓ **PubMed**
- ✓ **National Guidelines Clearinghouse**
- ✓ **G-I-N**
- ✓ **NICE**
- ✓ **SIGN**
- ✓ **WSO, ESO, ASF**

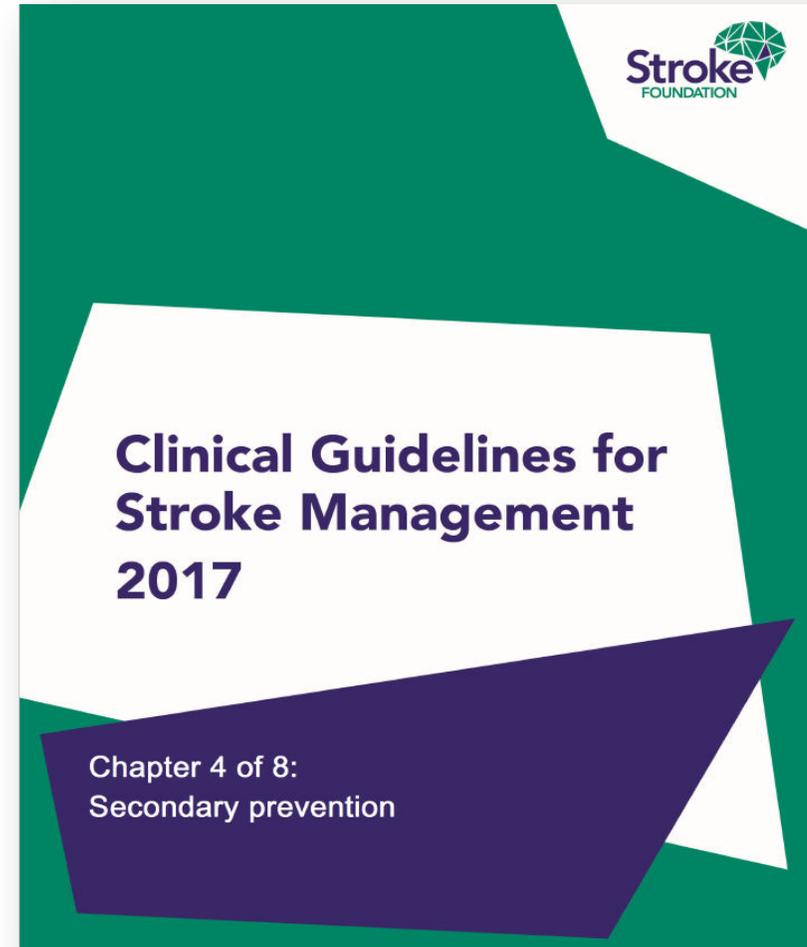
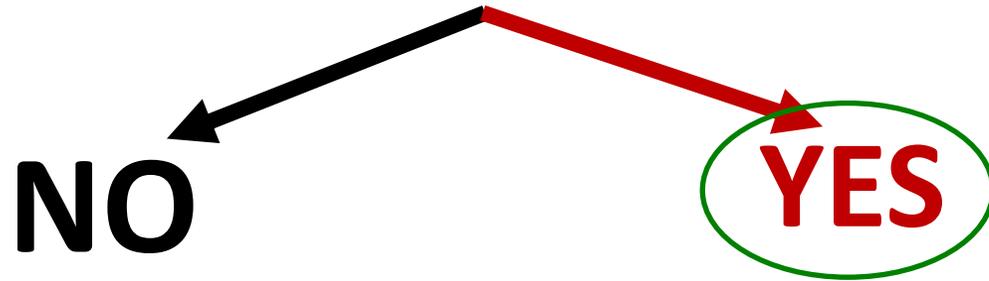
Development phase – screening & quality assessment

1. Are there any relevant guidelines already developed?
2. Are they up-to date and developed using 



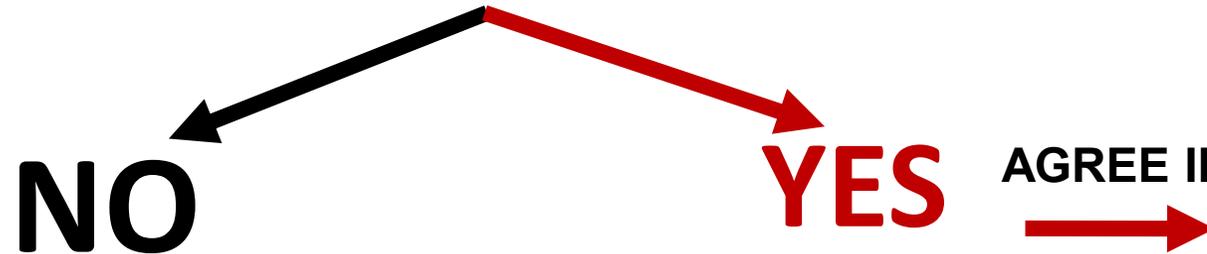
Development phase – screening & quality assessment

Are there any relevant guidelines already developed?



Development phase – screening & quality assessment

What is the methodological quality of the guideline?



HODNOCENÍ DOPORUČENÝCH POSTUPŮ
PRO VÝZKUM A EVALUACI II



AGREE II NÁSTROJ

Překlad do českého jazyka

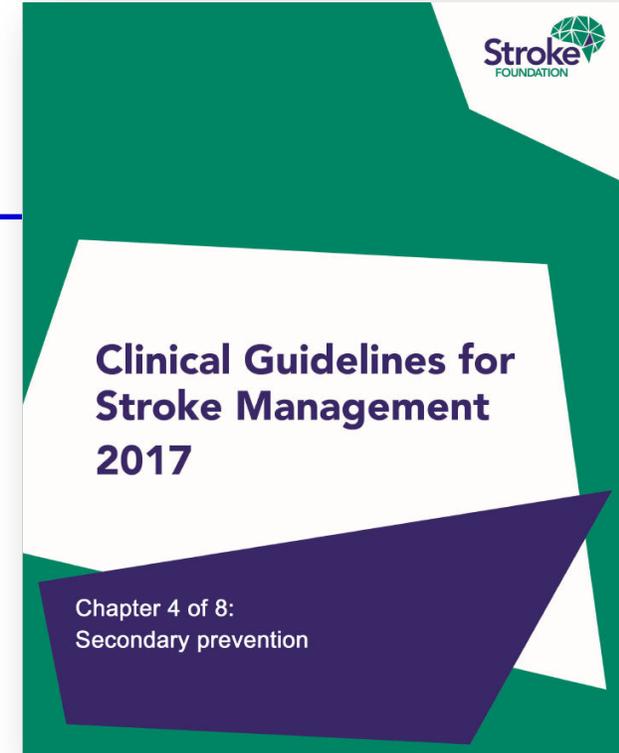
The AGREE Next Steps Consortium

Centrum pro klinické doporučené postupy
Ústav sociálního lékařství a zdravotní politiky
Lékařská fakulta Univerzity Palackého v Olomouci
Říjen 2013

Development phase – screening & quality assessment



- ✓ **high quality by 5 assessors ... *AGREE II***
- ✓ **up-to-date ... developed in *2017***
- ✓ **content ... *clinically highly relevant***
- ✓ **scientifically valid**
- ✓ **acceptable and usable recommendations**



Development phase – decision to adopt or adapt

Is the guideline suitable for adoption or adaptation?



Development phase – decision to adopt or adapt

ADOPTION vs. ADAPTATION

- **Similar population & health conditions**
- **Same interventions & comparison**

- **More specific recommendations needed
based on authors' consensus**
- **Different implementation strategies needed**

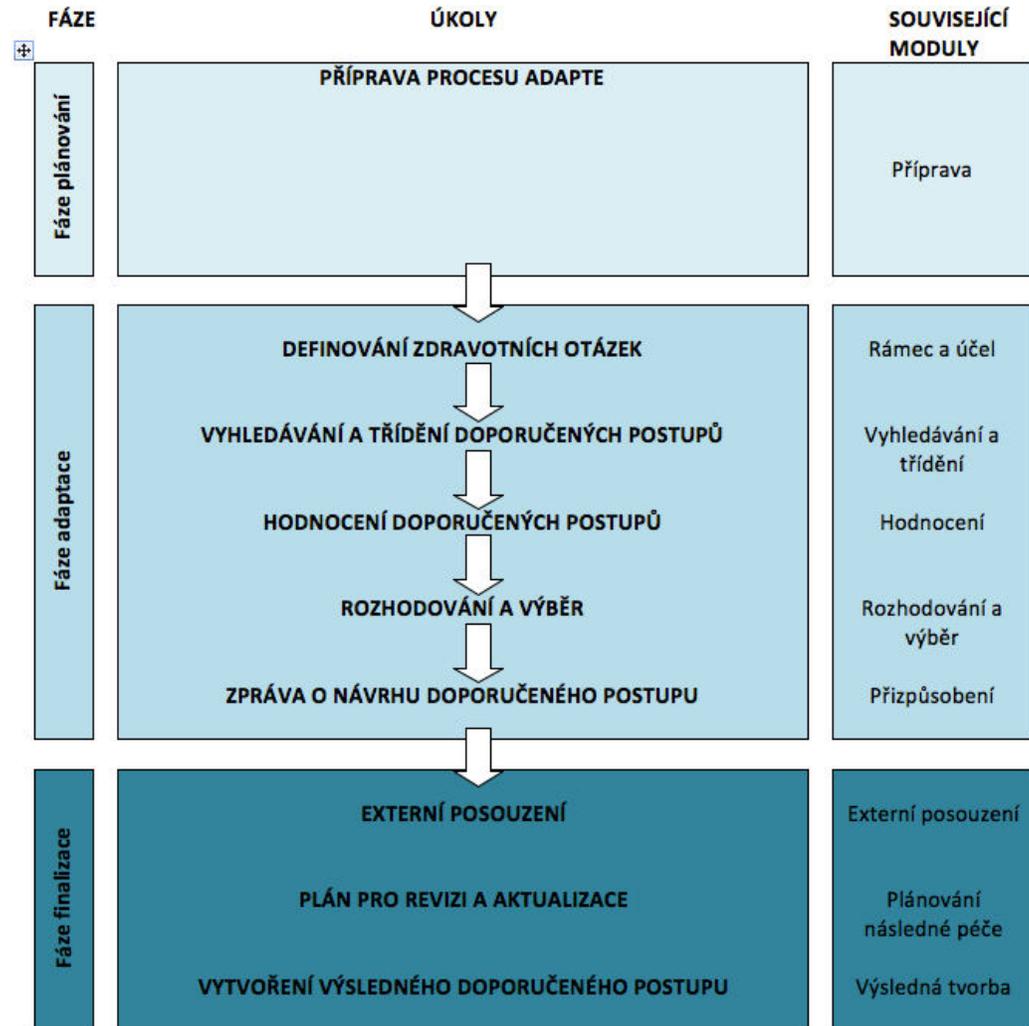
Development phase – decision to adopt or adapt

Is the guideline suitable for adoption or adaptation?



Development phase – decision to adopt or adapt

ADAPTATION



Clinical Guidelines for Stroke Management 2017

Chapter 4 of 8:
Secondary prevention

Ischemická cévní mozková příhoda nebo tranzitorní ischemická ataka kardioembolické etiologie a jejich sekundární prevence. Adaptovaný klinický doporučený postup

Doporučený postup pro péči o pacienty s cévní mozkovou příhodou 2017
Australian Stroke Foundation
Kapitola 4 Sekundární prevence; Antikoagulační léčba

Autoři: prof. MUDr. Josef Bednařík, CSc., FCMA (garant)
prim. MUDr. Aleš Tomek, Ph.D., FESO, doc. MUDr. Michal Bar, Ph.D.,
FESO, prim. MUDr. Jiří Neumann, doc. MUDr. Daniel Šaňák, Ph.D.,
FESO (autoři)
MUDr. Mgr. Radim Líčeník, Ph.D. (hlavní metodik)
MUDr. Tomáš Nečas, PhDr. Petra Bůřilová (metodicí)

Verze: 1.0
Datum: 30. 11. 2018

- For ischaemic stroke or TIA patients with atrial fibrillation (both paroxysmal and permanent), oral anticoagulation is recommended for long-term secondary prevention.

(Saxena et al 2004 [103]; Saxena 2004 [104]; Ruff et al 2014 [88])

Strong for recommendation ⊕⊕⊕⊕

- Direct oral anticoagulants (DOACs) should be initiated in preference to warfarin for patients with non-valvular atrial fibrillation and adequate renal function.

(Ruff et al 2014 [88])

Strong for recommendation ⊕⊕⊕⊕

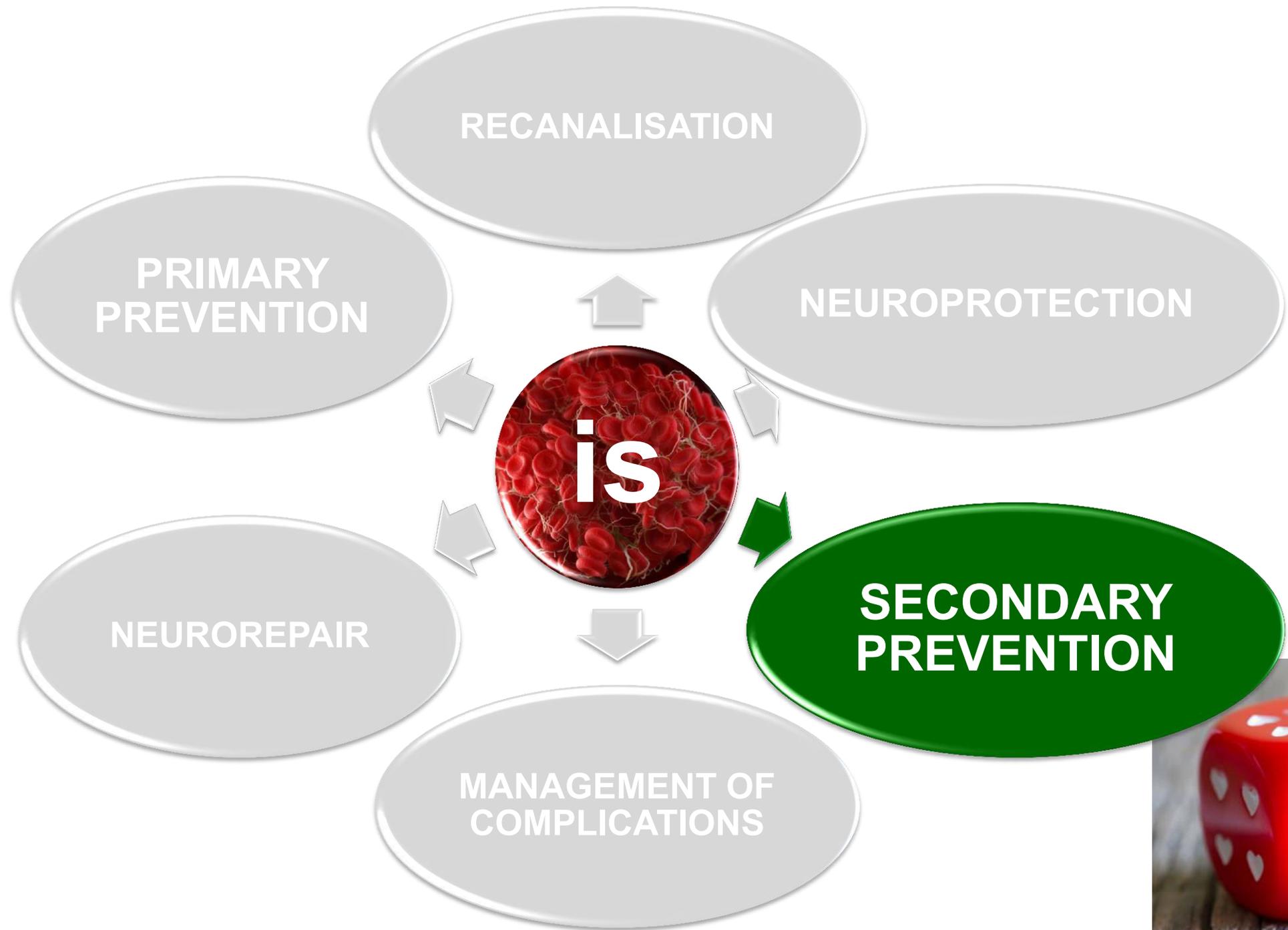
- For patients with valvular atrial fibrillation or inadequate renal function, warfarin (target INR 2.5, range 2.0-3.0) should be used. Patients with mechanical heart valves or other indications for anticoagulation should be prescribed warfarin.

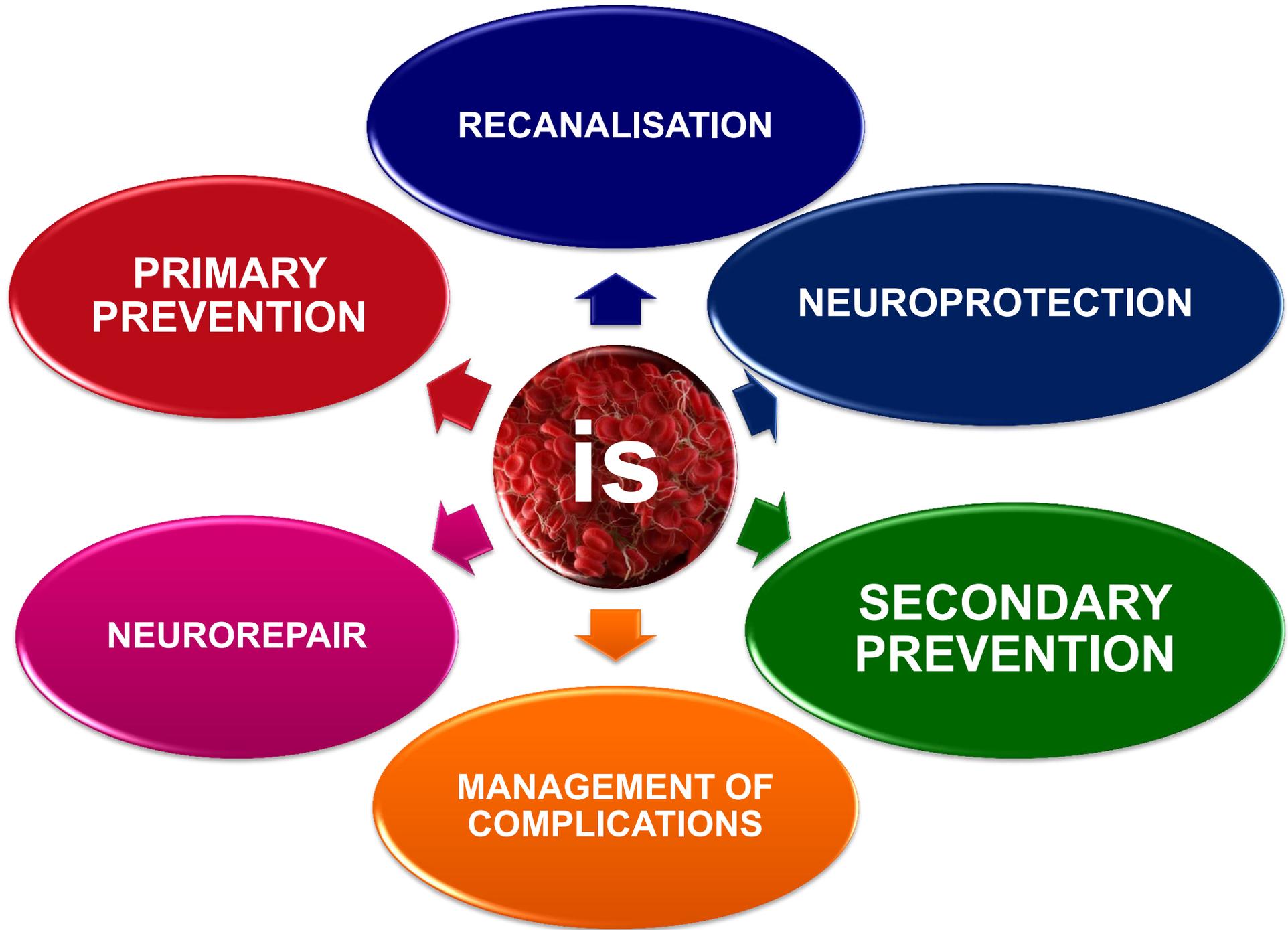
(Tawfik et al 2016) [117])

Strong for recommendation ⊕⊕⊕⊕

**WHAT ARE WE
GOING
TO DO NEXT?**







THANK YOU 😊

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Complications During Hospital Stay for Acute Ischemic Stroke

