Stroke Care – First week

Florence Nightingale (1820 — 1910)

Stroke Unit

- Dedicated personnel trained in stroke management
- Stepwise guidelines supported by explicit checklists
- Continuous monitoring available
- Stepwise guidelines for diagnosis and treatment
- Early care and rehabilitation by multidisciplinary team

Acute Stroke Unit: Functions (1)

- Management and monitoring (as described for ER)
- Confirmation of diagnosis and aetiology using stepwise approach
- Therapy as appropriate experimental treatments
- Prevention of early recurrence/progression of stroke
- Prevention of complications

Acute Stroke Unit: Functions (2)

- Reassurance and support for patient and family
- Assessment of risk factors for recurrence
- Immediate start of early rehabilitation
- Secondary prevention
- Routine follow-up at outpatient clinics
- Data bases for research

Acute Stroke Unit: Multidisciplinary Team

- Neurologist, on site
  - neurosurgeon, on duty
  - neuropsychiatrist, on call
- Internist/cardiologist
- Specialist nurses

Other consultants as required

- Physiotherapists
- Speech and occupational therapists
- Neuropsychologists
- Social workers

First day post stroke NB list

- Clear airway
- Adequate oxygenation
- Swallowing ability
- Hydration
- Urinary incontinence
- Fever – avoid/treat and investigate
- Prevent: DVT, pressure sores, aspiration and trauma

First day post stroke NB list

- Concomitant disease
- Review home medication
- Protection of a flaccid shoulder/positioning
- *Information*
  - FROM patient and family
  - TO
    - PATIENT
    - FAMILY

The FflorENCE NIGHTINGALE *Pledge*

I SOLEMNLY PLEDGE MYSELF BEFORE GOD AND IN THE PRESENCE OF THIS ASSEMBLY TO PASS MY LIFE IN PURITY AND TO PRACTICE MY PROFESSION FAITHFULLY. I WILL ABSTAIN FROM WHATEVER IS DELETERIOUS AND MISCHIEVOUS AND WILL NOT TAKE OR KNOWINGLY ADMINISTER ANY HARMFUL DRUG. I WILL DO ALL IN MY POWER TO ELEVATE THE STANDARD OF MY PROFESSION, AND WILL HOLD IN CONFIDENCE ALL PERSONAL MATTERS COMMITTED TO MY KEEPING, AND ALL FAMILY AFFAIRS COMING TO MY KNOWLEDGE IN THE PRACTICE OF MY CALLING. WITH LOYALTY WILL I ENDEAVOR TO AID THE PHYSICIAN IN HIS WORK AND DEVOTE MYSELF TO THE WELFARE OF THOSE COMMITTED TO MY CARE.

A BUZZA MOTTO

MADE IN CANADA

Acute Stroke Unit Functions And Facilities Management throughout the first three weeks...

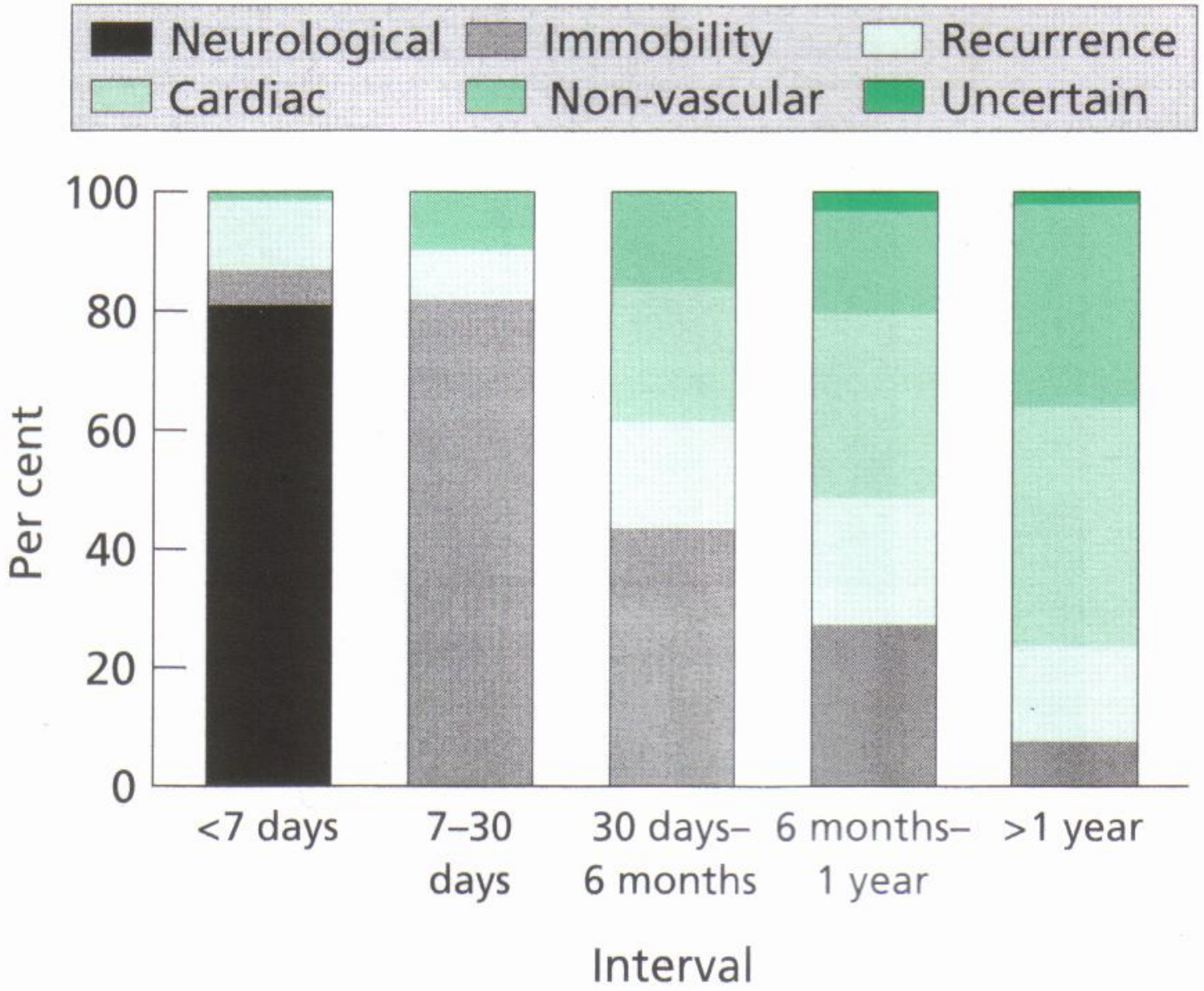
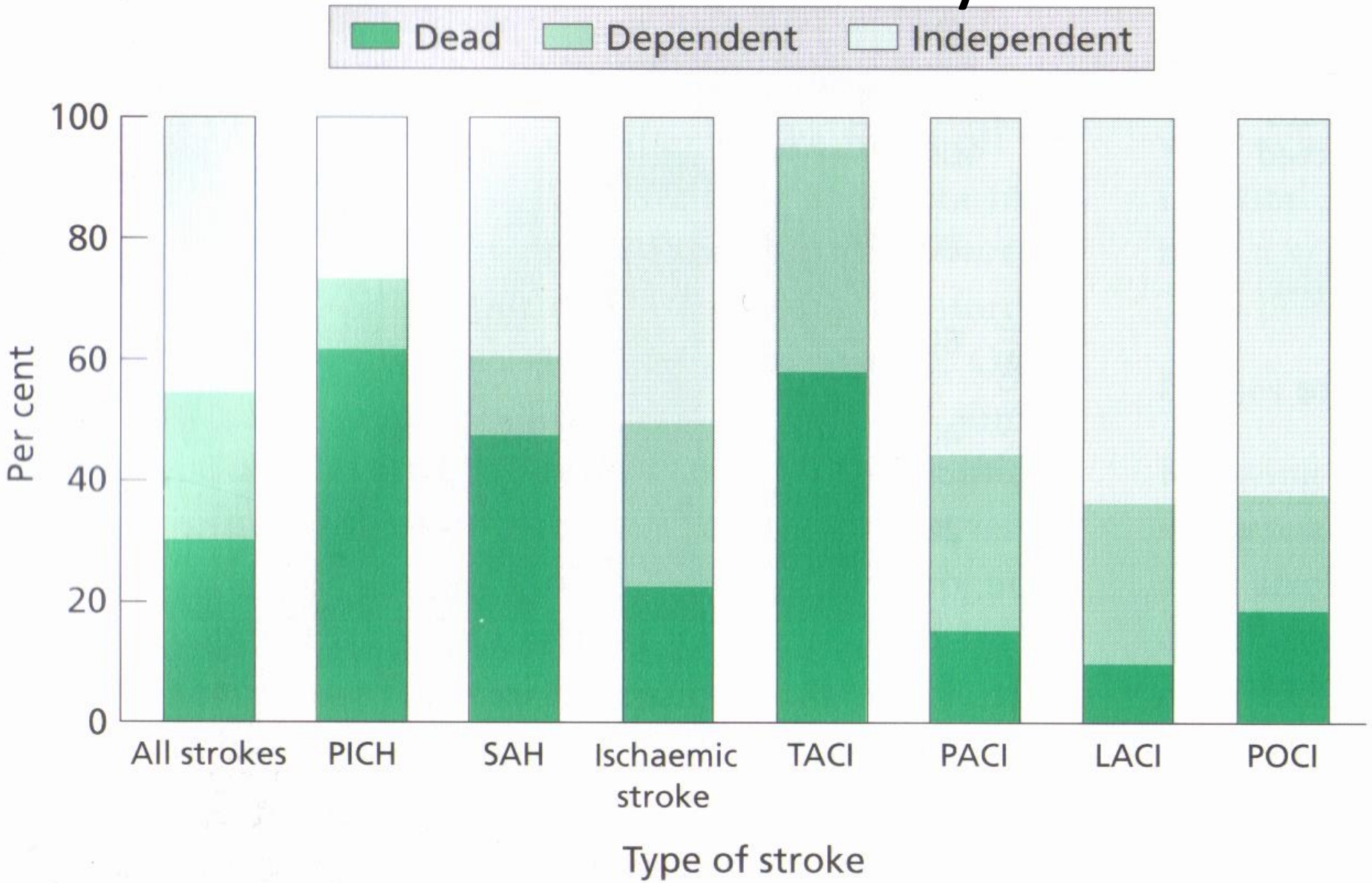
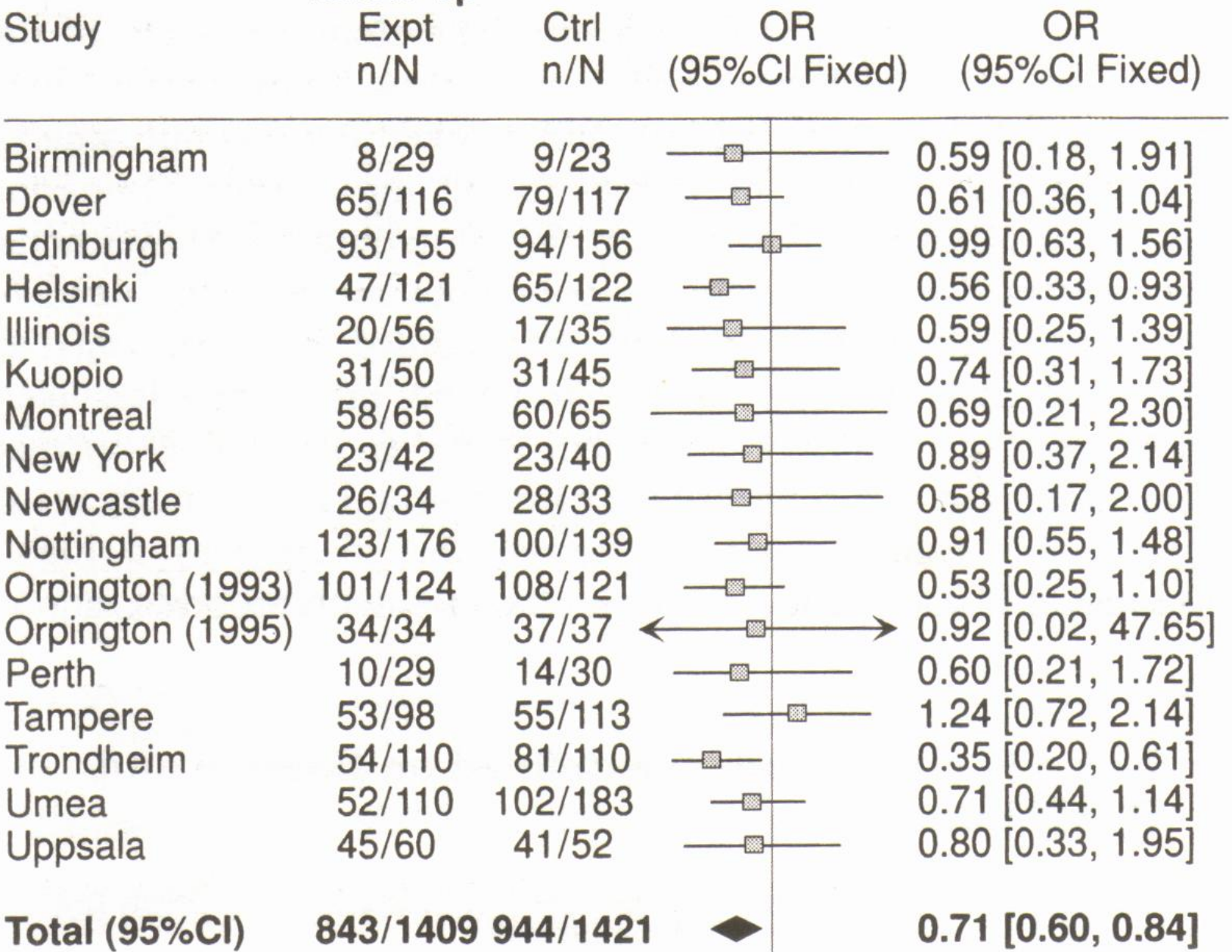


Fig. 10.4 Histogram showing the proportion of patients dying from different causes at increasing intervals after a first-ever-in-a-lifetime stroke (from Bamford *et al.* 1990b; Dennis *et al.* 1993).

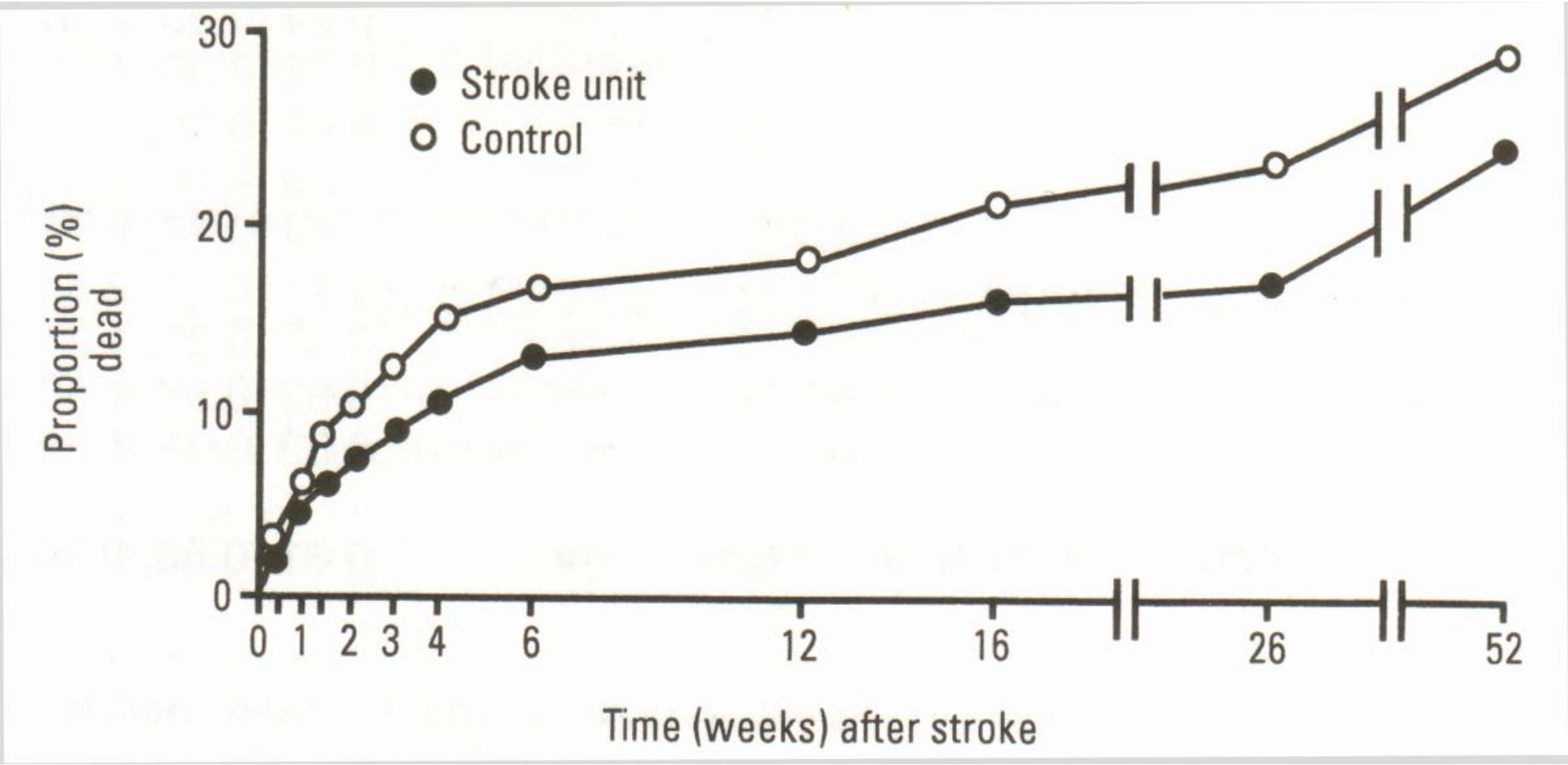
Stroke morbidity



Comparison: **Organised stroke unit care vs conventional care**
Outcome: **Death or dependency by the end of scheduled follow-up**



Stroke Units - Patterns of Death



Outcomes after stroke unit care

Table 4.2 Absolute outcomes in the stroke unit trials

Outcome	Stroke unit	Control	Odds ratio (95% CI)	Absolute difference in outcomes (95% CI)
Home (independent)	39%	33%	1.4 (1.2–1.7)	+5 (+1–+8)
Home (dependent)	18%	16%	1·0 (0·7–1·4)	0 (−4–+3)
Institutional care	20%	22%	0·8 (0·7–1·0)	−1 (−4–+1)
Dead	23%	28%	0·8 (0·7–1·0)	−4 (−7–0)

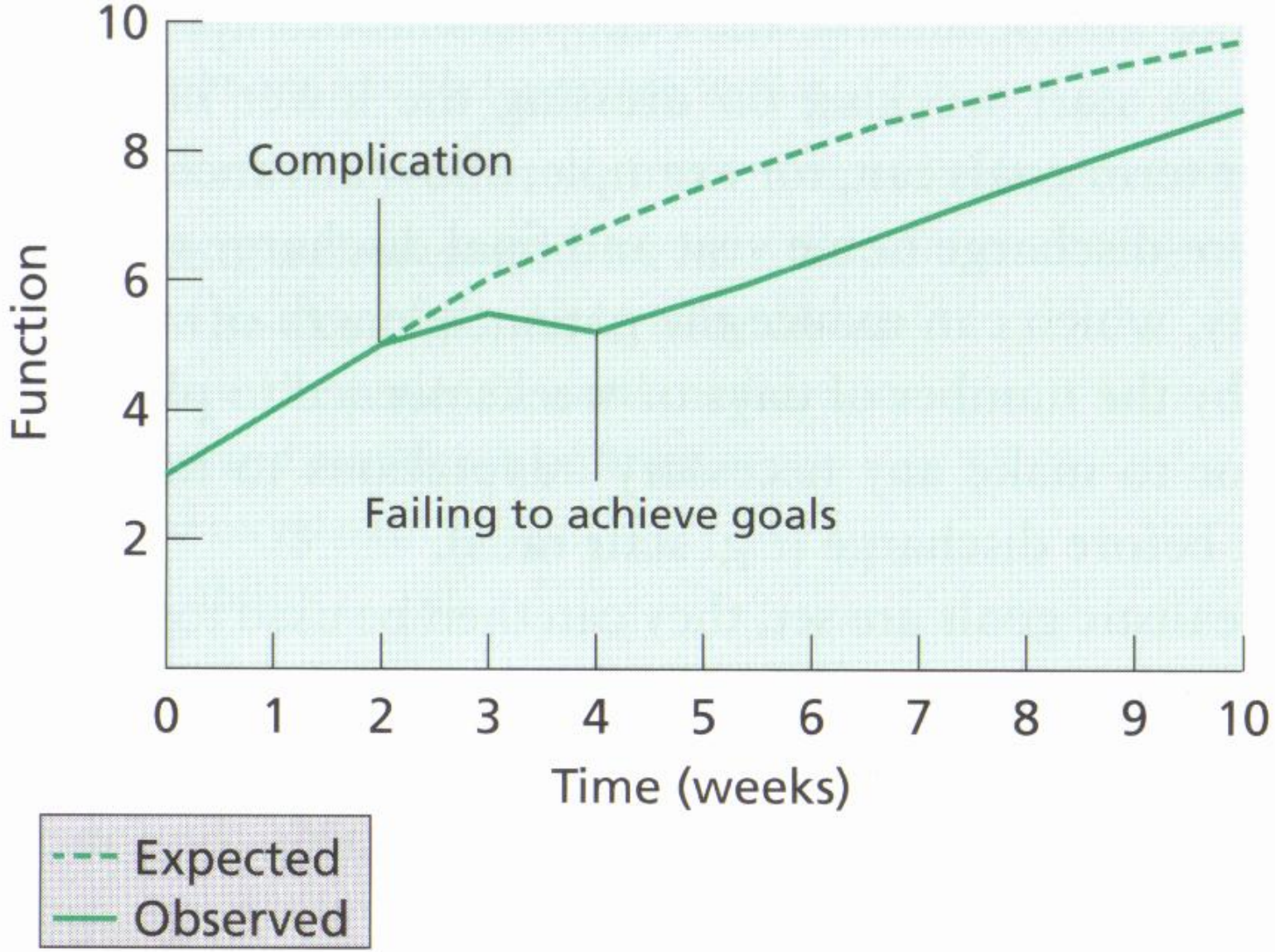


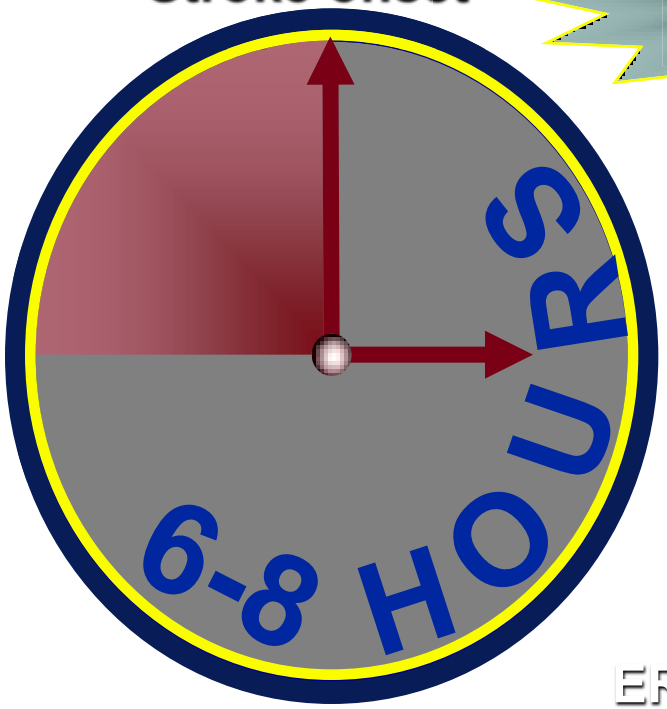
Fig. 10.15 'Failure to thrive' after a stroke. Deviation from the expected recovery pattern might be due to any number of factors, including recurrent stroke, infections, depression, etc.

Stroke Treatment Year 2000 and Beyond

Secondary prevention

Full recovery

Stroke onset



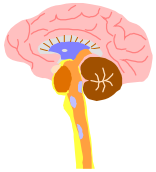
Call emergency services

Activated (15 minutes)

Neuroprotective drug infused during transport

Drugs administered 'stroke-treatment' cocktail

ER stroke team



Brain scan

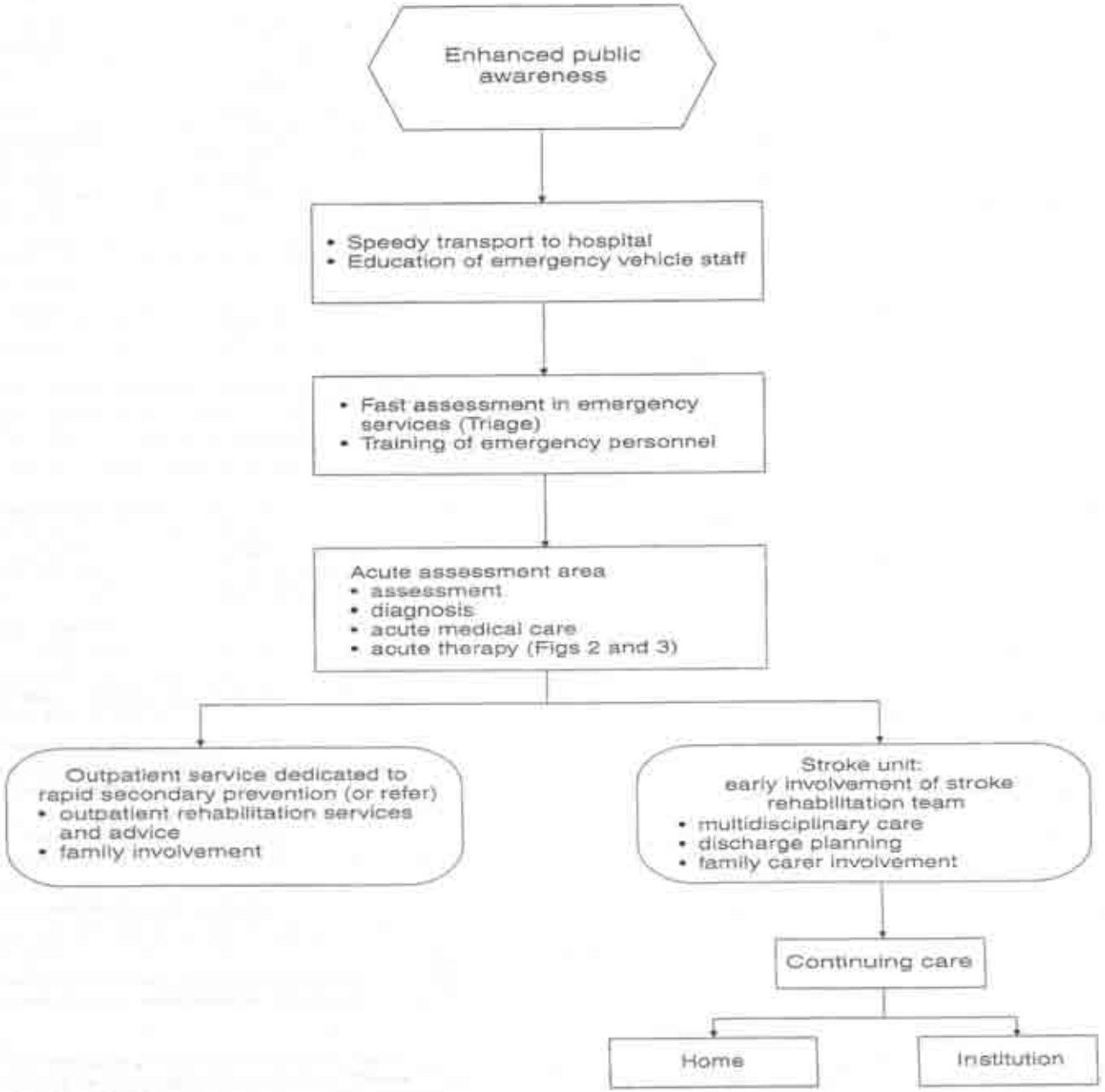


Fig. 1. Stroke unit protocol.

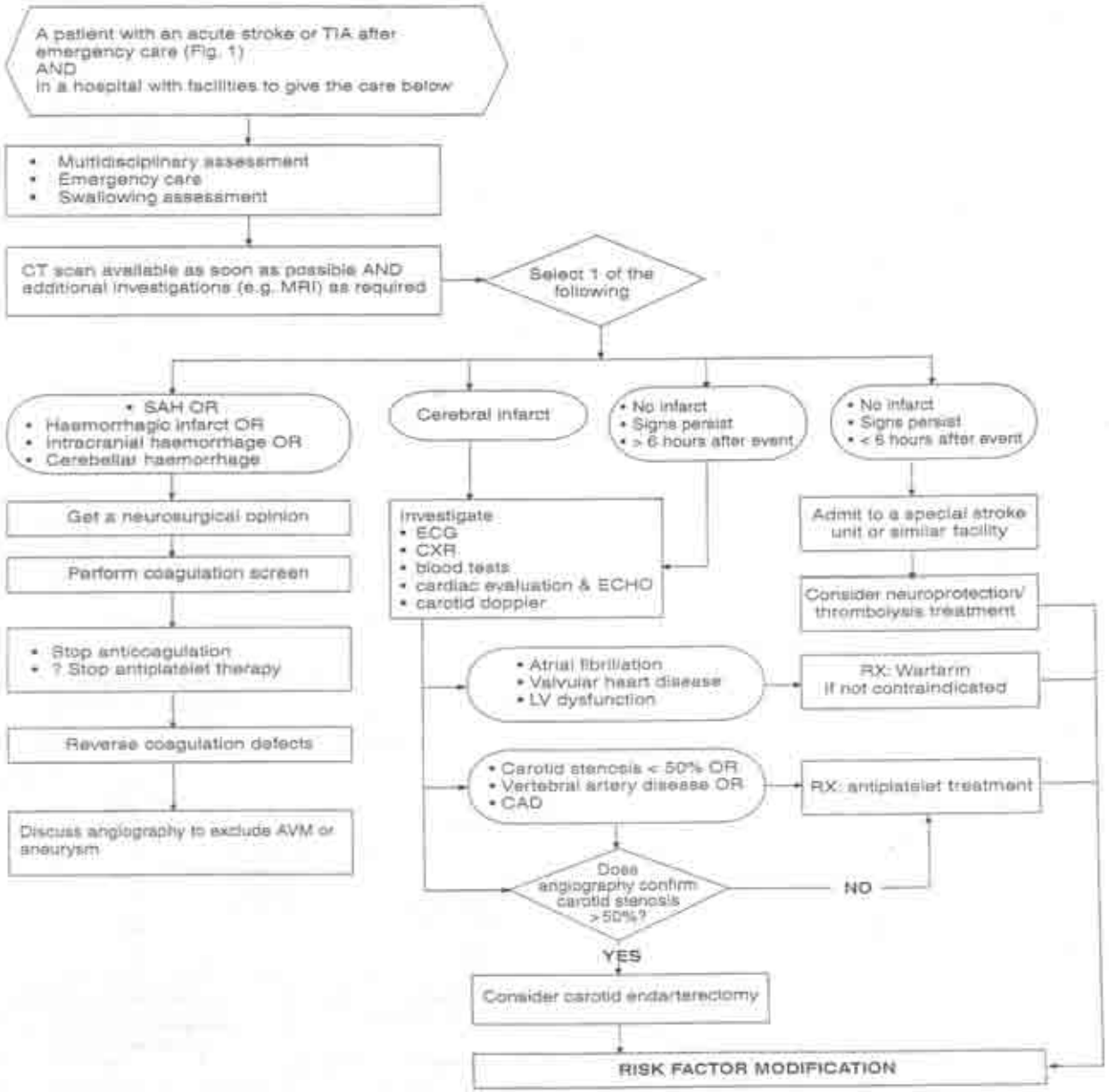


Fig. 2. Diagnosis and management of acute stroke — CT available.

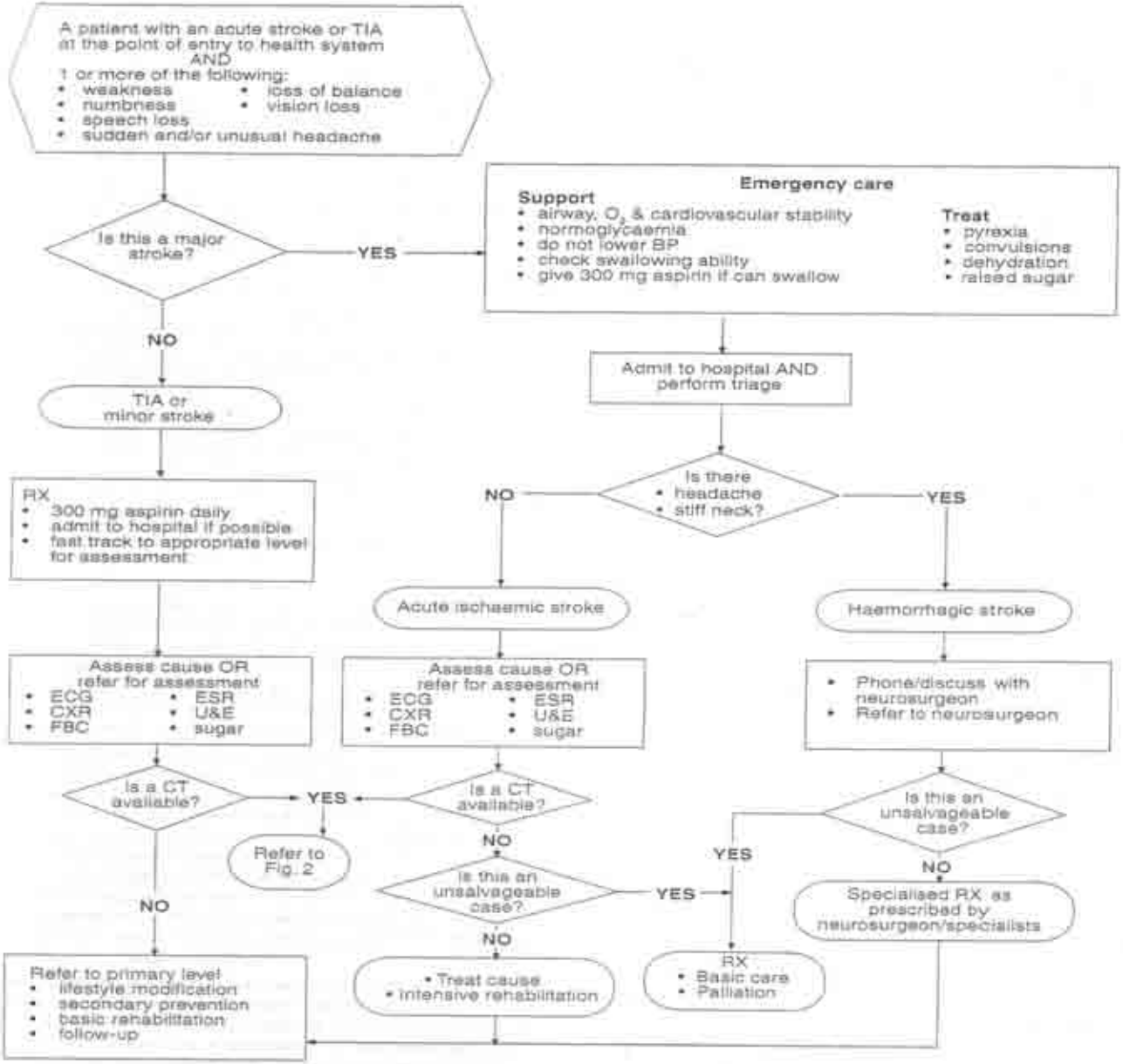


Fig. 3. Diagnosis and management of acute stroke and TIA if no CT is available

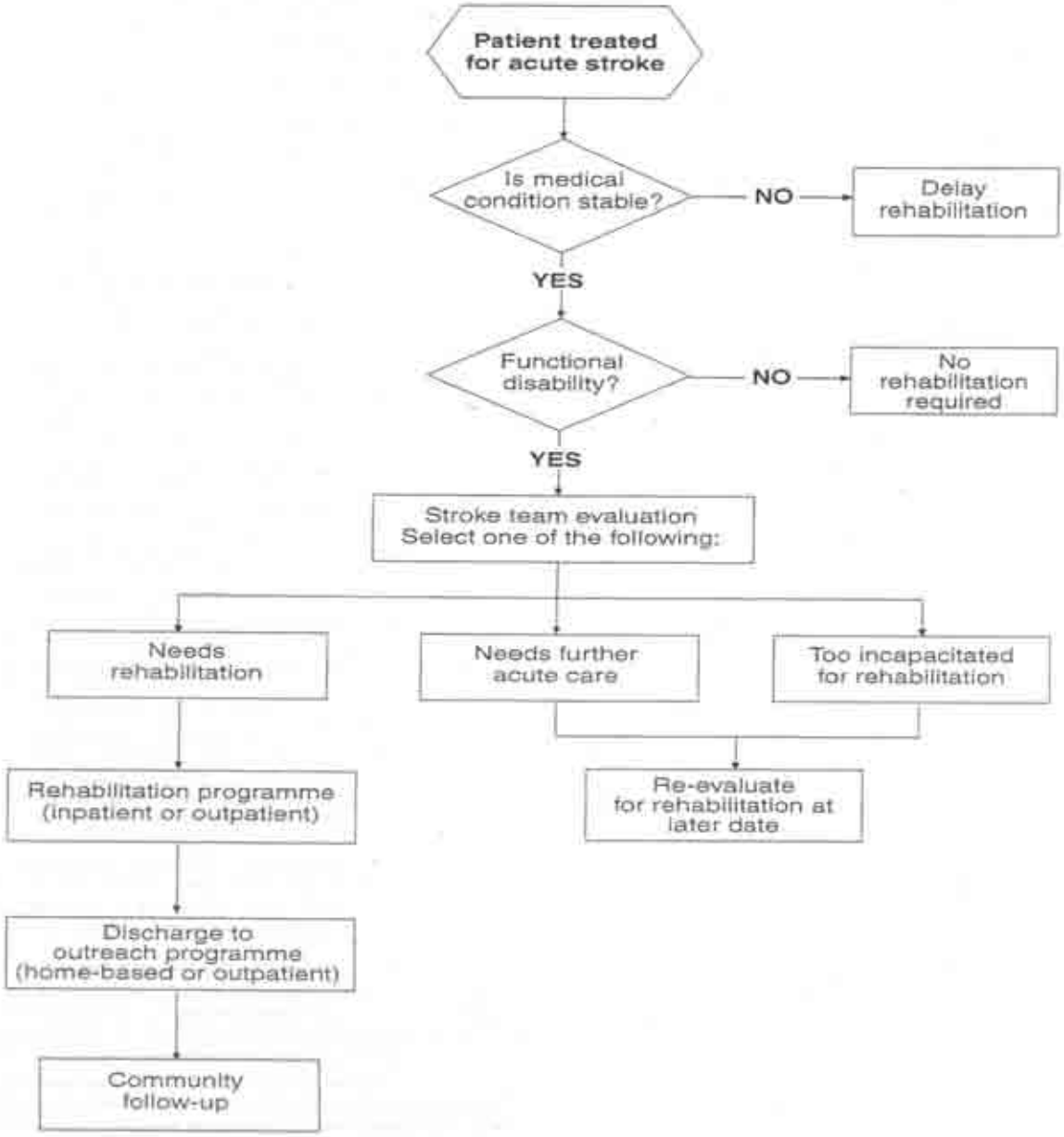


Fig. 4. Rehabilitation process.

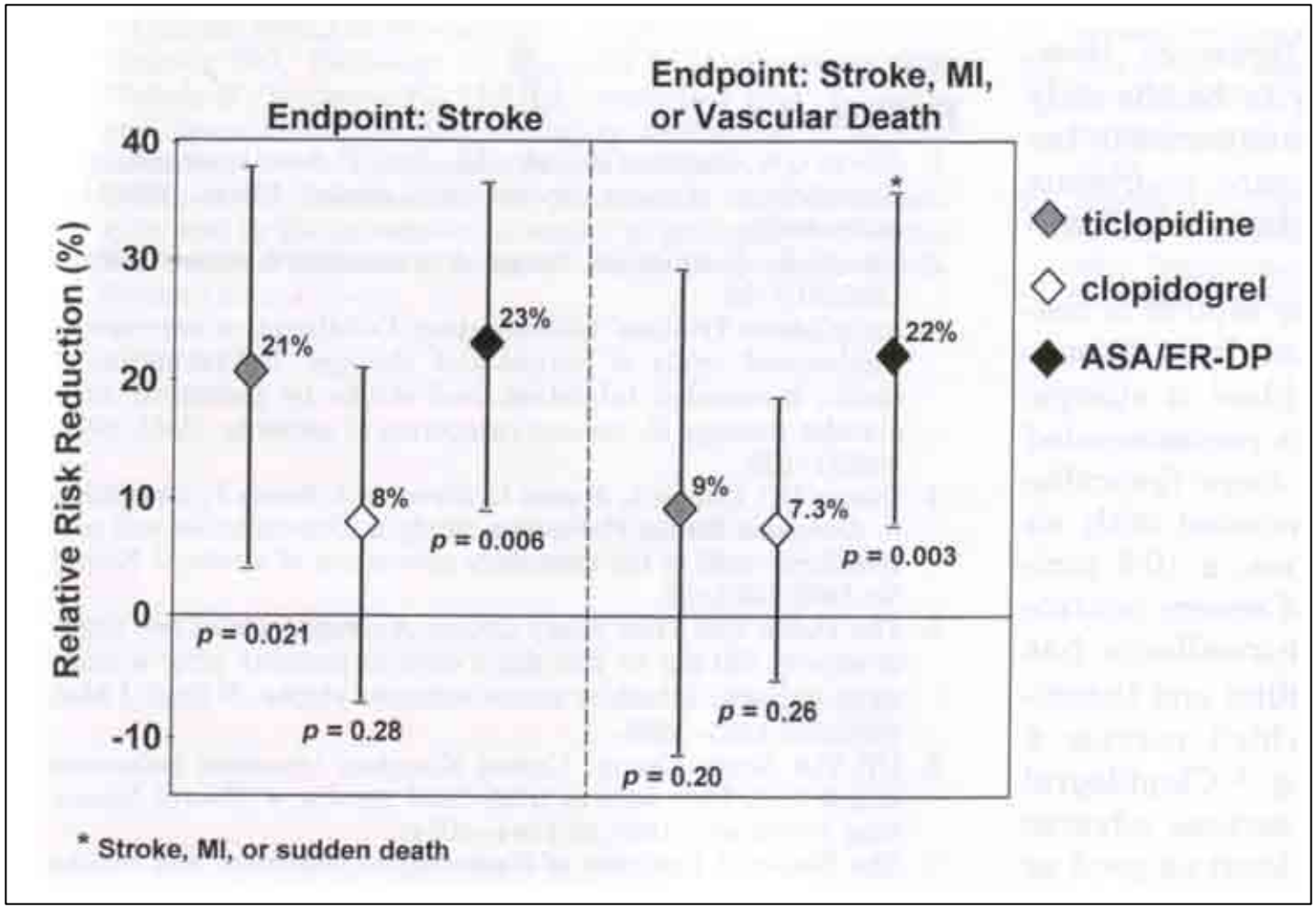
Florence Nightingale (1820 — 1910)

Secondary Prevention

Antiplatelet agents

- Aspirin -Antiplatelet Trialists Collaboration
  -25% RR for Stroke
  -Dose 50 - 325mg
- Combination Aspirin and Extended Release Dipyridamole
  -Better than Aspirin (ESPS-2)
  -23% RR over Aspirin for stroke
- Clopidogrel (CAPRIE)
  -8% RR over Aspirin for stroke
  -Cost / Safer than Ticlopidine
- Ticlopidine (TASS)
  -21% RR over Aspirin for stroke
  -Side effects

New vs. Old


Endpoint: Stroke
Endpoint: Stroke, MI, or Vascular Death
Relative Risk Reduction (%)
40
30
20
10
0
-10
21%
8%
23%
9%
7.3%
22%
*
p = 0.021
p = 0.28
p = 0.006
p = 0.20
p = 0.26
p = 0.003
ticlopidine
clopidogrel
ASA/ER-DP
* Stroke, MI, or sudden death

Anticoagulation –Warfarin
(Cardiogenic Embolism)

- Atrial Fibrillation
  - Warfarin with INR 2.0 – 3.0
  - 70% risk reduction
  - Only reason NOT to use Warfarin is an absolute contraindication
  - Aspirin if Warfarin cannot be used
- Acute MI or LV Thrombus
- Cardiomyopathy

Bloodpressure

- Straight line relationship between level of BP and stroke risk
- Post-Stroke Hypertension
  - 7 RCT's
  - 15527 pt's with stroke, TIA or ICH
  - Followed for 2 – 5 years

Clear risk reduction of recurrent stroke, MI and vascular events – related to degree of BP lowering

- HOPE – 24% ↓ stroke, MI and death
- PROGRESS – 43% ↓ in recurrent stroke

  (Both HT and non HT pt's)

Bloodpressure

AHA Guidelines 2006

- All patients with stroke/TIA – need to be on anti hypertensive treatment

- Both hypertensive and non hypertensive stroke survivors should be treated (≈ $^{10}/_{5}$; < 120/80)

- Lifestyle modifications

Carotid Endarterectomy

- Stroke/TIA with ipsilateral Carotid Stenosis ≥ 70% SURGERY advised
- MUST be done in 2 weeks
- If surgery cannot be done – consider CAS

Cholesterol lowering

- Patients with stroke/TIA with
  - Elevated cholesterol
  - Comorbid coronary artery disease
  - Evidence of atherosclerosis

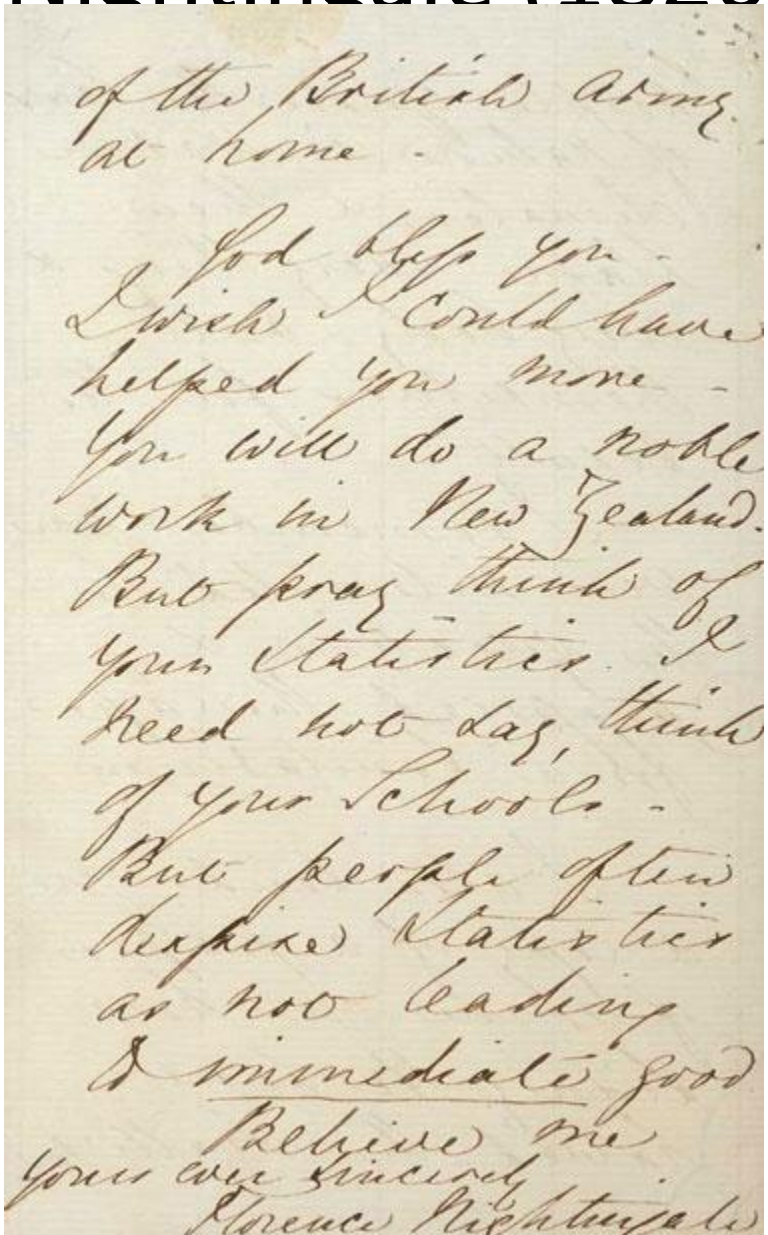
<u>Manage according to NCEP III guidelines – includes statins; LDL-C < 2.6mmol/L</u>

Diabetes

- Patients with stroke/TIA
  - Treat BP to <135/85
  - Usually combination therapy
  - ACEI or ARB have shown clear decreased renal disease progression

- Glucose control prevents microvascular complications
- $HbA_1C \leq 7\%$

Florence Nightingale (1820 — 1910)



of the British Army
at home.

God bless you.
I wish I could have
helped you more.
You will do a noble
work in New Zealand.
But pray think of
your Statistics. If
need not say, think
of your Schools.
But people often
despise Statistics
as not leading
to immediate good.

Believe me
Yours ever sincerely
Florence Nightingale

“Brain Attack”

The 4.5 Golden Hours

EUSI : Goal in Acute Management

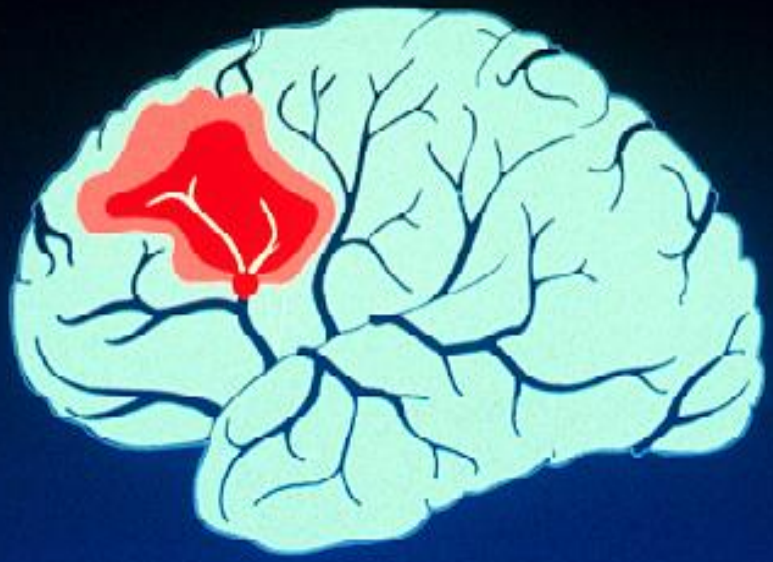
- To *improve* stroke outcome

  through improved *early* management,

  emergency treatment and

  acute intervention

Tissue at risk - Penumbra



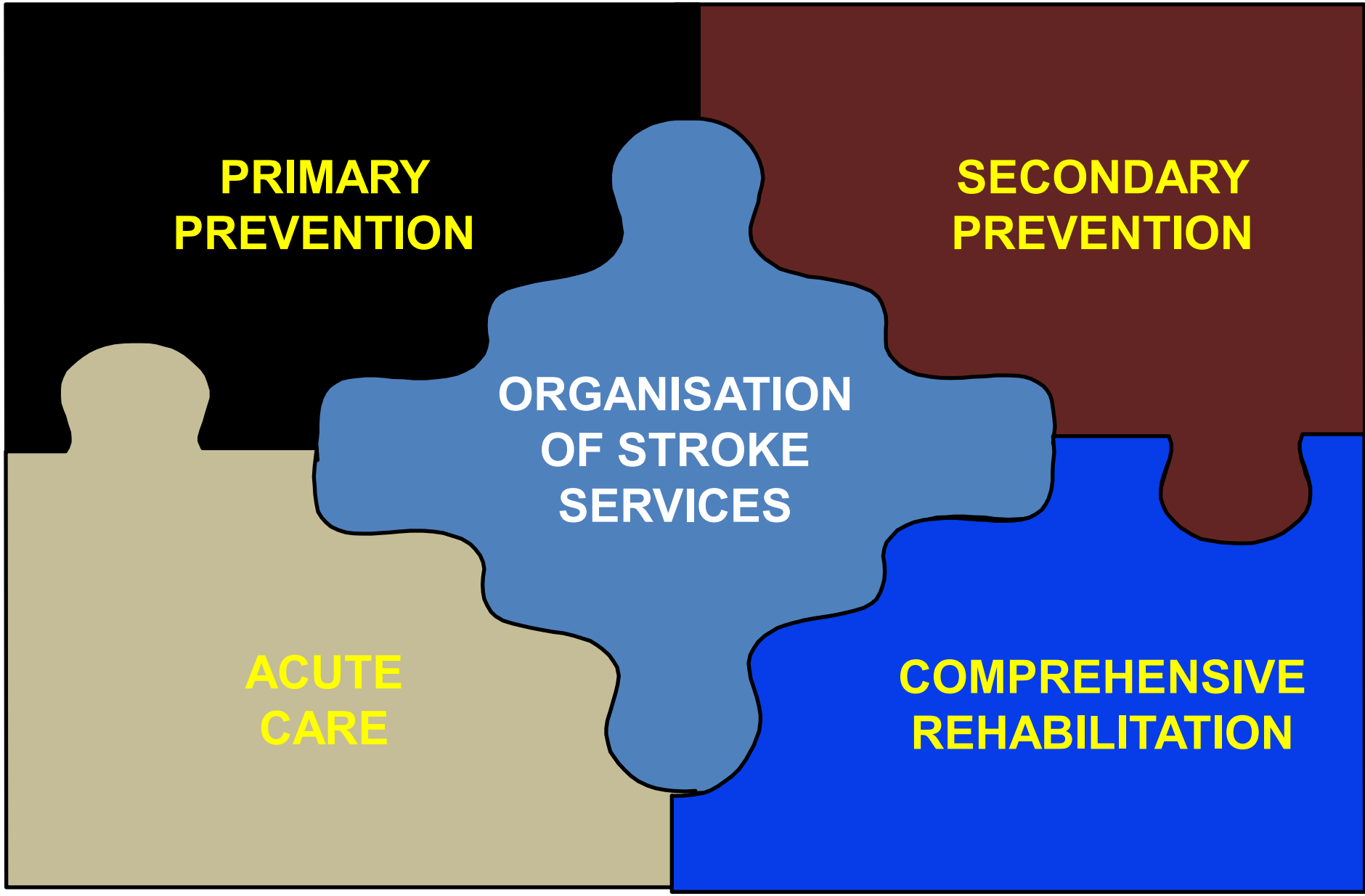
CBF 15 to 40 mL/100g/min

CBF <10 mL/100g/min

Thrombolysis Status 2007

- Meta – analysis of all thrombolytic Rx in 3h's
  - Prim. Outcome CONTROL GP = 68.3%
  - Prim. Outcome TREATMENT = 55.2%
  - ARR = 13.1%p=.00002
  - THUS NNT = 7.7

- SITS –MOST – 6483pt Rx by 31/8/06
  - Independence = 54.3%
  - Mortality = 11.3%
  - Symptomatic ICH = 1.7%


PRIMARY PREVENTION
SECONDARY PREVENTION
ORGANISATION OF STROKE SERVICES
ACUTE CARE
COMPREHENSIVE REHABILITATION

Florence Nightingale (1820 — 1910)

Emergency Medical Services

- Full partners in acute stroke care
- Recognition of stroke using simple criteria
- High priority code for stroke
- Urgent transport to best-equipped hospital

Multidisciplinary Team

- Prevent complications - through vigilant delivery of care
- Prevent avoidable disability - through early rehabilitation
- Prevent recurrence - through appropriate secondary prevention

Stroke Unit Essentials

- Educating
- Training

- Weekly program
- Formal education 1-6 days/year
- Themes:
    a)Team – pt's + carers + multidisc.
    b)Early + intensive rehab
    c)Staff with special stroke interest
    d)Active carer involvement

Stroke Unit Staff

- This is true ” 24 / 7 / 365 ” service !
- Educate , educate , educate

- ENTHUSIASM and KNOWHOW

<u>INVEST IN PEOPLE</u>

Our Motivation

The patient like art, is bigger than we are.

He will have the last word. He will outlast us.

His pain will be ours, and his terror, and his hopes, and finally, perhaps, his illness.

For what are we all, ultimately … but patients

John H. Stone M.D.

May

WORLD LOSES.

"ANGEL OF THE CRIMEA" DIES AT ADVANCED AGE OF NINETY.

Florence Nightingale, First Woman to Follow Modern Army Into Battle as Nurse, Succumbs to Heart Trouble in London—Her Life a Career of Unselfish Sacrifices for Humanity.

[ASSOCIATED PRESS NIGHT REPORT.]

LONDON, Aug. 14.—Florence Nightingale, the famous nurse of the Crimean War and the only woman who ever received the order of Merit, died yesterday afternoon at her London home.

Although she had been an invalid for a long time, rarely leaving her room, her death was somewhat unexpected A week ago she was quite sick, but then improved and on Friday was cheerful. During that night alarming symptoms developed and she gradually sank until 2 o'clock Saturday afternoon, when an attack of heart failure brought the end

Her funeral will be as quiet as possible, in accordance with her wishes. During recent years, owing to her feebleness and advanced age, Miss Nightingale had received but few visitors.

On May 12 last, she celebrated her ninetieth birthday. Florence Nightingale was born May 12, 1820. She was the first woman to follow a modern army into battle as a nurse, and in the German War, gained the title of "Angel of the Crimea."

FOUNDS NURSES SCHOOL.

At the close of the war she was enabled by a testimonial fund amounting to $250,000, to found an institution for the training of nurses, the Nightingale Home at St. Thomas. She was also the means of calling attention to the unsanitary conditions of camp hospitals.

In 1908, she received the freedom of the city of London and King Edward bestowed upon her the Order of Merit, the most exclusive distinction in the gift of the British sovereign. The membership of the order is limited to twenty-four and it includes such men as Lord Roberts, Lord Wolseley, Field Marshal Kitchener, James Bryce, Prince Yamagata and Admiral Togo

INCIDENTS IN CAREER OF A NOBLE WOMAN.

[BY DIRECT WIRE TO THE TIMES.]

Born of a good family at Derbyshire, Florence Nightingale studied nursing with the Protestant Sisters of Mercy at Kaiserworth on the Rhine and elsewhere. Accompanied by some other devoted women she went to Crimea during the allied war against Russia in 1854.

In the Crimea men died like flies Antiseptic surgery, the proper treatment of typhoid fever, camp sanitation and many other such life-saving methods were unknown. Miss Nightingale's remarkable executive ability enabled her to transform the noisesome barracks occupied by the sick and wounded into clean and orderly hospitals. Her sweet disposition won the soldiers' hearts. Some times a convalescent man tried to kiss her shadow as she passed.

She originated modern hospital nurses. The United States government sent to her thanks and a testimonial for her suggestions for improving military hospitals during the Civil War. Several nations contributed to the $250,000 fund, which was presented to her after the Crimean War. Unselfishly she founded the Nightingale Home for the training of nurses with the money. She wrote much and expertly on nursing and hospitals.

In the chapel of Cornell University is a stained glass window honoring her.

Florence Nightingale (1820 — 1910)

The Daily Mirror

THE MORNING JOURNAL WITH THE SECOND LARGEST NET SALE

No. 9,122. MONDAY, AUGUST 14, 1910 One Halfpenny.

MISS FLORENCE NIGHTINGALE, "THE ANGEL OF THE CRIMEA," WHOSE DEATH IS ANNOUNCED, WITH SOME OF THE NURSES WHOSE PROFESSION SHE CREATED.