

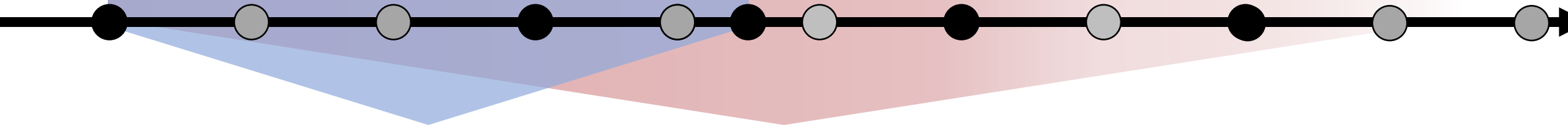


Ischemic Stroke

急診醫學部 陳彥斌醫師

- 1996 USA
- 2002 Europe
- 2002 **Taiwan FDA**
- 2007 AHA Stroke guideline (2009 update)
- 2008 **台灣腦中風醫學會初次訂定使用指引**
- 2013 AHA Stroke guideline (2015)
- 2018 AHA Stroke guideline (2019 update)

IV
A



□ 1995 發病後3小時內給予〔rt-PA〕治療，顯著增加中風後3個月的良好功能預後的比例

□ 美國國家神經及腦中風疾病研究院 National Institute of Neurological Disorders and Stroke〔NINDS〕

□ 修改的雷氏量表(modified Rankin scale〔mRS〕0至1分為良好預後

□ 2004 自中風症狀發作至IVT的時間越短則3個月良好功能機會越高

□ 症狀發作90分鐘內IVT，3個月良好預後的勝算比odds ratio 為2.8 (95% CI=1.8-4.5)

□ 91-180分鐘OR=1.6 (95%CI=1.1- 2.2)

□ 181-270分鐘OR=1.4 (95%CI=1.1-1.9)

□ 2008 症狀發生3至4.5小時，仍可明顯增加良好功能性預後機率

□ 歐洲多中心臨床試驗

□ 2015 IVT合併EVT治療較單獨IVT治療可以有更明顯的預後改善

□ 5個動脈內血栓移除(endovascular thrombectomy〔EVT〕)治療試驗

□ MR CLEAN、EXTEND IA、ESCAPE、SWIFT PRIME、REVASCAT

□ ESCAPE 每增加30分鐘自影像檢查至恢復灌流時間，3個月後良好預後降低8.3%

□ SWIFT 症狀發生至恢復灌流時間

□ 在150分鐘內，有91%的機率會達到3個月後良好預後

□ 延長至210分鐘時則會下降10%的機率，再多延長1小時再下降20%

□ 1996 USA

□ 2002 Europe

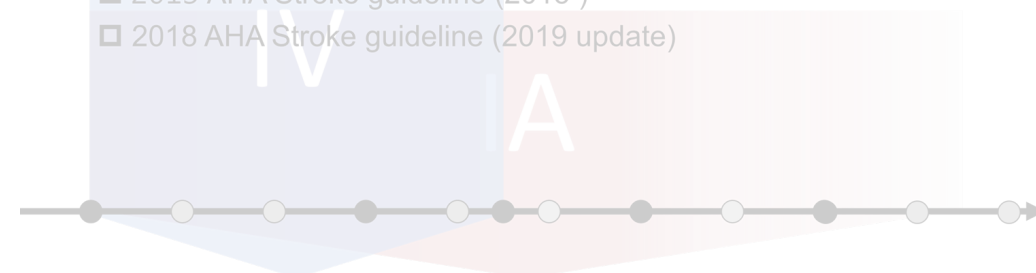
□ 2002 Taiwan FDA

□ 2007 AHA Stroke guideline (2009 update)

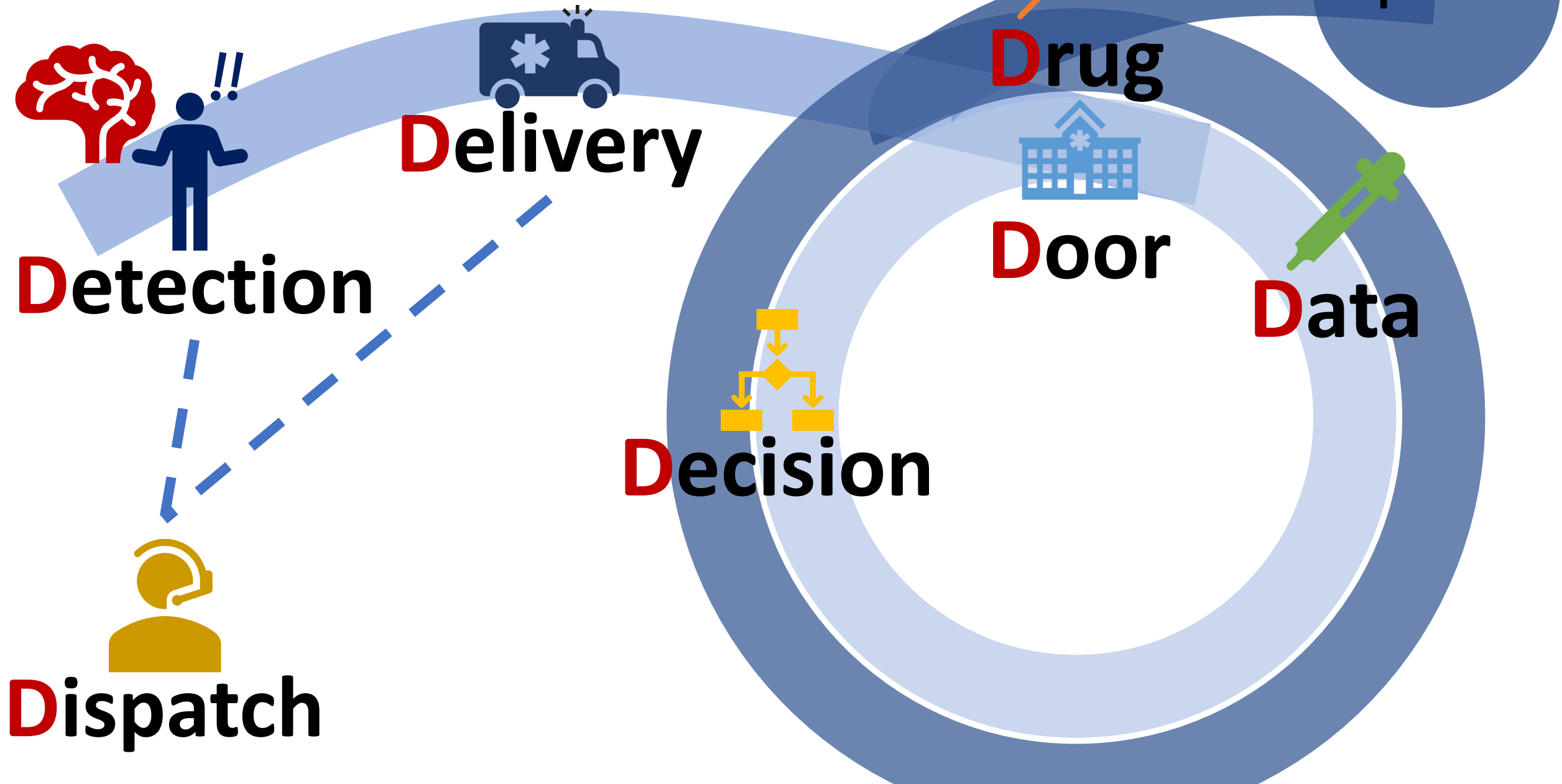
□ 2008 台灣腦中風醫學會初次訂定使用指引

□ 2013 AHA Stroke guideline (2015)

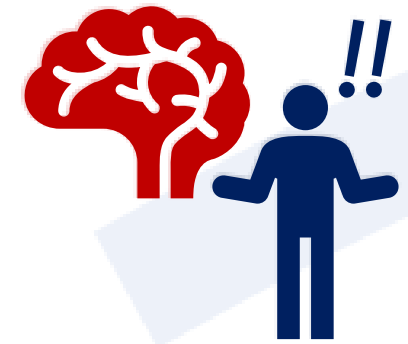
□ 2018 AHA Stroke guideline (2019 update)



Stroke 8 Ds



Stroke 8 Ds



Detection

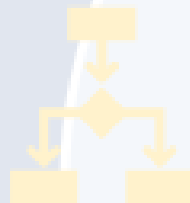


Dispatch

Delivery



Decision



Drug



Door



Data



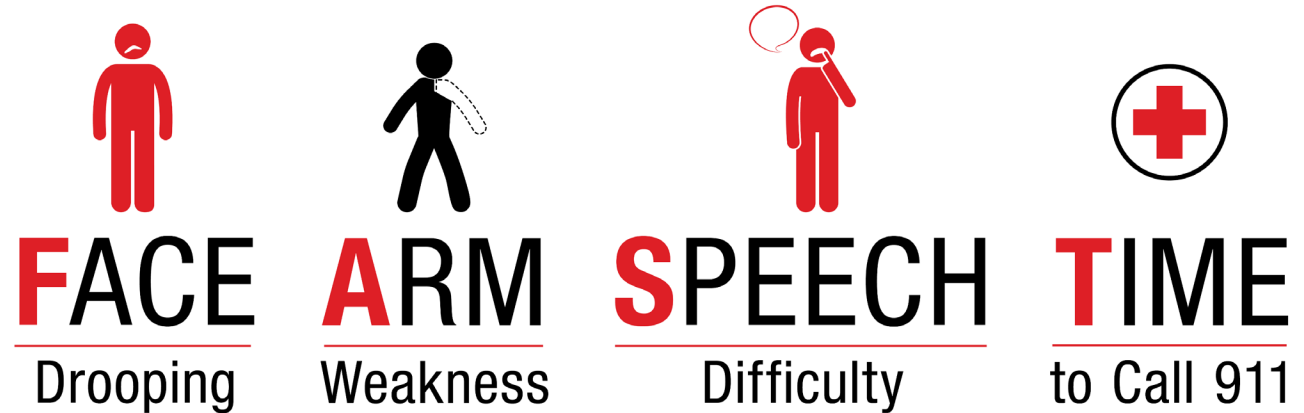
Disposition



Stroke



SPOT A STROKE™

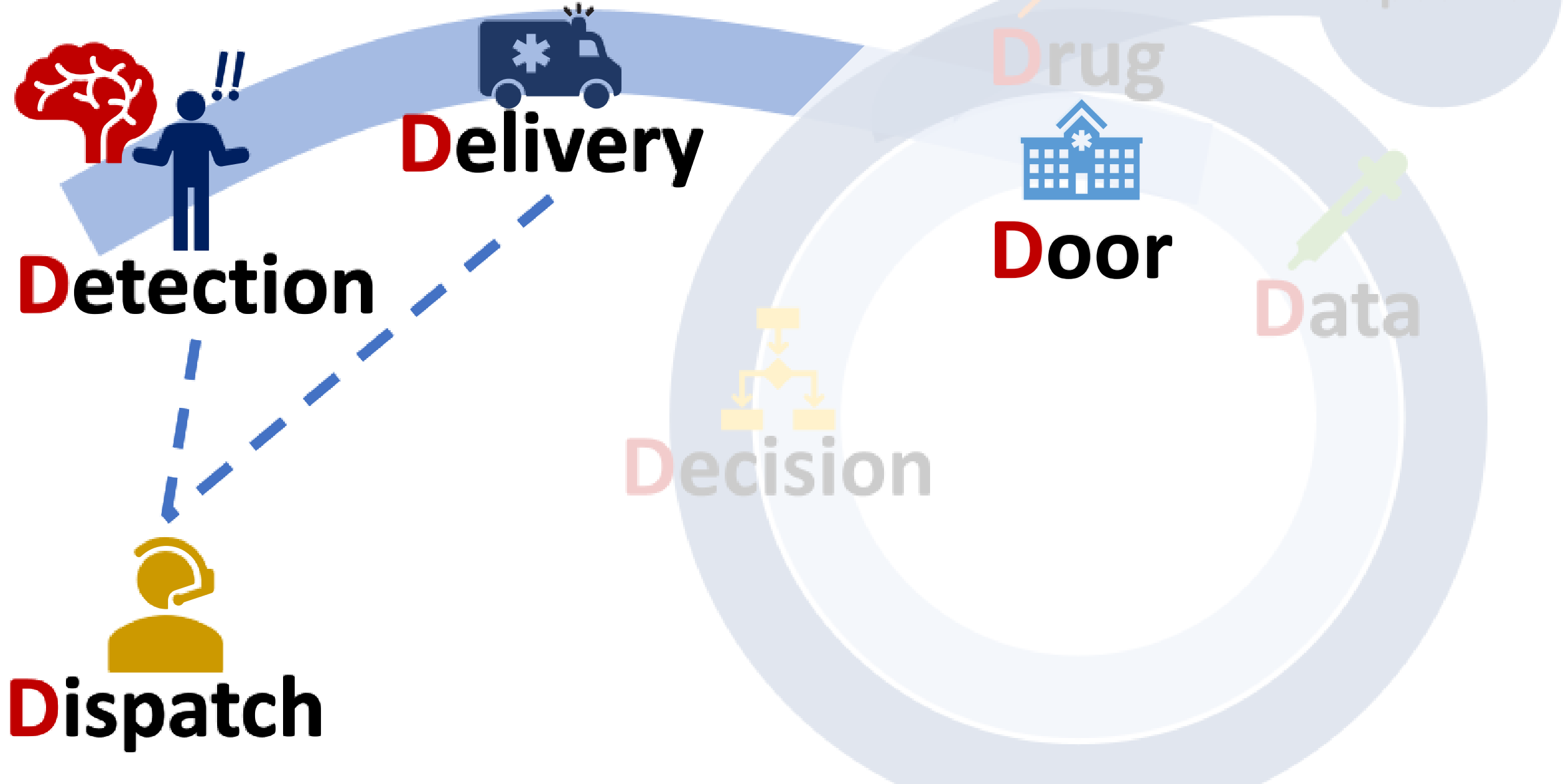


[StrokeAssociation.org](https://www.StrokeAssociation.org)



Cincinnati Prehospital Stroke Scale (CPSS)

Stroke 8 Ds



Stroke 8 Ds



Stroke



Door




Data

< 10 分鐘

ABCs

Data collection

- 初步評估 Initial evaluation
- 生命徵象 Monitors
- 神經學檢查 NE
- 啟動中風小組
- IV
 - Glucose、Coagulation、Crea、Plt
- 安排腦部電腦斷層 Brain CT(non-contrast)
- 12-lead ECG

Stroke



Door



< 25 分鐘

- 完成腦部電腦斷層
- 評估NIHSS
- 確認最後正常時間
- 詢問病史

Stroke

< 45 分鐘

- 完成判讀腦部電腦斷層



Stroke

- < 60 分鐘
- 給予tPA



Stroke 8 Ds



IV Alteplase

- 17個大型隨機研究、5000個以上的病人!
- 3小時內給予血栓溶解劑治療明顯改善 30%的病人在中風3個月後的神經學後遺症
- 腦出血機會增加 (6.4% VS. 0.3%)
- AHA 強烈建議在選擇病患在缺血性中風的3小時內使用
- 顯示治療組 1年存活率 有顯著增加!
- 病患預後：住在中風中心 >>> 一般病房

IV Alteplase

- 0.9 mg/kg, maximum dose 90 mg over 60 minutes with initial 10% of dose given as bolus over 1 minute

< 3 hr

- 年紀 \geq 18-year-old
- 中風嚴重度 (NIHSS 4-25 in Taiwan guidelines)

3 ~ 4.5 hr

- ≤ 80 y of age
- without a history
 - diabetes mellitus
 - prior stroke
- NIHSS score ≤ 25
- Image
 - Without imaging evidence of ischemic injury involving more than one third of the MCA territory
- not taking any OACs

1A	Level of consciousness	0—alert 1—drowsy 2—obtunded 3—coma/unresponsive	5	Motor function (arm) a. left b. right	0—no drift 1—drift before 5 seconds 2—falls before 10 seconds 3—no effort against gravity 4—no movement
1B	Orientation questions (two)	0—answers both correctly 1—answers one correctly 2—answers neither correctly	6	Motor function (leg) a. left b. right	0—no drift 1—drift before 5 seconds 2—falls before 5 seconds 3—no effort against gravity 4—no movement
1C	Response to commands (two)	0—performs both tasks correctly 1—performs one task correctly 2—performs neither	7	Limb ataxia	0—no ataxia 1—ataxia in one limb 2—ataxia in two limbs
2	Gaze	0—normal horizontal movements 1—partial gaze palsy 2—complete gaze palsy	8	Sensory	0—no sensory loss 1—mild sensory loss 2—severe sensory loss
3	Visual fields	0—no visual field defect 1—partial hemianopia 2—complete hemianopia 3—bilateral hemianopia	9	Language	0—normal 1—mild aphasia 2—severe aphasia 3—mute or global aphasia
4	Facial movement	0—normal 1—minor facial weakness 2—partial facial weakness 3—complete unilateral palsy	10	Articulation	0—normal 1—mild dysarthria 2—severe dysarthria
			11	Extinction or inattention	0—absent 1—mild (loss 1 sensory modality) 2—severe (loss 2 modalities)

- A 0-42 score for stroke patients.
- Higher score, **severer** clinical condition.

禁忌!! Contraindication

- >3 or 4.5 h
- CT reveals an acute intracranial hemorrhage

過去曾經

- ICH, SAH

3個月內

- Ischemic stroke
- Severe head trauma
- Intracranial/intraspinal surgery

3週內

- GI malignancy or GI bleed

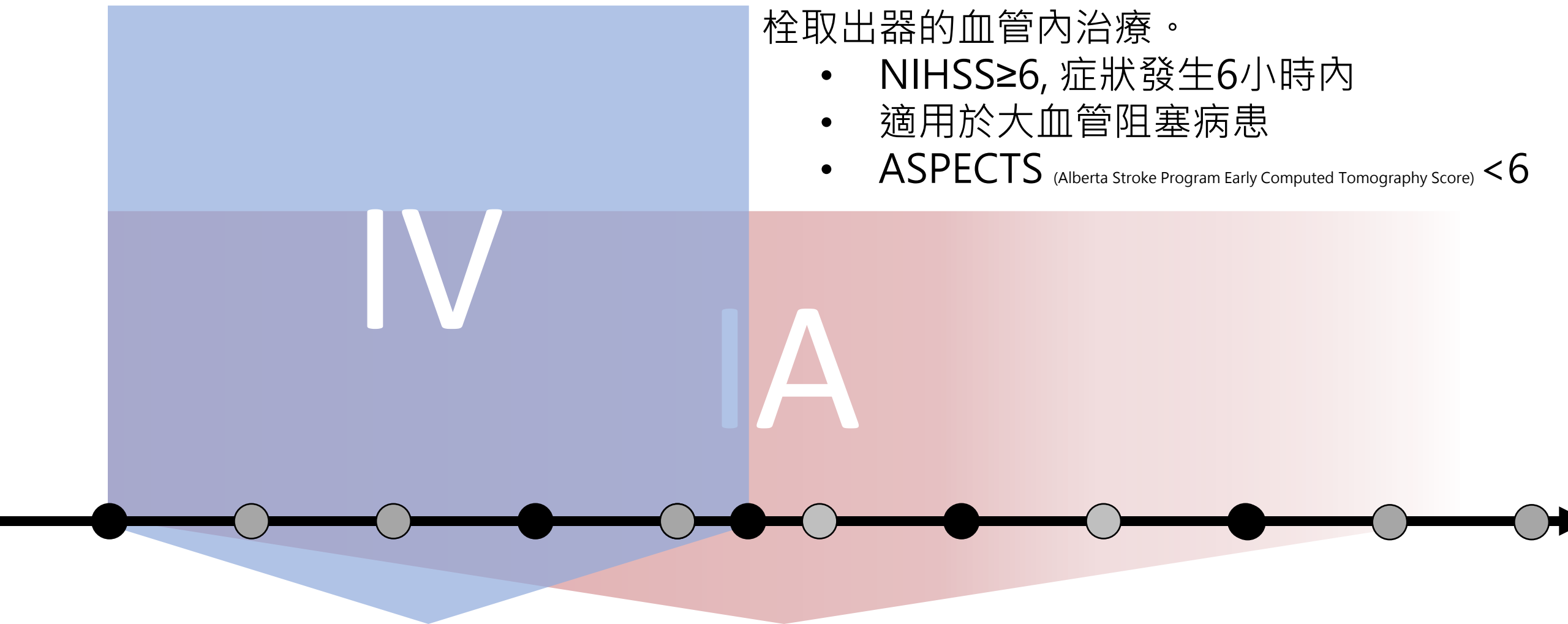
禁忌!! Contraindication

Coagulopathy

- platelets $<100\,000/\text{mm}^3$
- INR >1.7 , PT $>15\text{ s}$, aPTT $>40\text{ s}$
- LMWH within the previous 24 h, recent use of OACs

適合靜脈r-tPA治療的病患應該接受r-tPA治療，再同時考慮是否適合血管內治療。

- NIHSS ≥ 6 , 症狀發生6小時內
- 適用於大血管阻塞病患
- ASPECTS (Alberta Stroke Program Early Computed Tomography Score) < 6



General Supportive Care

- Dysphagia screen
- Stroke center/unit benefit patient most!
- 維持血壓，勿過度降血壓
 - $90 \text{ mmHg} < \text{MAP} < 130 \text{ mm Hg}$
 - BP在要作血栓溶解劑者要降到 185/110 以下
 - after alteplase maintain BP $\leq 180/105 \text{ mm Hg}$
 - 其它缺血性中風維持在 220 / 120 以下即可，除非有其它end-organ involved (如 AMI, DAA, APE etc.)
 - 首選用藥：Labetalol or Nicardipine
- 維持體液平衡: N/S 75-100 mL/h
- 絕對臥床休息並減少躁動
- 必要時給予鎮定藥物: morphine or diazepam

General Supportive Care

- 治療電解值不平衡
- 治療高 / 低血糖: **range of 140 to 180 mg/dL**
- 勿過度換氣
- 維持血氧及血液酸鹼值：
 - ED/EMS: Give oxygen if SpO2 < 94%
 - ICU: arterial PO2 >100 mm Hg; arterial pH 7.3 to 7.5
- 呼吸器設定: 儘量用較低的 PEEP
- 治療抽搐Seizure: 不建議預防性給藥
- 必要時給予維他命B1: thiamine 100 mg in alcoholism

General Supportive Care

- 下列情形可給予降腦壓藥物
 - 在 ICP Monitor 上昇或臨床症狀有 IICP 時
 - $CPP = MAP - ICP$. Keep $CPP > 60$ at least!
 - 神經學檢查持續惡化時
- 避免給予低張溶液
- 維持正常體溫
 - 治療高體溫
- 48小時內開始營養支持

Stroke 8 Ds

