Stroke secondary prevention

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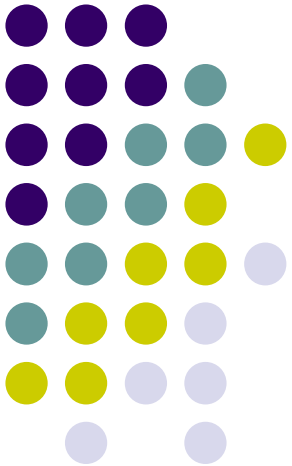
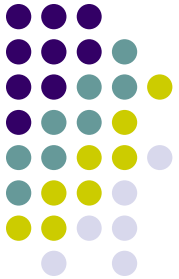
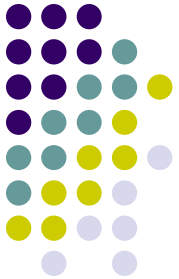


Stroke recurrence

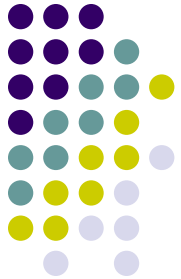


- The risk of recurrent stroke is greatest after first stroke
- 2–3% of survivors of a first stroke have another stroke within the first 30 days
- 9% in the first 6 months and 10–16% within a year.
- After the first year, the average annual risk of recurrent stroke for the next 4 years falls to about 5%

Modifiable risk factors

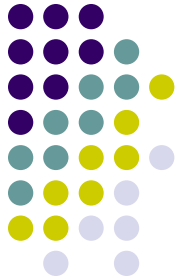


Modifiable risk factors



- High cholesterol
- High blood pressure
- Obesity
- Excessive alcohol
- Smoking
- Poor diet
- Lack of physical activity
- Illicit drug use

Non-Modifiable risk factors



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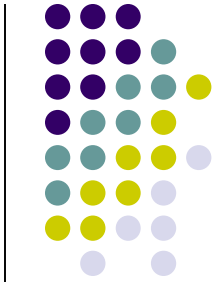
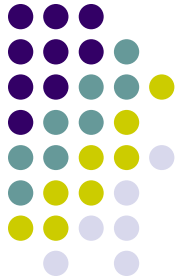


- Age: most powerful independent risk factor
- Ethnicity: increased stroke in Black African/Caribbean populations, similarly Chinese and Japanese populations have increased risk of haemorrhagic stroke
- Heredity or family history: increased risk if a first-degree relative has had coronary heart disease or stroke before the age of 55 years (for a male relative) or 65 years (for a female relative)
- Previous history of TIA and/or stroke
- Clotting disorders
- Congenital cardiac disorders

Stroke and ethnicity in London (Gulli et al 2016)

	White	Black
Age	74.8	65.1
Hypertension	72.9%	83.9%
Diabetes	18.3%	40.8%
Smoking	61.8%	40.4%
Heart disease	22.5%	12.4%
AF	32.9%	12.7%

High blood pressure



- High blood pressure is the most important treatable and causal risk factor for stroke
- A meta-analysis of data from nine randomized controlled trials on the effects of blood pressure lowering drugs (n= 6752)
- relative risk reduction of recurrent stroke of 29% (95% confidence interval: 5–47%)

(Gueyffier et al, 1997)

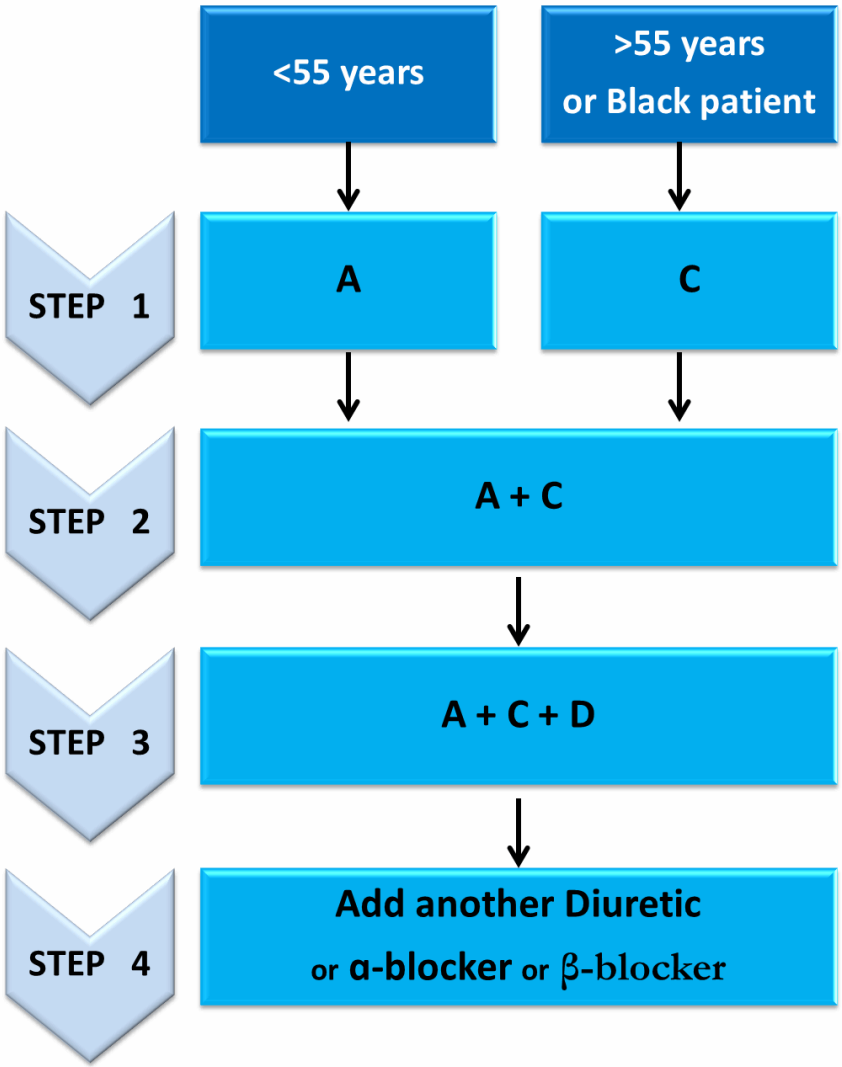
BP Control

- Optimal target BP for patients with established cardiovascular disease is <135/85mmHg

- Benefits:
  - 33-46% reduction in fatal or disabling stroke
  - 50-76% reduction in the risk of cerebral haemorrhage
  - 38-42% reduction in non-fatal myocardial infarction

- All benefits achieved against a background of standard care that included antiplatelet and antihypertensive therapy

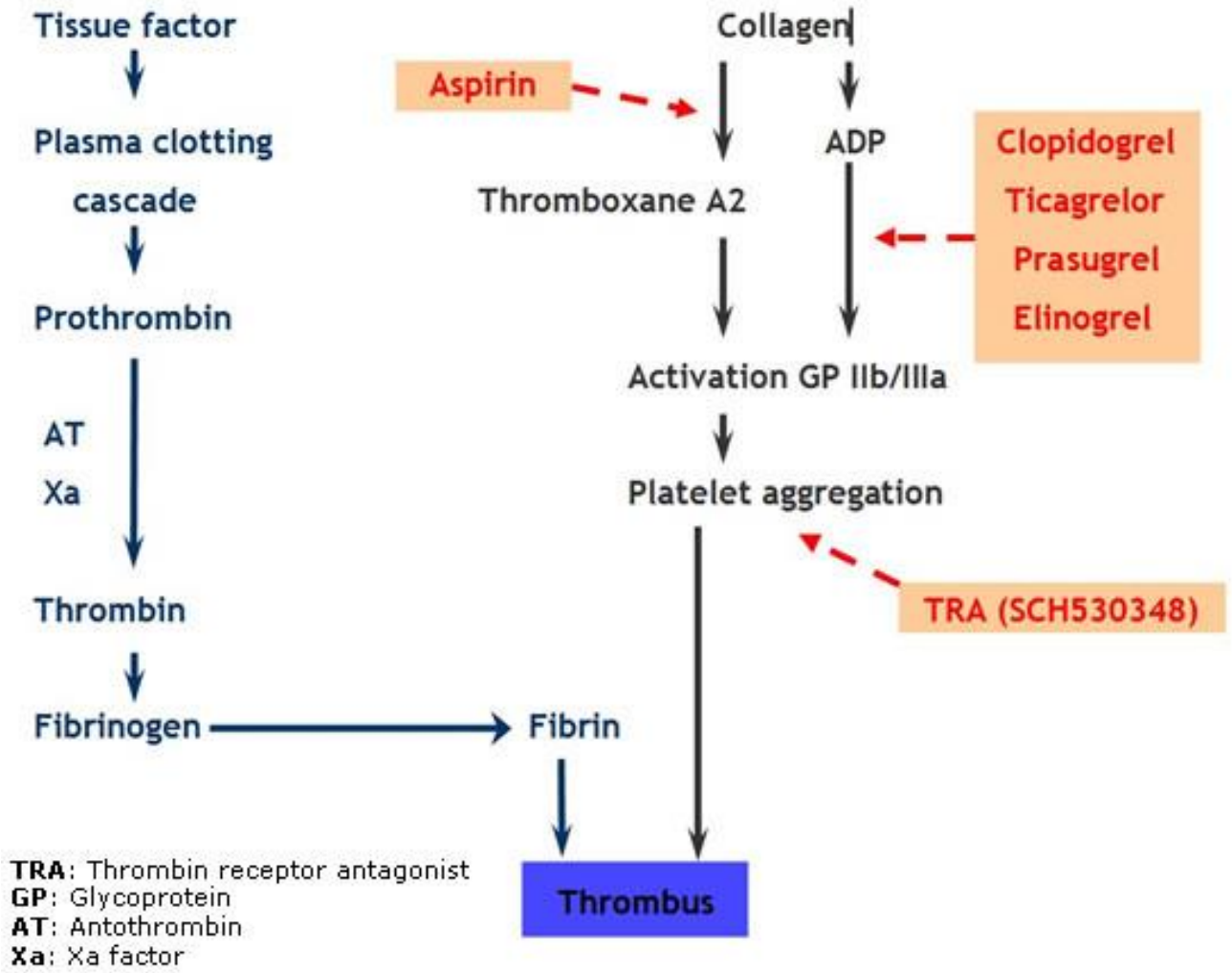
HYPERTENSION TREATMENT GUIDELINES



A = ACEi or ARBs
C = Calcium Channel Blockers
D = Diuretic

Reproduced from NICE guidelines Aug, 2011.
http://www.nice.org.uk/nicemedia/live/13561/56015/56015.pdf

Antiplatelet agents



Antiplatelet agents

- Clopidogrel better at stroke reduction than aspirin – 8.7% relative risk reduction (CAPRIE trial)

- Clopidogrel plus aspirin increases risk of serious bleeding by 2.5 times with no increased benefit (MATCH and CURE trials)

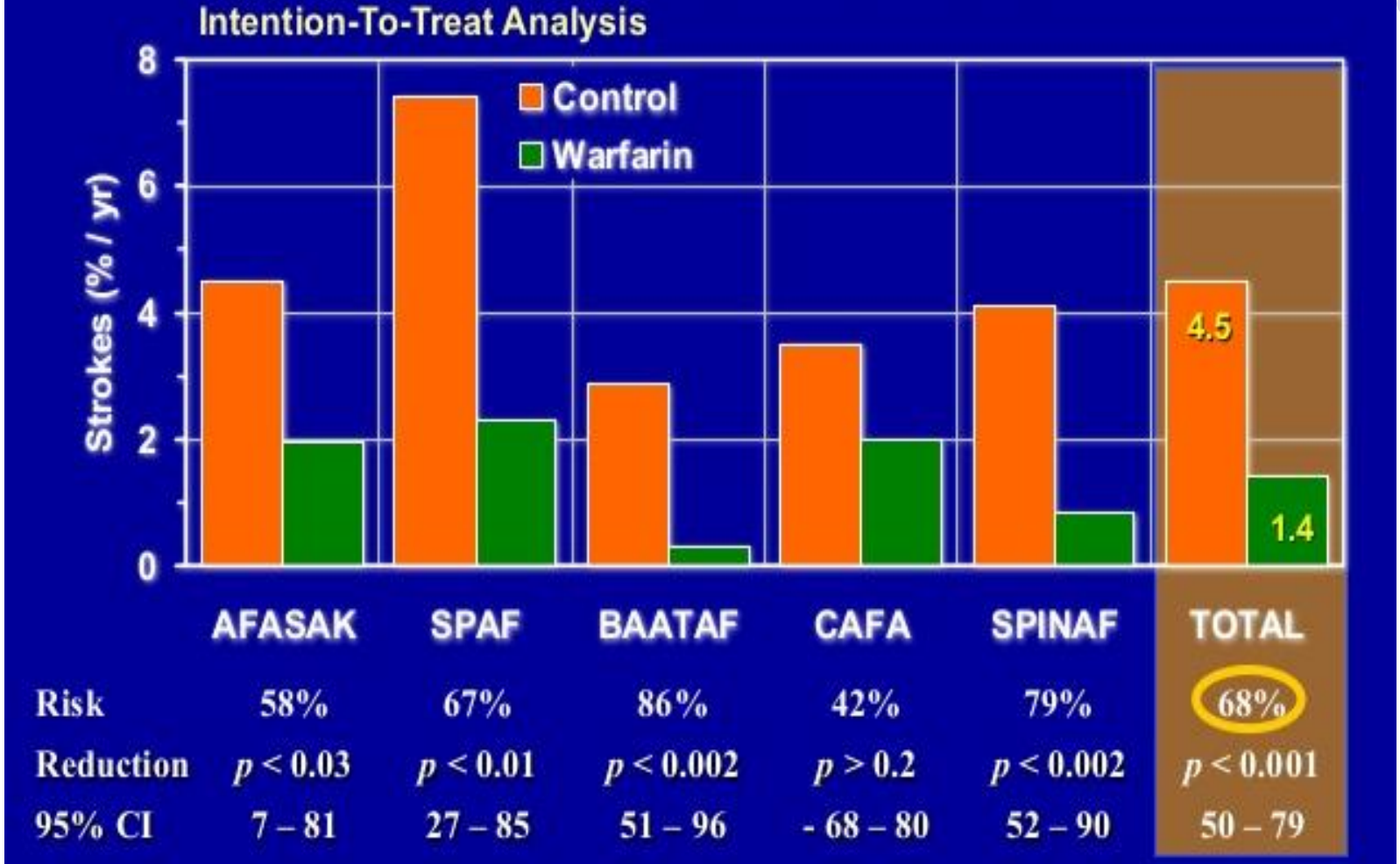
Anti-Platelet Agents

- All patients should be prescribed aspirin 300mg daily, initiated within 48 hours of acute ischaemic stroke and continued for up to 14 days
- Clopidogrel monotherapy is the preferred secondary prevention strategy following stroke or TIA
- Where clopidogrel cannot be used due to intolerance, aspirin and dipyridamole should be used in combination
- Proton pump inhibitor only when there is dyspepsia or other significant risk of gastrointestinal bleeding

Classification of AF

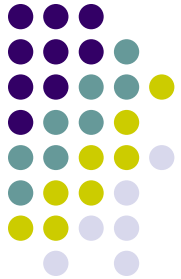
Terminology	Clinical features	Pattern
Initial event (first detected episode)	Symptomatic Asymptomatic Onset unknown	May or may nor reoccur
Paroxysmal	Spontaneous termination <7 days and most often <48 hours	Recurrent
Persistent	Not self-terminating Lasting >7 days or prior cardioversion	Recurrent
Permanent (‘accepted’)	Not terminated Terminated but relapsed No cardioversion attempt	Established

Warfarin for Stroke Prevention in AF



AF Investigators. *Arch Intern Med* 1994;154:1449-57 Atwood et al. *Herz* 1993;18:27-38

Anticoagulation NICE 2008



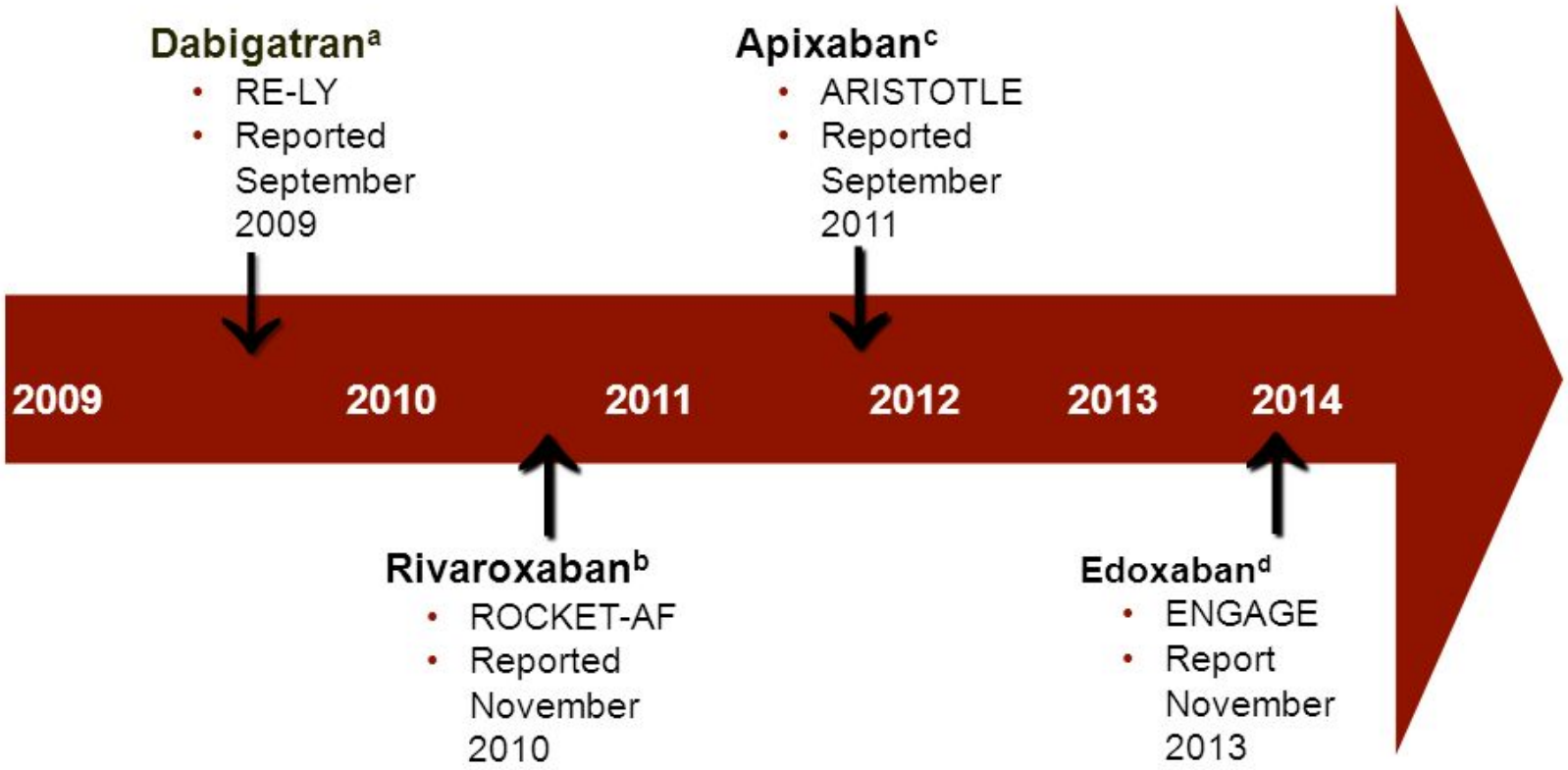
- Anticoagulation should be recommended in every patient with persistent or paroxysmal atrial fibrillation (15% of all strokes) (valvular and non-valvular) unless contraindicated
- Reduces the relative risk of stroke by up to 70%
- Antiocoagulation should not be started stroke until brain imaging has excluded haemorrhage and not usually until 14 days of ischaemic stroke
- Anticoagulation should not be used for patients in sinus rhythm unless a major cardiac source of embolism has been identified

Risk scoring tools

Table 1: Stroke and bleeding risk stratification with the CHA_2DS_2-VASc and HAS-BLED schemas

CHA_2DS_2-VASc	Score	HAS-BLED	Score
Congestive heart failure/LV dysfunction	1	Hypertension i.e. uncontrolled BP	1
Hypertension	1	Abnormal renal/liver function	1 or 2
Aged ≥75 years	2	Stroke	1
Diabetes mellitus	1	Bleeding tendency or predisposition	1
Stroke/TIA/TE	2	Labile INR	1
Vascular disease [prior MI, PAD, or aortic plaque]	1	Age (e.g. >65)	1
Aged 65-74 years	1	Drugs (e.g. concomitant aspirin or NSAIDSs) or alcohol	1
Sex category [i.e. female gender]	1		
Maximum score	**9**		**9**

Novel Anticoagulants for Stroke Prevention in Atrial Fibrillation



a. Connolly SJ, et al. *N Engl J Med*. 2009;361:1139-1151.[14]
b. Patel MR, et al. *N Engl J Med*. 2011;365:883-891.[15]
c. Granger CB, et al. *N Engl J Med*. 2011;365:981-992.[16]
d. Giugliano RP, et al. *N Engl J Med*. 2013;369:2093-2104.[17]

Smoking

- Smoking has been shown to be associated with a doubling of risk among smokers compared with non smokers
- 12.5 million people smoke
- Risk of stroke is 2 to 4 times the risk in non smokers
- 5 yrs after stopping smoking the risk is reduced to that of a non smoker
- Ensure follow up information given

Lipid control

- All patients who have had an **ischaemic** stroke or TIA should be treated with a statin drug unless contraindicated to ensure:
  - total cholesterol <4.0 mmol/L,
  - LDL cholesterol <2.0 mmol/L.
- Treatment with statin therapy should be avoided or used with caution in haemorrhagic stroke, particularly those with inadequately controlled hypertension.
- Ensure patients are informed of important potential side effects!

Alcohol

- There is strong evidence that high alcohol indicate is a risk factors for stroke
- 27% of men and 17% of women consume more than the recommended weekly limits of alcohol (21 units for men and 14 units for women)
- There is a strong relation between heavy drinking and stroke: male drinkers of over 35 units a week have double the risk of mortality from stroke than non drinkers

Alcohol – how many units?

3 units
PINT LAGER
ABV 5.2%

3 units
PINT CIDER
ABV 5.3%

2.3 units
PINT BITTER
ABV 4%

2.3 units
WHITE WINE
(175ml) ABV 13%

1.6 units
RED WINE
(125ML) ABV 13%

1.7 units
BOTTLE LAGER
ABV 5.2%

1.4 units
ALCOPOP
ABV 5%

1 unit
SINGLE GIN & TONIC
ABV 40%

1 unit
SAMBUCA SHOT
ABV 42%

2 units
DOUBLE WHISKY
ABV 40%

2 units
CHAMPAGNE
(175ml) ABV 11.5%

2 units
COSMOPOLITAN
ABV 26%

1.3 units
PIMMS
ABV 25%

2 units
DOUBLE COGNAC
ABV 40%

10 units
BOTTLE OF WINE
ABV 13.5%

Alcohol

Recommended alcohol limits for men and women

14 units of alcohol a week, which is:

6 pints of beer (4% strength) **OR**

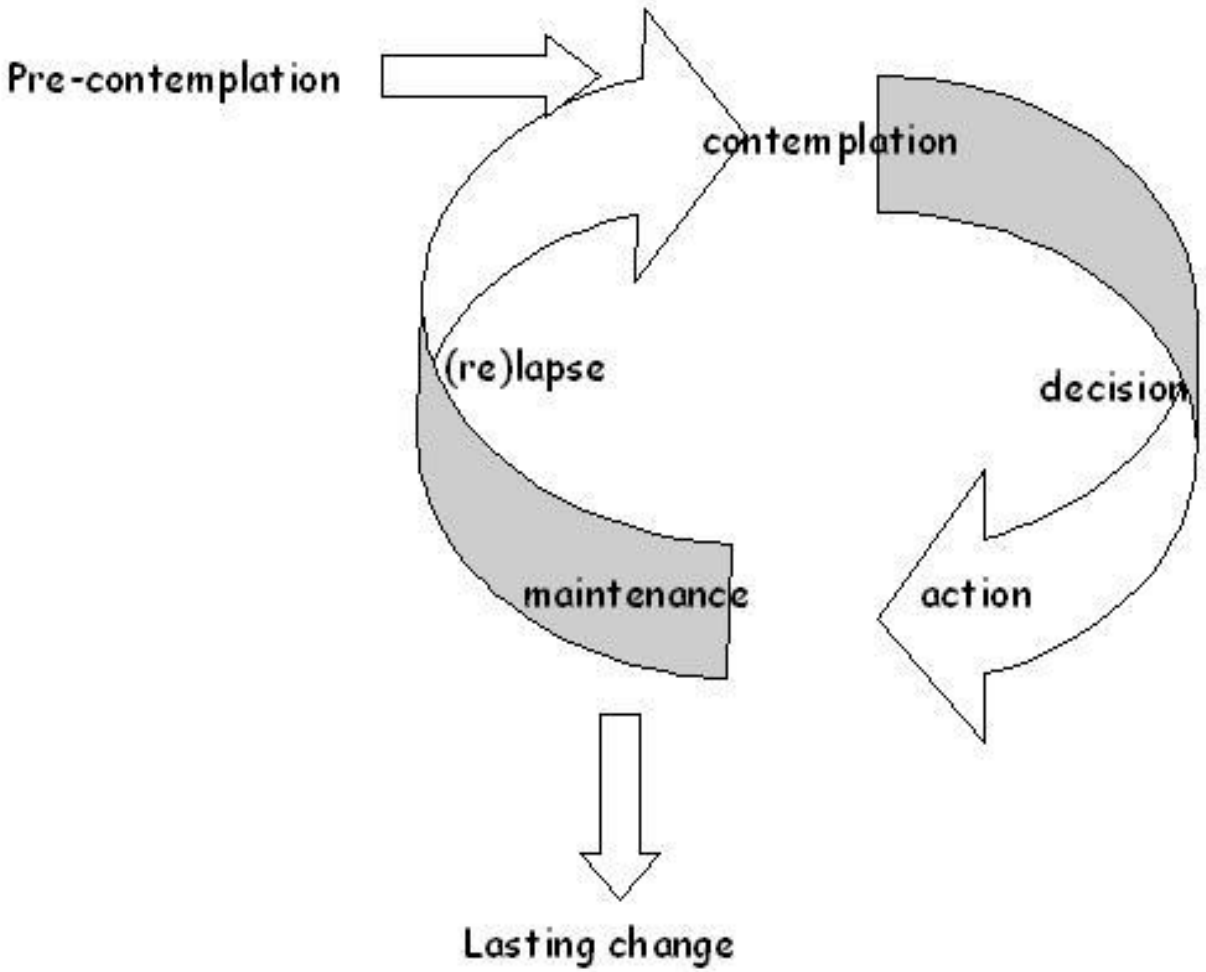
7 glasses of wine (11.5% strength, 175ml) **OR**

14 single shots of spirits (40% strength)

Obesity and exercise

- Obesity, defined as a body mass index (BMI) of >30 kg/m2, has been established as an independent risk factor for CHD and premature mortality
- From studies on physical activity and stroke, moderately or highly active individuals had a 27% lower risk of stroke incidence or mortality than did low-activity individuals
- There is little evidence on exercise in secondary prevention

Cycle of change



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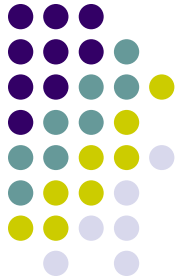

- In **contemplation** the person is ambivalent - they are in two minds about what they want to do. Sometimes they feel the need to change but not always.

- In **action** the person is preparing and planning for change. When they are ready the decision to change is made and it becomes all consuming.

- In **maintenance** the change has been integrated into the person's life. Some support may still be needed through this stage. In maintenance lasting change is learned, practised and becomes possible. When we are able to maintain what we have achieved we exit the cycle entirely.