

Contraception patient decision aid

What this decision aid is for

This decision aid is intended to assist healthcare professionals in consultations with women who are considering contraception with combined oral contraceptives (COCs). Patient information leaflets specifically tailored for members of the public can be found on the Clinical Knowledge Summaries (CKS) website (www.cks.library.nhs.uk/home).

The decision aid does not attempt to address all the issues relating to contraception, including all important side effects. However, it does address four issues about which women may be particularly concerned: the effectiveness of COCs compared to other methods of contraception; the risk of breast cancer, the risk of cervical cancer, and the risk of venous thromboembolism. The MeReC Bulletin from which most of the data are drawn gives more information.¹

Effectiveness of methods of contraception

The bar graph (figure 1) shows the failure rates associated with the first year of typical use of some methods of contraception, estimated from US studies. These are higher than would be seen with perfect use, but reflect typical rather than ideal use. Failure rates of most methods decrease with time, since women most prone to contraceptive failure will become pregnant soon after starting a method.¹

Risk of breast cancer

Any increased risk of breast cancer with COC use is likely to be small, but is in addition to background risk, which increases with age. In 1996, an analysis of 54 epidemiological studies showed a small increased risk of breast cancer diagnosis while using COCs (relative risk [RR] 1.24, 95%CI 1.15–1.33) and in the 10 years after stopping compared with never-users, but not after this time. The risk declined during the course of the 10 years after stopping COC use.²

Using this analysis, the cumulative incidence of breast cancer at age 35 years in women who use COCs for five years from age 20 to 24 years is 17.5 cases per 10,000, compared to 16 cases per 10,000 in never-users: that is, an extra 1.5 cases per 10,000 women. The cumulative incidence of breast cancer at age 40 years in women who use COCs for 5 years from age 25 to 29 years is 48.7 cases per 10,000, compared to 44 cases per 10,000 in never-users: that is, an extra 4.7 cases per 10,000.³ The Cates plots (figure 2 and 3) illustrate these risks (rounded to whole numbers for purposes of representation).

More recently, the RCGP oral contraception cohort study found there was no increased risk of breast cancer associated with oral contraceptive use. For ever-users of oral contraceptives versus never-users the RR of breast cancer was 0.98 (95%CI 0.87 to 1.10). For use of oral contraceptives for 8 years or more versus never-use the RR was 1.22 (95%CI 0.97 to 1.52).⁴

Risk of cervical cancer

The absolute risk of developing cervical cancer is relatively low, whether or not women use oral contraceptives. The 2002 European age-standardised annual incidence rate in the UK was 0.91 per 10,000 women, with a fairly even spread across age groups. The 2004 European age-

standardised death rate was 0.28 per 10,000 women, and fewer than 6% of these deaths occurred in women aged younger than 35 years.¹

A re-analysis of data from women with cervical cancer in 2007 found current use of COCs for five years or longer is accompanied by an increased risk of cervical cancer (RR 1.90, 95%CI 1.69–2.13).⁵ The baseline risk of cervical cancer increases with age, and the number of extra cases in COC users also increases with age. Risk falls when COCs are stopped and after about 10 years, risk reaches the same level as that for never-users of COCs.

From this analysis, the cumulative incidence of cervical cancer at age 50 years in women who use COCs for five years from age 20 years is 40 cases per 10,000, compared to 38 cases per 10,000 in never-users; that is, an extra two cases per 10,000. The cumulative incidence of cervical cancer at age 50 years in women who use COCs for 10 years from age 20 years is 45 cases per 10,000, compared to 38 cases per 10,000 in never-users; that is, an extra seven cases per 10,000.⁶ The Cates plots (figures 4 and 5) illustrate these risks.

More recently, the RCGP oral contraception cohort study found use of oral contraceptives for 8 years or more versus never-use was associated with a RR of cervical cancer of 2.73 (95%CI 1.61 to 4.61).⁴

Risk of venous thromboembolism

All COCs increase the risk of venous thromboembolism (VTE). The risk associated with COCs containing the “third-generation” progestogens, desogestrel or gestodene (2.5 per 10,000 women-years) is greater than that associated with other COCs (1.5 per 10,000 women-years) and with never-users (0.5 to 1.0 per 10,000 women-years). However, in absolute terms, the risk is still low and is lower than the risk of VTE in pregnancy (6 per 10,000 women-years).⁷ The Cates plot (figure 6) shows the risk per 10,000 women per 10 years, assuming a constant, cumulative annual risk to permit representation.

The VTE risk associated with the use of Yasmin, which contains the “fourth-generation” progestogen, drospirenone, is estimated to lie somewhere between that associated with COCs containing the “second-generation” progestogen, levonorgestrel and those containing the “third-generation” progestogens, desogestrel or gestodene.⁸

Source of images

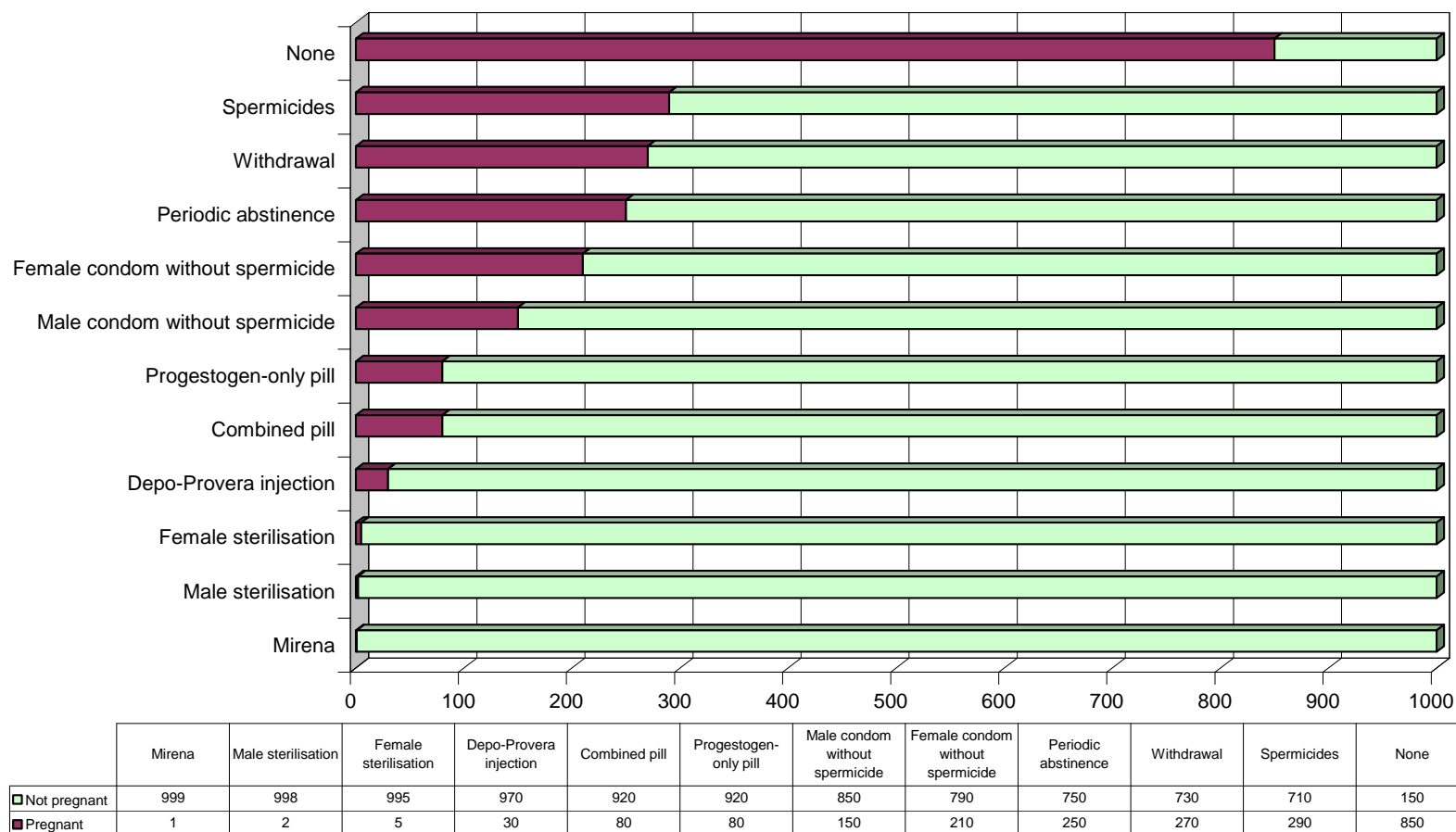
With the exception of the bar graph, the images have been produced using Dr Chris Cates's software VisualRx 3.0. More information can be obtained from the website www.nntonline.net.

References

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Figure 1. Effectiveness of contraceptives

Each bar represents 1000 women. The **purple** portion indicates the likely proportion of women who will become pregnant in the first year of use of the method. The **green** portion indicates the likely proportion of women who will not. These are based on typical use of the methods: perfect use would decrease the likelihood of contraceptive failure. The first bar shows the likely pregnancy rate in women not using contraception, for comparison.



Note: Periodic abstinence methods include calendar methods, etc. Progestogen-only contraceptive pills generally have a higher failure rate than combined preparations.

Risk of breast cancer

Figure 2. Women aged 20–24 years using COCs for five years: cumulative risk of breast cancer during use and for up to 10 years afterwards

Consider 10,000 women aged 20–24 years, using a combined oral contraceptive (COC) for five years (each large block contains 1000 faces). The Cates plot shows the excess risk of having breast cancer diagnosed in the 5 years of use and up to 10 years after stopping COCs (i.e. age 35 years), compared to never-users of that age. Note this relates to women at average risk of breast cancer and it is impossible to know what will happen to any individual woman.

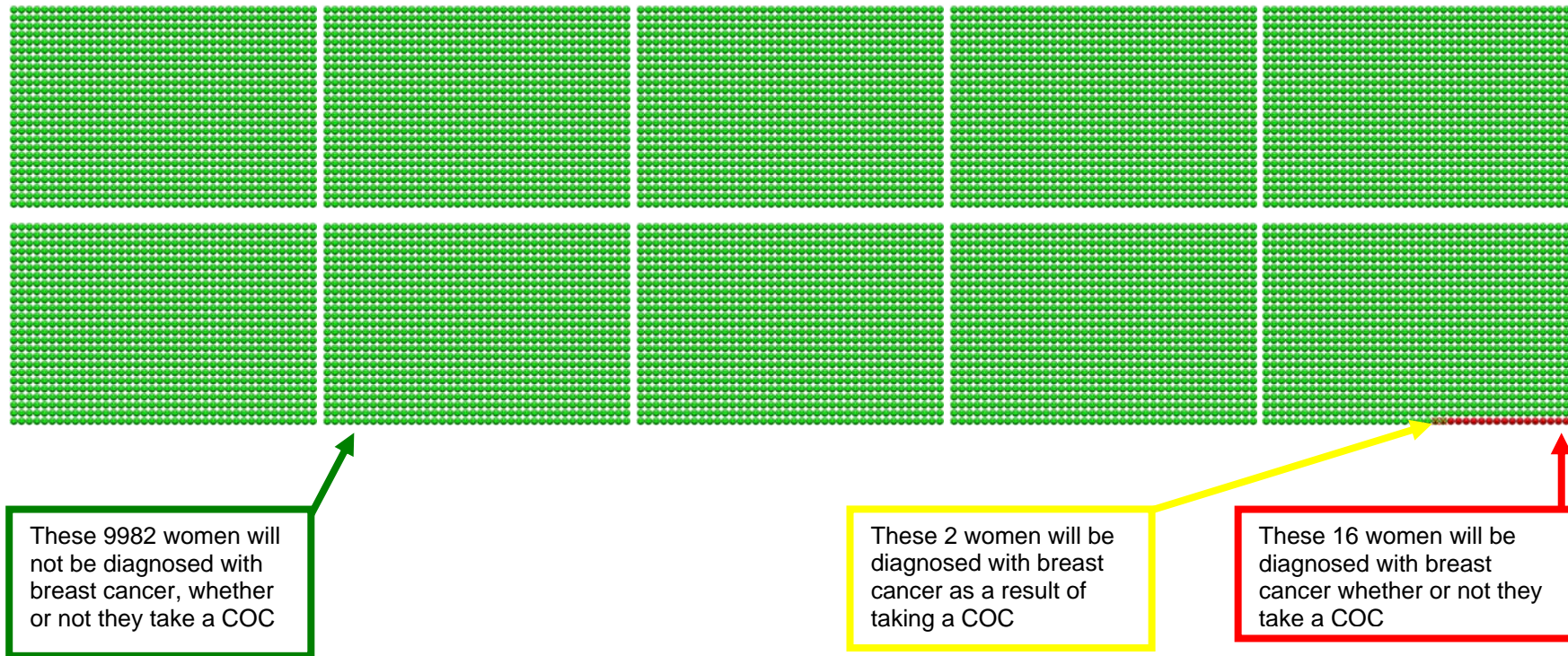
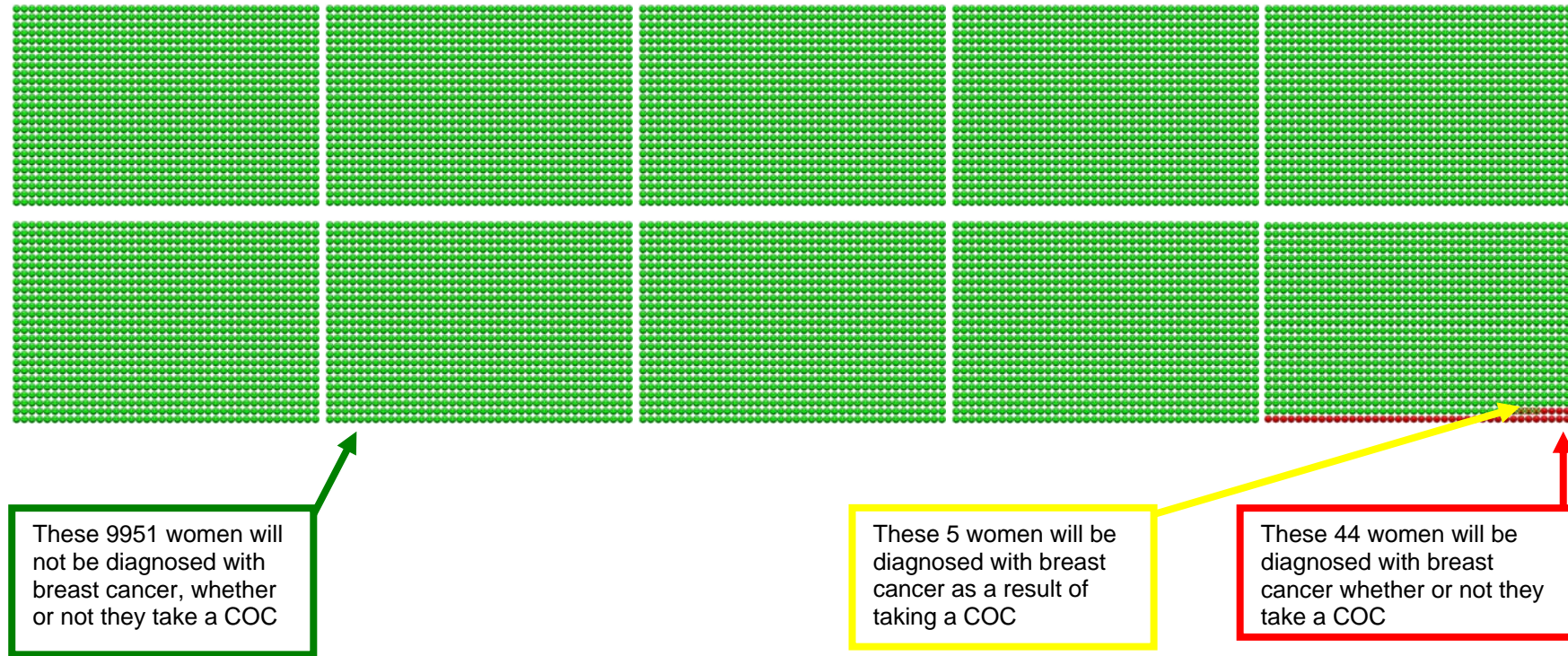


Figure 3. Women aged 24–29 years using COCs for five years: cumulative risk of breast cancer during use and for up to 10 years afterwards

Consider 10,000 women aged 24–29 years, using a combined oral contraceptive (COC) for five years (each large block contains 1000 faces). The Cates plot shows the excess risk of having breast cancer diagnosed in the 5 years of use and up to 10 years after stopping COCs (i.e. age 40 years, compared to never-users of that age). Note this relates to women at average risk of breast cancer and it is impossible to know what will happen to any individual woman.



Risk of cervical cancer

Figure 4. Women using COCs for 5 years from age 20 years: cumulative risk of cervical cancer at age 50 years

Consider 10,000 women using a combined oral contraceptive (COC) for 5 years from age 20 years (each large block contains 1000 faces). The Cates plot shows the excess risk of having cervical cancer at age 50 years, compared to never-users. Note this relates to women at average risk of cervical cancer and it is impossible to know what will happen to any individual woman.

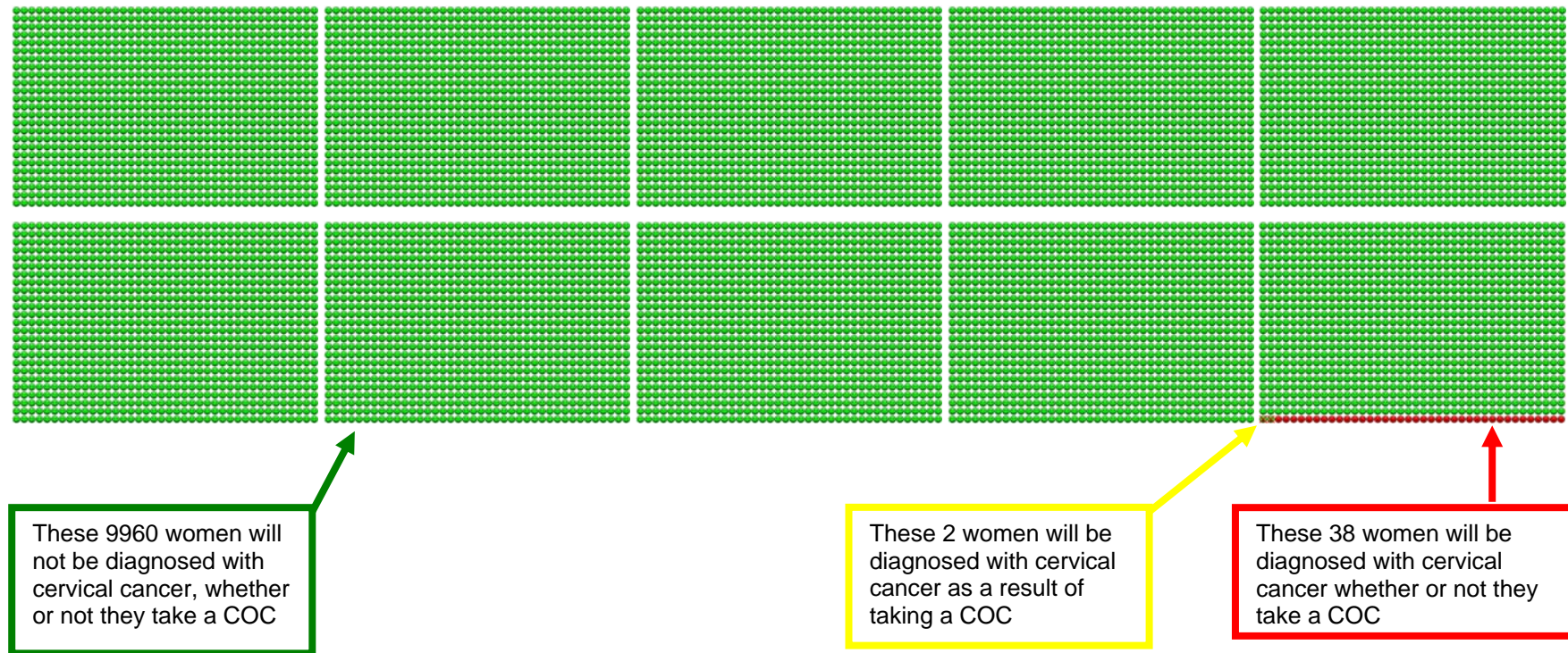
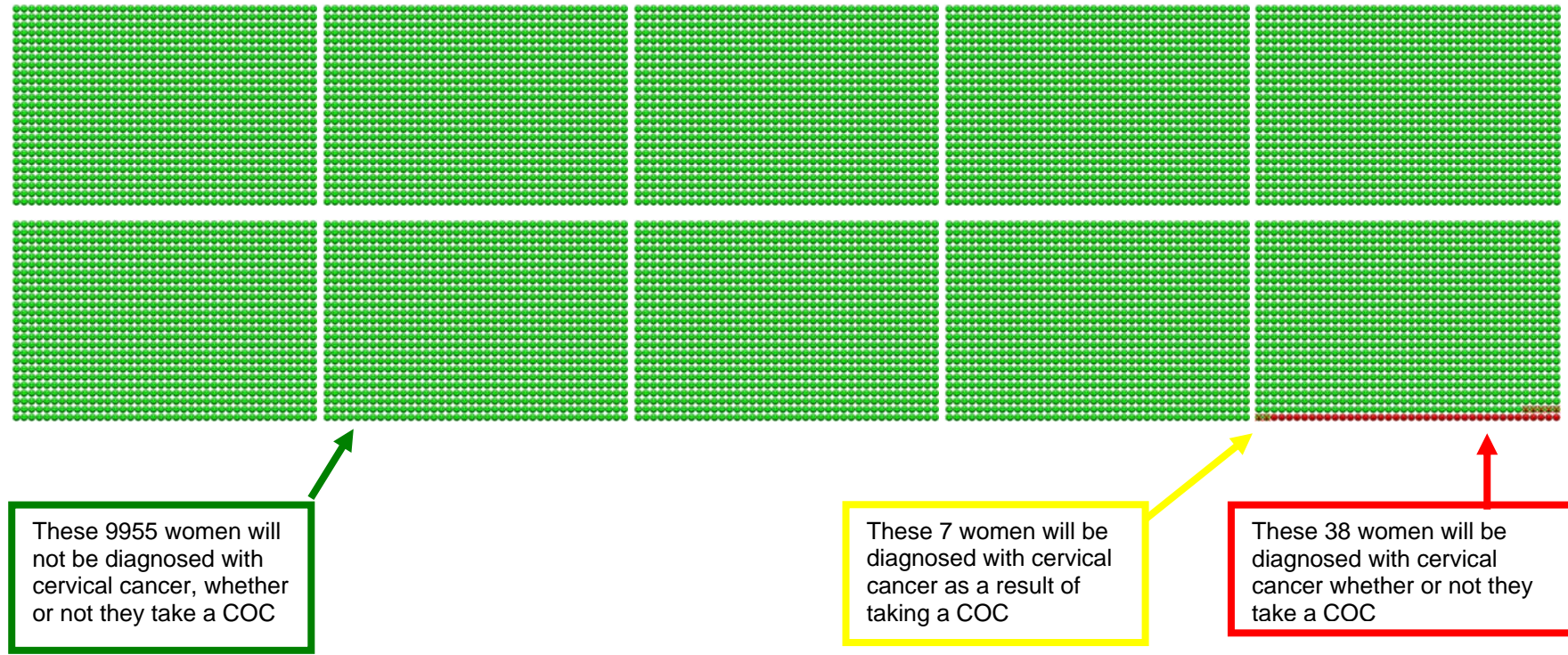


Figure 5. Women using COCs for 10 years from age 20 years: cumulative risk of cervical cancer at age 50 years

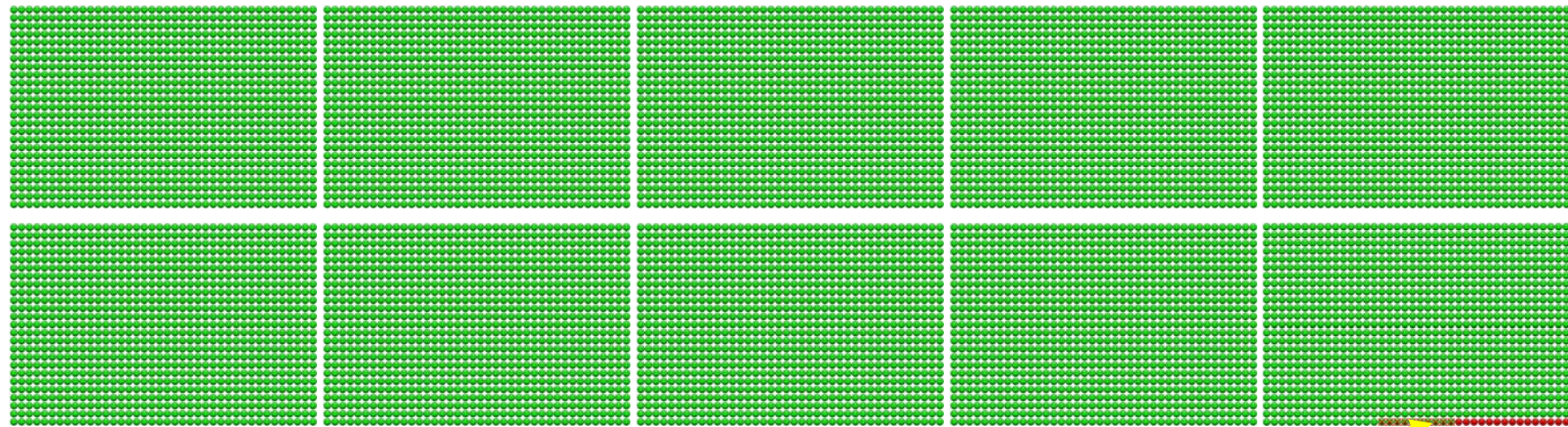
Consider 10,000 women using a combined oral contraceptive (COC) for 10 years from age 20 years (each large block contains 1000 faces). The Cates plot shows the excess risk of having cervical cancer at age 50 years, compared to never-users. Note this relates to women at average risk of cervical cancer and it is impossible to know what will happen to any individual woman.



Risk of venous thromboembolism (VTE)

Figure 6. Women any age, using COCs for 10 years: risk of VTE over 10 years

Consider 10,000 women using third generation progestogen containing combined oral contraceptives (COC), i.e. those containing desogestrel or gestodene (each large block contains 1000 faces). The Cates plot shows the excess risk of developing VTE associated with a COC containing desogestrel or gestodene, compared to women using a COC containing the second generation progestogen, levonorgestrel, over 10 years assuming a constant rate for purposes of illustration. The *annual* risk is one extra case in 10,000 women per year compared to one or two cases with other COCs, 0.5 to one case per 10,000 women-years in non-users and six cases per 10,000 women-years in pregnancy. Note this relates to women at average risk of VTE and it is impossible to know what will happen to any individual woman.



These 9975 women will not develop VTE, whether or not they take a COC of either type

These 10 women will develop VTE as a result of taking a COC containing desogestrel or gestodene

These 15 women will develop VTE whether they take a COC containing desogestrel or gestodene, or a COC containing levonorgestrel. 5 to 10 of them would develop VTE if they did not take either type of COC