

This is the full publication on how the sustained control of LDL cholesterol, with a treatment administered by a health care professional, becomes the model of care for people with established cardiovascular disease and the shifts at the level of the population to lower risk groups. This means people are likely to have fewer cardiovascular events.

Take a trial cohort. One on statins only, requiring 365 pills a year to maintain their LDL levels. Better or worse adherence to taking a pill every day means their LDL goes up or down, so their risk of CVD goes up or down.

If, however, patients go to a healthcare provider who delivers the second intervention twice yearly, then some of the burden the patient has in taking medications is removed. You can see in blue (slide 3, figure 1) how this intervention shifts the distribution of cholesterol to the left, i.e. to lower cholesterol levels.

Because we have variables for each patient in estimating their 10-year risk, we can see the impact of that sustained reduction on the distribution of risk to lower risk groups at the level of the population.

Now if we count two injections per year, so 20 in a decade, and the scale is 500,000 eligible people (identical to the trial population), you could potentially avert 31,000 cardiovascular events. In figure 2 (slide 3), look at the shift tables in the placebo group:

- There are 197,000 people in the 20-40% 10-year predicted risk group
- 19,000 people move to a lower risk group, but 12,000 move to a higher group, which is related to worse or better adherence
- However, if the second intervention is delivered annually for a decade, then 97,000 people move to below a 20% risk

This is population health 101 and the Rose Hypothesis in Action: Sick individuals, sick populations.