Thought experiment: the amazing purple capsule

Let's start with the most effective medicine for acute stroke: intravenous thrombolysis with either Alteplase or Tenecteplase within 4.5 hours. Guidelines all strongly recommend this treatment and it is used in all acute hospitals in higher income countries. The cost of the drug is about £800, but it costs a lot more to have the 24/7 facilities available to identify and treat these patients within a short time window. The treatment can be given to about 15% of people with acute ischaemic stroke so for every 1,000 people with stroke admitted (of whom about 850 have ischaemic strokes) we can treat about 130 with thrombolysis. The benefit of thrombolysis is an absolute 10% for independence so the number needed to treat for 1 person to benefit is about 10. For the original 1,000 people admitted, an extra 13 (130/10) will be independent because of thrombolysis. At least temporarily, about 5% of people treated with thrombolysis (6 people of 130 treated) experience harm of whom about 1/3rd die (2 people of 130 treated).

Now, let's imagine that you could prescribe an amazing purple capsule that has various herbs and other natural ingredients made to an ancient recipe. The mechanism of action is uncertain. In randomised controlled trials of almost 600 people after stroke, a single capsule taken 2 weeks after hospital discharge followed by another capsule 6 weeks later led to an absolute 12% improvement in independence 12 months after stroke. Each capsule costs £50 but there are no other costs involved. No side effects or harms have been reported. Unlike thrombolysis, anyone discharged from hospital, not going to institutional care has been shown to benefit from the drug – 500-600 of the 1,000 people admitted with acute stroke. So, with a number need to treat of 8, an extra 62-75 people will be independent 12 months after their stroke.

So, if you had access to this drug, would you prescribe it? And if you were a person with stroke, would you take it?

Of course, you would!

The only problem is that a drug this good doesn't exist. But a treatment this good does exist – it's called 'Take Charge' and available to use by anyone, anywhere. Why would you prescribe the purple capsule but not Take Charge?

The 'Purple Capsule' thought experiment

	Thrombolysis 	Purple capsule (*aka Take Charge)* 
Timing	Within 4.5 hours of stroke onset	2-18 weeks after discharge from hospital
Mechanism of action	Break up clots that cause an ischaemic stroke	Unsure
Eligibility	Only ischaemic stroke, some contraindications	No absolute contraindications, tested mainly in mild-moderate severity stroke
Number who can be treated for every 1,000 admissions	130	500-600
Number needed to treat for 1 extra person to be independent (treated within 3 hours)	10	8
Benefit: extra people independent per 1,000 admissions	13	62-75
Harm (per 1,000 admissions)	6 (not all permanent but about 2 die)	Zero
Evidence from	Widespread adoption based on single RCT n = 624	2 RCTs both positive (total n = 572)
Cost (direct)	£800 (alteplase, 2x50mg vials needed for most people)	£100 (2 capsules)
Cost (indirect)	Personnel, emergency transport, scanning	minimal
Guidelines	Strong recommendation	Not mentioned
Implementation	All acute hospitals (in higher income countries)	Patchy