

Workshop on Twin Pregnancy  
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## **Session V**

### **Data Collection**



## The Aberdeen Obstetric Data Bank

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An obstetric-neonatal-gynecological data bank has been developed for the Aberdeen District in Scotland and is now fully computerized. Within it, a twin register including over 550 pairs of known placentation and zygosity has developed.

**Key words:** Obstetric data bank, Twin register, Scotland

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The Aberdeen Obstetric Data Bank has a complex history going back to 1948. Following the inauguration of the National Health Service, Professor MacGillivray's predecessor, Sir Dugald Baird, supported by the Medical Research Council (MRC), established a combined obstetric and sociological record system primarily for research purposes. Throughout a single obstetric unit based on the Aberdeen Maternity Hospital (AMH) has provided the specialist services for the whole of North-East Scotland. There are nine obstetricians; three have private practices, although they spend most of their time in the hospital service. In the late 1940s about 85% of women resident in Aberdeen City were delivered in the AMH and details of domiciliary and private patients were incorporated in a centralized record system. Thus, two overlapping systems of data were developed.

**1. Hospital-based system.** This included standardized data on all births which occurred in AMH irrespective of the mother's residence. Births have fallen from over 5000 to 4200 per annum, but the items included have increased because of innovations, eg, Apgar scores, scans, etc. Over 250 items are included. Initially, summary details of babies admitted to the Special Nursery were included with the mother's records, but since 1970, a parallel series of records on all babies admitted to the Special Nursery has been maintained and linked to the mother's AMH records.

**2. Population-based system.** This data bank, which includes more detailed sociological information, refers to all women resident in a defined geographical area. Initially, Aberdeen city (population, 186,000) was a compact urban area around which suburbs later developed. The Aberdeen District is now the local government administrative area of the city and suburbs (population, 220,000), and data have been assembled to include all births to women resident in this district since 1948 onwards. The domiciliary service was phased out in the 1960s, and provision was made for the few private patients to be delivered in AMH. In the early 1950s there were about 3500 births per annum, compared to 2400 in recent years.

### The Record System

The data bank was started using Cope Chat (edge-punched cards, manually sorted). The population-based data were extensively used for epidemiological, medical, and sociological research and, in 1958, a punched-card Hollerith system was introduced to facilitate rapid sorting and analysis. In 1976 the system was fully computerized.

Specially trained clerical workers and supervisors have been employed to code and process the medical records under the direction of clinicians. From time to time it has become necessary to modify definitions, eg, subdividing perinatal death categories, which has sometimes meant reviewing original medical records and changing previous codings. Autocoding of computerized raw data should facilitate such changes in the future. Various ad hoc studies have provided additional data to be incorporated. Thus, since 1968, all twins delivered in Aberdeen have had placentation and zygosity determined as described by Dr. Corney – over 550 pairs have already been included. In addition, zygosity of over 200 pairs of surviving twins was retrospectively determined by Professor Nylander for cohorts of Aberdeen twins born in the 1950s.

### Gynecological Data

The obstetricians are also the gynecologists, but most gynecological events occur in other Aberdeen hospitals. Initially, the two record systems were independent – that for AMH was based on events and cross-sectional, but, since 1972, AMH has adopted a common system whereby one number identifies each woman irrespective of hospital attended. This has facilitated record linkage in recent years.

A modest card system for gynecological events was started in 1951 and continued until computerization was established. The Aberdeen gynecologists provide a total service for women resident in the Aberdeen District and as the population has been relatively settled and many women remain in the area throughout their lives, it has been possible to obtain fertility profiles for large numbers of women.

### The Obstetric/Gynecological Linked Data Bank

In the past four years we have developed a linked file of births and fertility-related gynecological events – terminations of pregnancy, other abortions, sterilizations, etc – going back to 1951 for women resident in the Aberdeen District [1]. This was made possible because the MRC provided six temporary clerical staff.

A fall in the number of births has been compensated for by the increase in the number of terminations of pregnancy and sterilization operations. Thus, about 4000 events are included for each year.

The data bank included fertility profiles on women, their sisters and sisters-in-law, and now a second generation of mothers. Thus, a wide range of familial studies are possible.

We have used date of birth and maiden name to identify twin sisters in the linked file. Previously we had tried to do this manually, but details of twinning recorded in the medical notes had fluctuated over time and, although we have a series of 70 twin sisters for whom zygosity was determined in an attempt to study genetic factors in reproduction, the numbers were incomplete and inadequate for the purpose. We are now contacting the additional computer-linked twin sisters in order to obtain blood for zygosity determination. We could of course in the same way identify husbands who are twin brothers.

### REFERENCE

1. Mednick SA, Baert AE (eds) (1979): "An Empirical Basis for Primary Prevention: Prospective Longitudinal Research in Europe." Oxford University Press (in press).