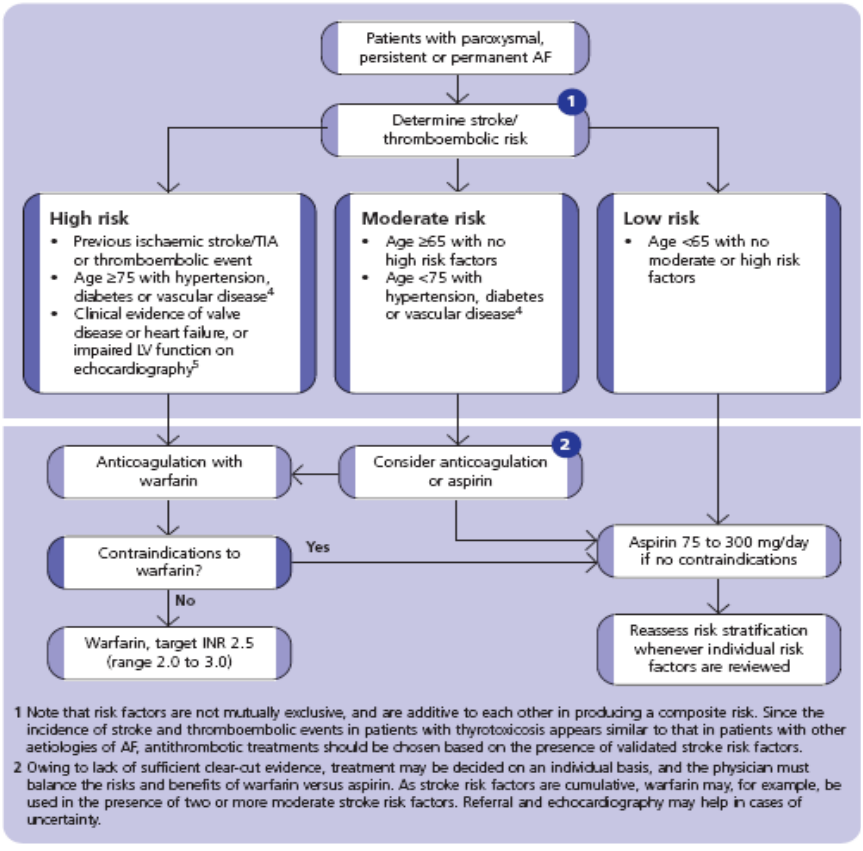
Atrial fibrillation patient decision aid: Antithrombotic therapy

What this decision aid is for

This decision aid is intended to assist health professionals in consultations with patients with atrial fibrillation (AF) in whom treatment with aspirin or adjusted-dose warfarin is being considered to reduce the risk of stroke. Leaflets for patients explaining AF can be found on the CKS website http://cks.library.nhs.uk/home

NICE recommends using the algorithm below to assess stroke and thromboembolism risk in patients with AF, and to give appropriate thromboprophylaxis after discussion about risk and benefits and taking into account individual patients' circumstances.[1]



[4]Coronary artery disease or peripheral artery disease.

[5]An echocardiogram is not needed for routine assessment, but refines clinical risk stratification in the case of moderate or severe LV dysfunction and valve disease.

Benefits and harms of aspirin and warfarin

The benefits and harms in the Cates plots are taken from a meta-analysis of antithrombotic therapy in patients with AF[2]. The total stroke risk (including haemorrhagic and ischaemic strokes) is reduced by approximately 60% with adjusted dose warfarin and by 20% with low dose aspirin: these are relative risk reductions. The Cates plots show the benefits of aspirin, and warfarin, in patients at three different levels of baseline risk, based on the yearly risk seen in the studies of patients with AF but no history of stroke or TIA: lower risk (1% or 10 in 1000 per year), moderate risk (3.5% or 35 in 1000 per year) and higher risk (6% or 60 in 1000 per year).

For example, for those at moderate risk of stroke, the baseline risk of stroke illustrated is 35 in 1000 per year. Hence the number of people in every 1000 at 3.5% baseline risk "saved" by warfarin is 35 x 60% = 35 x 0.6 = 21, and the number "saved" by aspirin is 35 x 20% = 35 x 0.2 = 7. The likely benefits can therefore be adjusted according to the patient's estimated risk of stroke. For example, if someone were at much higher risk, say 10% per year (100 in 1000), the number of people per 1000 like them "saved" by warfarin would be 0.6 x 100 = 60.

The harms expressed are the risks of major extracranial bleeds (since intracranial bleeds are accounted for in the overall stroke risk). The baseline risk shown is 0.6% per year, or 6 per 1000 (as seen in clinical trials). The risk of major bleeds is increased by about 50% with adjusted-dose warfarin and by about 17% with aspirin. Hence the number of extra bleeds per 1000 patients caused by warfarin is 6 x 0.5 = 3, and by aspirin is 6 x 0.17 = 1. This can be adjusted to take account of patients who are at greater or lower baseline risk of bleeds than those included n the clinical trials. Among 1000 patients at a 1.2% baseline risk per year, the numbers of additional patients experiencing major bleeds would be 6 and 2 respectively.

Technical note

The authors of the meta-analysis referred to updated their results in 2007 after an updated systematic review[3], and later that year to include the BAFTA study (which compared adjusted-dose warfarin with aspirin in older patients with atrial fibrillation.[4] These updated meta-analyses reported similar relative risk reductions for warfarin and aspirin as in the first meta-analysis, but full data on harms were not published.

Source of images

The images have been produced using Dr Chris Cates's software VisualRx 3.0. More information can be obtained from the website www.nntonline.net

References

1. National Institute for Health and Clinical Excellence. The management of atrial fibrillation. Clinical Guideline 36. London: NICE June 2006
2. Hart R, Benavente O, McBride R, Pearce L. Antithrombotic therapy to prevent stroke in patients with atrial fibrillation: a meta-analysis. Ann Intern Med 1999;131:492–501
3. Hart A, Pearce L, Aguilar M. Meta-analysis: antithrombotic therapy to prevent stroke in patients who have nonvalvular atrial fibrillation. Ann Intern Med 2007;146:857–67
4. Hart A, Pearce L, Aguilar M. Adjusted-dose warfarin versus aspirin for preventing stroke in patients with atrial fibrillation. Ann Intern Med 2007;147:590–1

Benefits from taking aspirin or warfarin

Aspirin in lower risk patients (1% per year)

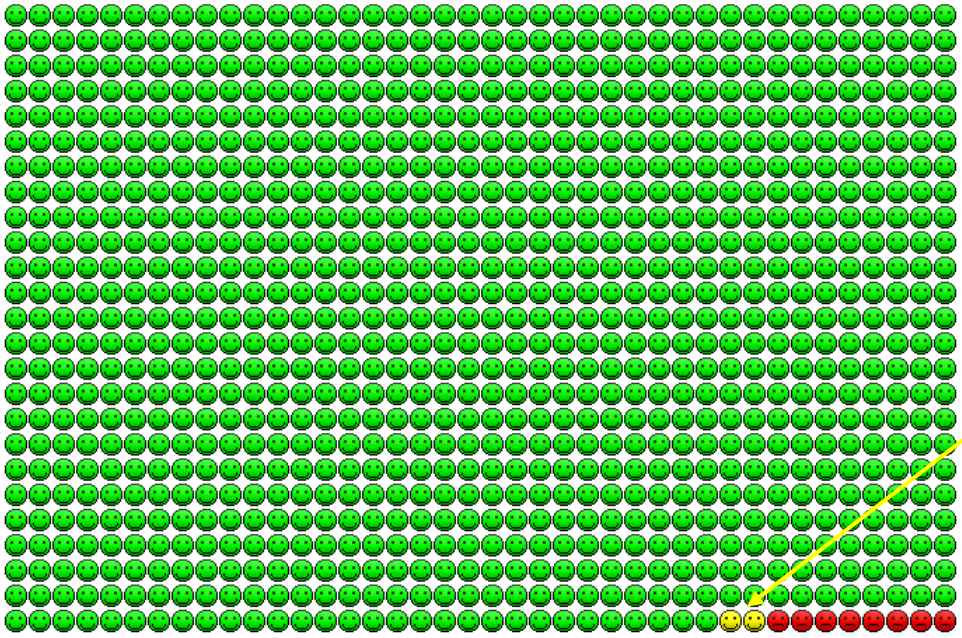
Imagine 1000 people at 1% risk of having a stroke each year. Without treatment about 10 of them will have a stroke. So 990 of them will not have a stroke.

However, if those same 1000 people each take low dose aspirin, over a year:

- About 2 people will be 'saved' from having a stroke by taking aspirin (the **yellow** faces)
- About 990 people will not have a stroke – but would not have done even if they had not taken aspirin (the **green** faces)
- About 8 people will still have a stroke (the **red** faces), even though they take aspirin.

But remember

- It is impossible to know for sure what will happen to each individual person.
- All 1000 people will have to take aspirin



These 990 people **will not** have a stroke **whether or not** they take aspirin

These 2 people will be **saved** from having a stroke **by taking** aspirin

These 8 people **will still** have a stroke, even though they take aspirin

Warfarin in lower risk patients (1% per year)

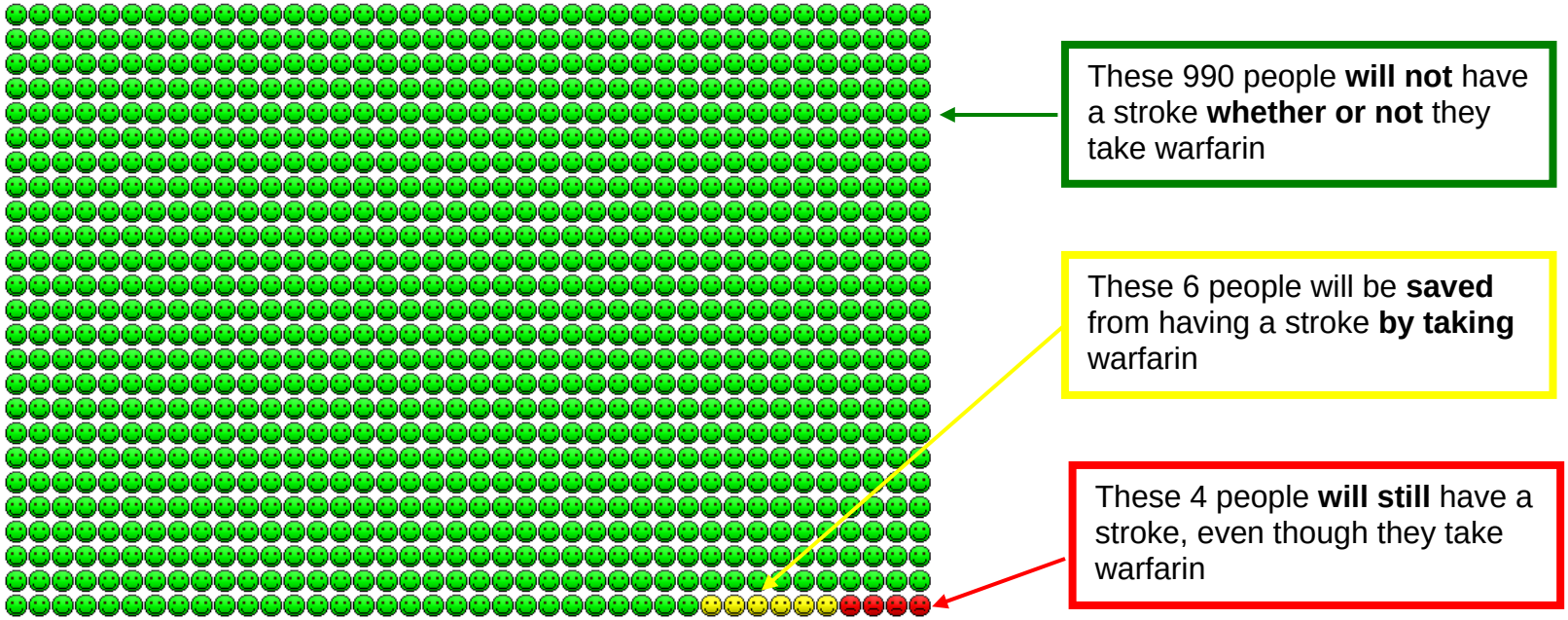
Imagine 1000 people at 1% risk of having a stroke each year. Without treatment about 10 of them will have a stroke. So 990 of them will not have a stroke.

However, if those same 1000 people each take adjusted dose warfarin, over a year:

- About 6 people will be 'saved' from having a stroke by taking warfarin (the **yellow** faces)
- About 990 people will not have a heart attack or stroke – but would not have done even if they had not taken warfarin (the **green** faces)
- About 4 people will still have a stroke (the **red** faces), even though they take warfarin.

But remember

- It is impossible to know for sure what will happen to each individual person.
- All 1000 people will have to take warfarin.



Aspirin in moderate risk patients (3.5% per year)

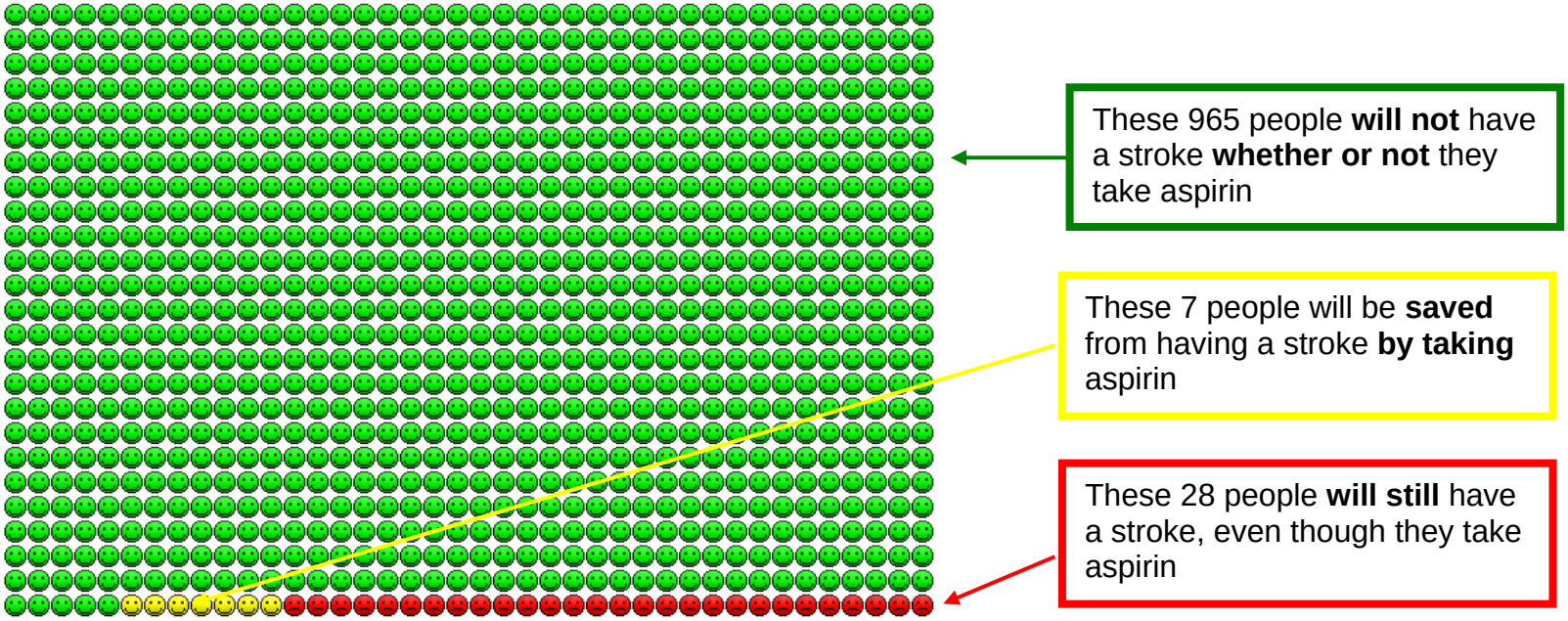
Imagine 1000 people at 3.5% risk of having a stroke each year. Without treatment, about 35 of them will have a stroke. So 965 of them will not have a stroke.

However, if those same 1000 people each take aspirin, over a year:

- About 7 people will be 'saved' from having a stroke by taking low dose aspirin (the **yellow** faces)
- About 965 people will not have a stroke – but would not have done even if they had not taken aspirin (the **green** faces)
- About 28 people will still have a stroke (the **red** faces), even though they take aspirin.

But remember

- It is impossible to know for sure what will happen to each individual person.
- All 1000 people will have to take aspirin.



Warfarin in moderate risk patients (3.5% per year)

Imagine 1000 people at 3.5% risk of having a stroke each year. Without treatment, about 35 of them will have a stroke. So 965 of them will not have a stroke.

However, if those same 1000 people each take adjusted dose warfarin, over a year:

- About 21 people will be 'saved' from having a stroke by taking warfarin (the **yellow** faces)
- About 965 people will not have a heart attack or stroke – but would not have done even if they had not taken warfarin (the **green** faces)
- About 14 people will still have a stroke (the **red** faces), even though they take warfarin.

But remember

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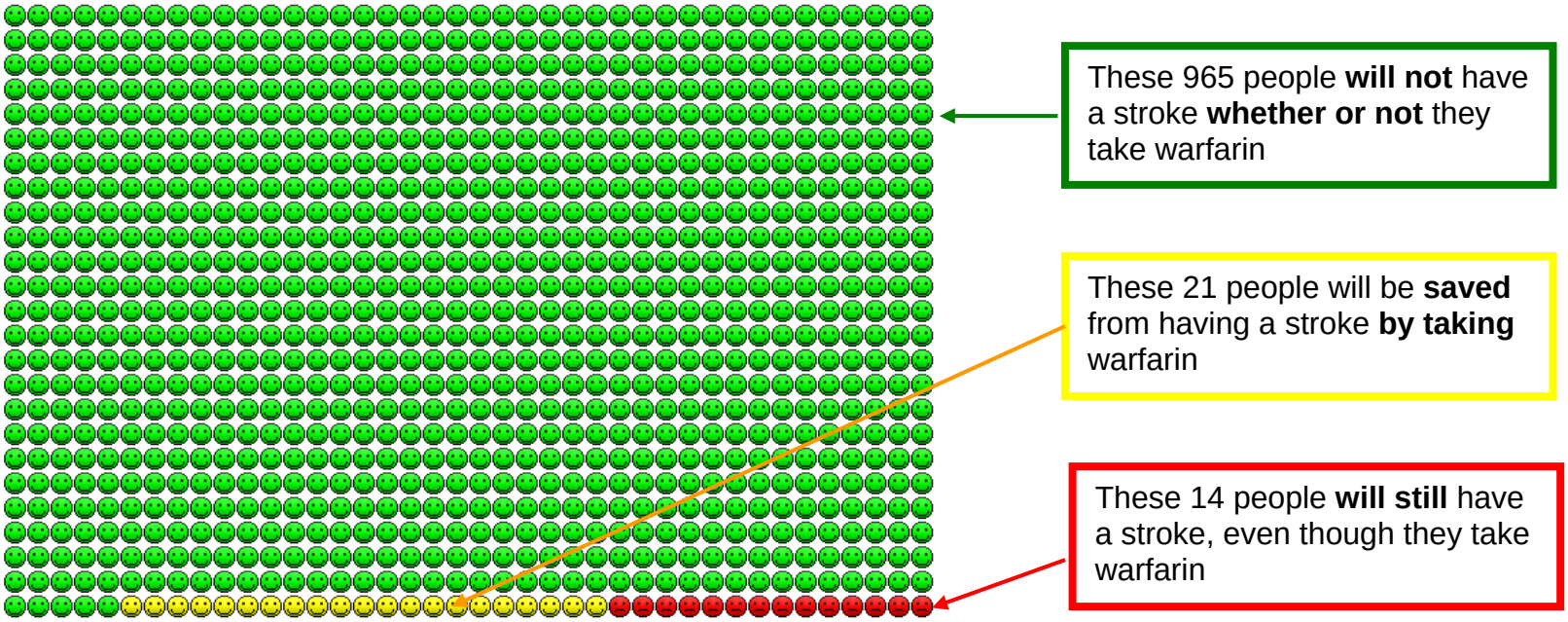
- All 1000 people will have to take warfarin.



Aspirin in higher risk patients (6% per year)

Imagine 1000 people at 6% risk of having a stroke each year. Without treatment, about 60 of them will have a stroke. So 940 of them will not have a stroke.

However, if those same 1000 people each take low dose aspirin, over a year:

- About 12 people will be 'saved' from having a stroke by taking aspirin (the **yellow** faces)
- About 940 people will not have a stroke – but would not have done even if they had not taken aspirin (the **green** faces)
- About 48 people will still have a stroke (the **red** faces), even though they take aspirin.

But remember

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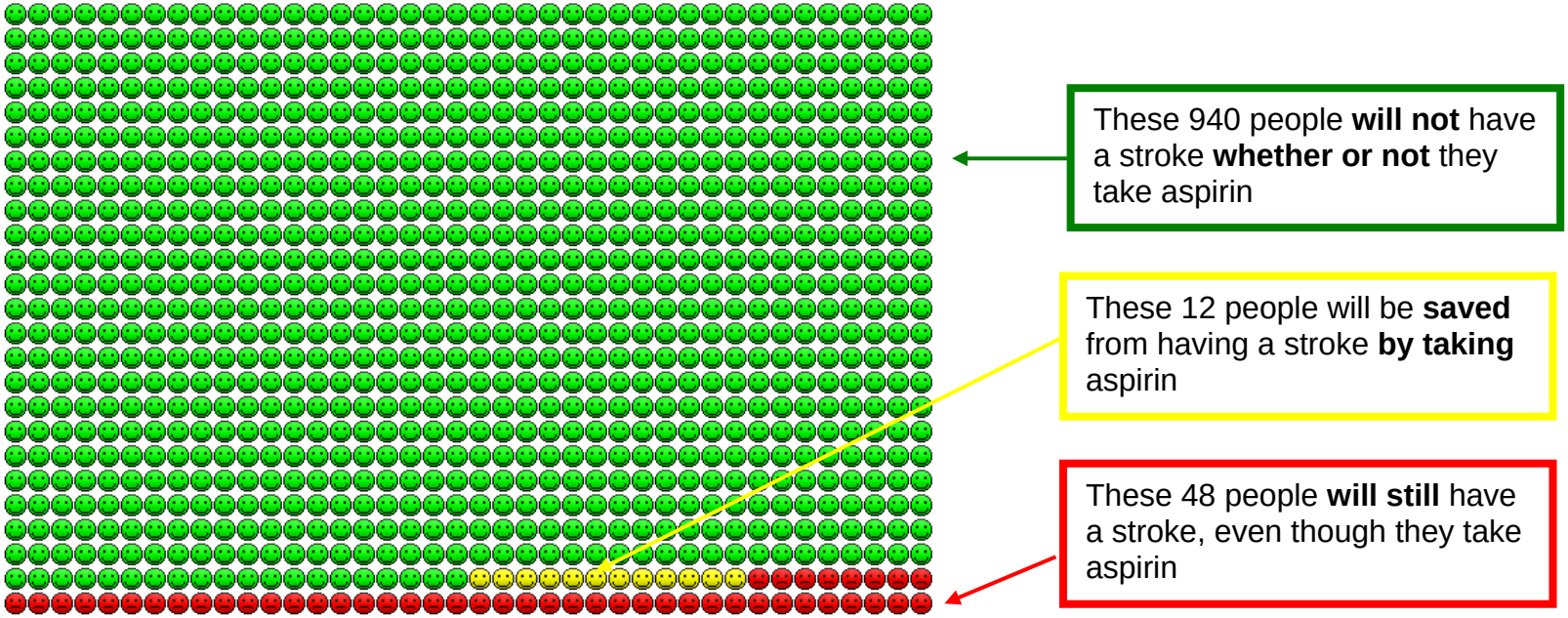
- All 1000 people will have to take aspirin.



Warfarin in higher risk patients (6% per year)

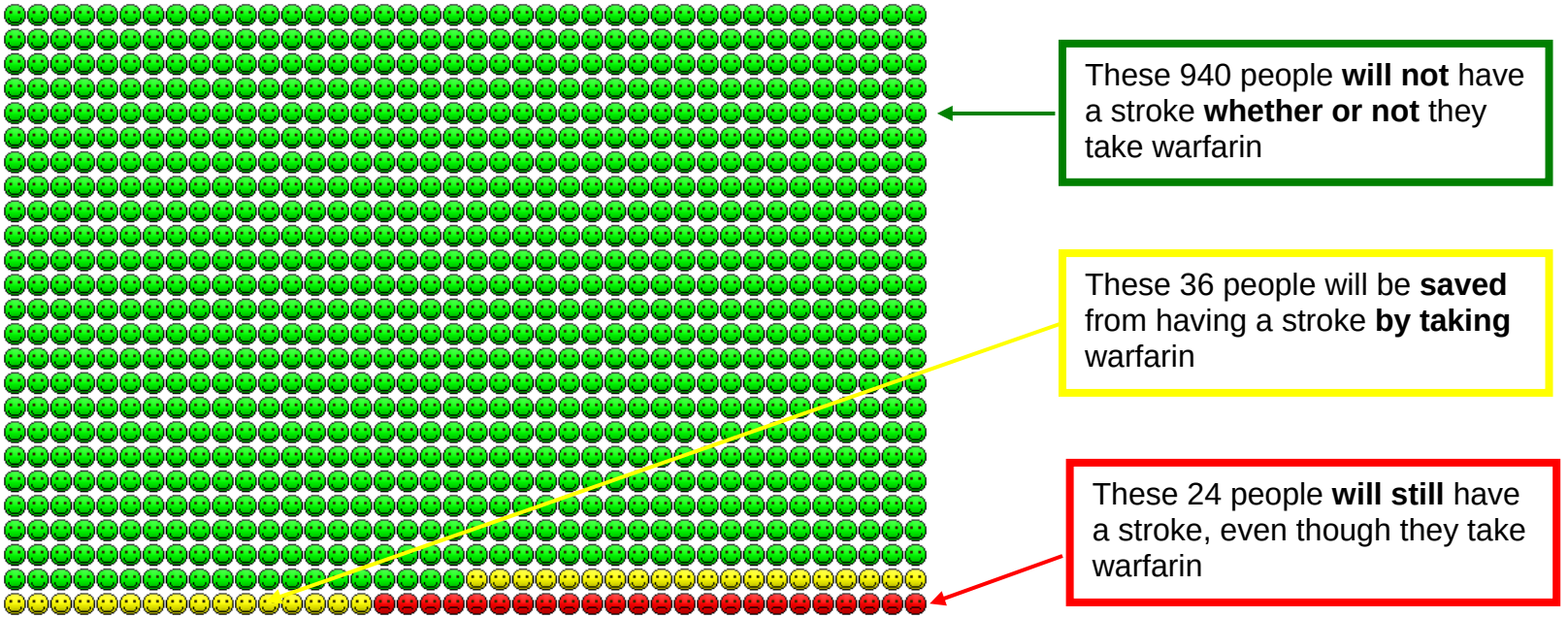
Imagine 1000 people at 6% risk of having a stroke each year. Without treatment, about 60 of them will have a stroke. So 940 of them will not have a stroke.

However, if those same 1000 people each take adjusted dose warfarin, over a year:

- About 36 people will be 'saved' from having a stroke by taking warfarin (the **yellow** faces)
- About 940 people will not have a heart attack or stroke – but would not have done even if they had not taken warfarin (the **green** faces)
- About 24 people will still have a stroke (the **red** faces), even though they take warfarin.

But remember

- It is impossible to know for sure what will happen to each individual person.
- All 1000 people will have to take warfarin.



Harms from taking aspirin

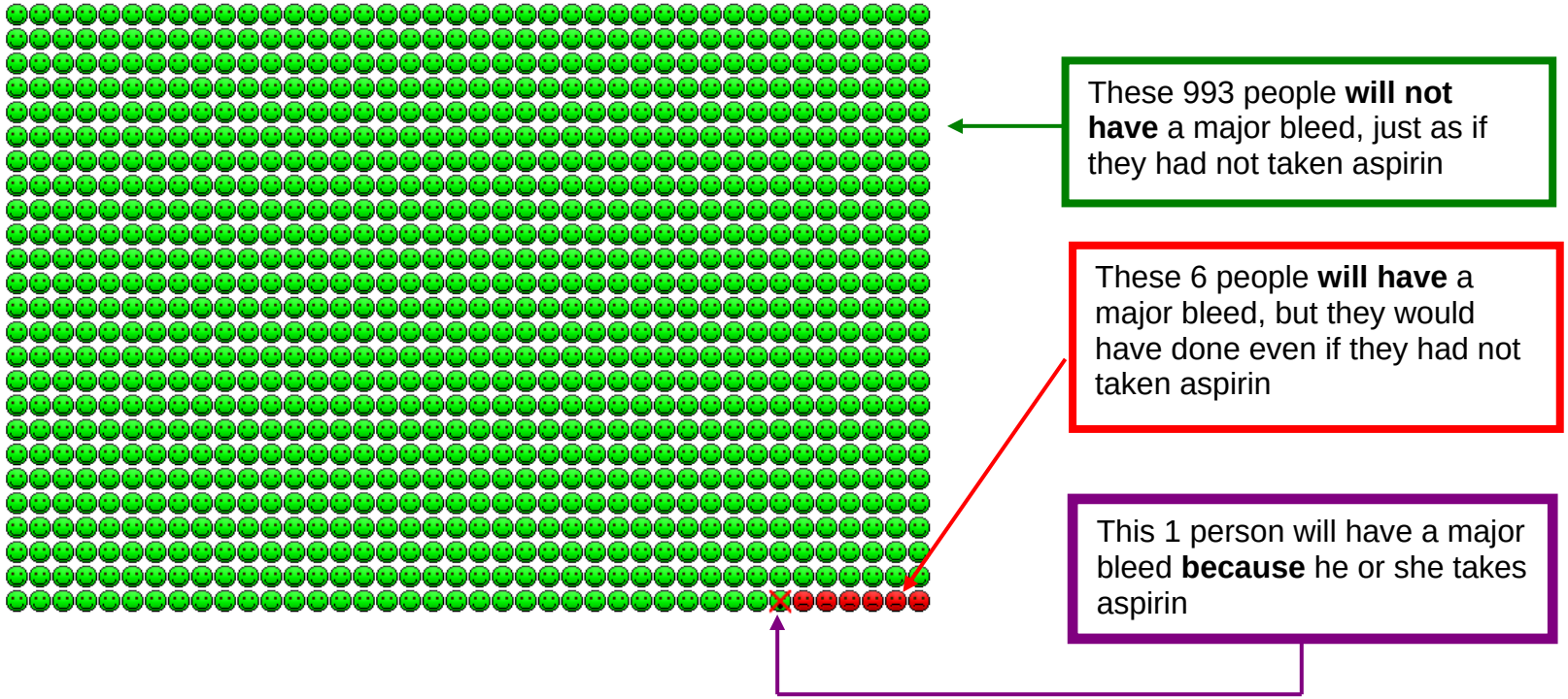
We would normally expect 6 in 1000 people to have a major extracranial bleed each year. So 994 of them will not have a major bleed.

However, if those same 1000 people each take low dose aspirin, over the year:

- About 1 extra person will have a major bleed **because** he or she takes aspirin (the **green** face with a **red** cross)
- About 993 people will not have a major bleed – just as if they had not taken aspirin (the **green** faces)
- About 6 people will have a major bleed (the **red** faces), just as they would have done even if they had not taken aspirin.

But remember

- It is impossible to know for sure what will happen to each individual person.



Harms from taking warfarin

We would normally expect 6 in 1000 people to have a major bleed each year. So 994 of them will not have a major bleed.

However, if those same 1000 people each take adjusted dose warfarin, over the year:

- About 3 extra people will have a major bleed **because** they take warfarin (the **green** faces with **red** crosses)
- About 991 people will not have a major bleed – just as if they had not taken warfarin (the **green** faces)
- About 6 people will have a major bleed (the **red** faces), just as they would have done even if they had not taken warfarin.

But remember

- It is impossible to know for sure what will happen to each individual person.