When the contraceptive pill first became available some 20 years ago, many women welcomed it enthusiastically. It seemed to be the perfect answer to the age-old problem of preventing unwanted pregnancy. Until then, couples had had to rely on much less effective—and less convenient—methods of birth control, such as withdrawal and barrier methods (primarily condoms and diaphragms). Millions of women throughout the world have now used, and are continuing to use, the pill.

Since it was introduced, there has been concern about the possible long-term side-effects of the pill, including cancer. However, only recently has it been possible to be reasonably sure about any association between the pill and cancer.

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Cancer, like any other long-term side-effect of a drug, cannot be studied before the drug is used, or even immediately after it is first used. Although we have a reasonably good idea before a drug is approved for use by people that it will not cause major toxic effects, we cannot be sure that it will not increase (or decrease) a person's risk of developing cancer over a long period. This is true for all drugs, including contraceptives. Cancer generally takes years, and sometimes decades, to develop after a person's exposure to a cancer-causing agent. Thus it takes years, and more often decades, after a drug is first used before researchers can study changes in cancer risk.

The study of cancer risk is further hampered by its relative rarity; specific types of cancer are uncommon as compared to, say, headaches or the common cold. Therefore a large number of people have to have used the drug in question before any change in the risk of developing cancer can be detected.

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There is good reason to be concerned about this issue. We know that hormones produced in the body are related to cancer. For example, women who begin menstruating at an early age and undergo menopause at a late age, and who therefore ovulate and produce sex hormones for a longer period than other women, are at a higher risk of some kinds of cancer. We also know that estrogens given to women after the menopause can cause cancer of the endometrium. On the other hand, hormones are used successfully to treat some kinds of cancer, and so may have a protective effect against cancer as well. It is reasonable to suppose that the pill might either increase or decrease a woman's risk of cancer.

In fact, the evidence we have to date suggests that using the pill decreases the overall risk of cancer. More than ten epidemiological studies have been done on the relationship between the pill and cancer of the ovaries, and virtually all have shown a lower risk of cancer among women who had used the pill. The pill seems to reduce by about half the risk of getting ovarian cancer. Since this form of cancer is particularly deadly, a protective effect of the pill is particularly important.

There is substantial evidence that the pill reduces the risk of cancer of the endometrium, or lining of the uterus, as well. Again, the risk of this type of cancer among women who have used the pill seems to be about half that of women who have not used the pill. Some studies have even shown that the longer the pill is used, the lower the risk of endometrial cancer.

Liver cancer is the one cancer that seems fairly conclusively to be more common among women who have used the pill for long periods of time (at least eight years). It does not seem to be common among women who have used the pill for shorter periods. Liver cancer that is not a result of hepatitis infection is extremely rare (in the United Kingdom the mortality rate due to primary liver cancer is estimated at two deaths per million women, aged 20 to 49, per year). There is no evidence that the pill affects the risk of hepatitis-associated liver cancer, which is substantially more common in some countries. This suggests that the risk of developing liver cancer as a result of using the pill is extremely low.

The relationship between the pill and cancer of the cervix is much less clear. Results of the many studies...
involved. For example, women who have multiple sexual partners, or whose husbands have multiple partners, are at a substantially greater risk of cervical cancer, probably because of some sexually transmitted infectious agent that is carcinogenic. Having multiple sexual partners is more common among women using the pill, as compared to women who do not use the pill. As a result, researchers will find that women who use the pill are more likely to get cervical cancer, simply because these women have multiple sexual partners, and not necessarily because the pill causes cancer.

Some studies of the pill and cervical cancer tried to take this into account by asking women about their sexual practices and analysing separately the data for women with one partner, women with two partners, and so on. But it is difficult to know how accurate the information on sexual practices is, since for many people this is a particularly sensitive topic.

Another difficulty relates to the screening test for cervical cancer — the Papanicolaou smear, or "pap smear". Women who use the pill are more likely to have regular pap smears and thus are more likely to have cervical cancer diagnosed.

Most studies do show a small increased risk of cervical cancer among women who have used the pill, especially those who have done so for long periods of time. These results may indicate that the pill does in fact increase the risk of cervical cancer, or they may simply reflect the complexity of the factors involved. The general consensus among researchers is that it is impossible to tell which is the case, and it may never be possible to tell.

Findings on the relationship between the pill and breast cancer are somewhat more conclusive, although some important questions still remain unanswered. Most well-designed studies show no overall association between the pill and breast cancer; that is, the pill appears neither to increase nor to decrease the overall risk of breast cancer. However, some studies have found breast cancer to be more common among women who used the pill for a long time at a young age — before they were 25 years old. This finding seems to be limited to women who developed breast cancer at a relatively young age as well — before they were 45 years old. Several other studies — apparently equally well designed — have not confirmed this increased risk of breast cancer among women who used the pill at a young age. Much more research is needed to resolve these apparently contradictory findings.

One limitation of the data we have available on the pill and cancer is that almost all the information comes from the United States and Western Europe. The relationship may well be different where the risk of cancer is different, and where other genetic, environmental or dietary influences are found. Because of this, who's Special Programme of Research, Development, and Research Training in Human Reproduction (HRP) has since 1979 been carrying out a collaborative study in twelve centres in ten countries on the relationship between the pill and cancer. Preliminary results have been published on the pill and cervical cancer, and were consistent with the results from studies in the United States and the United Kingdom. Findings on other types of cancer will help to determine whether there are important differences in various parts of the world.

Meanwhile, the information currently available is reasonably reassuring. The strong protective effect of the pill against both ovarian and endometrial cancer far outweighs the risk of liver cancer, a very rare form. The data on cancer of both the cervix and the breast are still inconclusive, although it seems clear that there is no overall increase in breast cancer, and that the increased risk of cervical cancer, if any, is small.

The fact that the data are currently reassuring, however, should not lead us to be complacent about this issue. The pill is used by millions of women throughout the world, and any effects we do find on cancer risk, be they beneficial or adverse, could have far-reaching implications.

Finally, cancer risk among women who use the pill must be considered in the light of the other advantages and disadvantages of the pill. It is almost too easy to focus on cancer alone, especially its increased risk. Cancer is dramatic and it attracts people's attention. The beneficial effects of the pill, including a decrease in the risk of cancer, can be easily forgotten amid the fear of cancer. The pill still represents for many women a means of preventing unwanted pregnancy that is unsurpassed by any other contraceptive. It is all the more important that these women should be informed about any further effects the pill may have on their health.