

Pennsylvania, and also director of the teratology unit at Children's Hospital in Philadelphia.

Dr. Goldman's statement, I believe, is available. I would just like, if I may, rather than to read it, to highlight it, and to leave out certain portions.

Senator NELSON. That would be fine, Dr. Yaffe.

The statement by Dr. Goldman will be printed in full in the record, and you may comment on it, also.

Dr. YAFFE. Thank you.

Dr. Goldman, at the very beginning of his statement, mentions the continuing problem of birth defects, which I think is certainly worthwhile in reiterating, and that birth defects cause about 560,000 deaths annually.

He points out that the survivors are afflicted with blindness, hearing impairments, heart or circulatory defects, mental retardation, and other malformations. He then goes on to cite the continuing usage of drugs by pregnant women.

This is on page 2. Paraphrasing some of this, he mentions the fact that despite the tragedy, women continue to take drugs, whether at the advice of their physicians, or over the counter, on their own advice, they take large numbers of drugs during pregnancy. There are some data mentioned from several recent studies, one in the United Kingdom and Scotland, 1973, and another from Texas.

An enormous number of drugs are taken by women while they are pregnant. I would guess that they continue to take the same drugs when they are not pregnant. I should also like to emphasize that these drugs were not taken to save the mother's life or to treat the fetus, but rather to relieve symptoms, and this is a very important point, that many of these symptoms are mild and innocuous.

Therefore, in my opinion, the drugs need not be taken by the women, and, were this so, we would be in an era of very decreased drug administration, consumption during pregnancy, with probably a decrease in the rate of congenital malformations. Then Dr. Goldman goes on to discuss the problem of teratogenicity in general terms, mentioning the fact that in the usual production of anatomic malformations, it is only the first 2 or 3 months of pregnancy where we are concerned. Drugs that are known to cause human malformations fall into four categories, the first would be the anticancer drugs, the second being the steroidal sex hormones, androgens, estrogens, and progestins. These hormones have been associated with very delayed and long-term effects of drugs. Fifteen or twenty years after the fetus received the drug, the effect was noted in the vagina in females exposed to these drugs, and more recently, we have seen effects in the male fetus now also in young adults. They have anatomic problems with their urinary system, and problems with infertility, decreased sperm production, and capability. I think the concept is that defects may appear many decades after the administration of a drug, and I think people now are not using these specific drugs as they did in the forties and fifties to treat women who are pregnant.

Now, the third area that Dr. Goldman mentioned is alcohol, something that for surprising reasons, has only been recently brought to our attention. A specific type of malformation has been reported. The final group which he mentioned is that characterized by thalidomide,