

GAPS IN KNOWLEDGE

In considering the topic of "Gaps in Knowledge" it has seemed desirable to present a list of areas in which such gaps exist rather than to list a large number of specific and detailed problems or projects. These will continue to present themselves.

There is available for Industry the detailed list of specific gaps in knowledge carefully prepared for the 1964 Surgeon General's Report. This can, if desired, be supplemented by a list of specific gaps recognized since then.

The direct use of this detailed material in cooperative consideration by the Government has, however, many dangers, some of which may be listed as follows:

- (1) 1964 items may well be recognized, their former submission noted and the question asked, what has the Industry done to fill the gap?
- (2) The Government can paralyze research on a specifically defined gap by saying
 - (a) We consider this gap already filled by such and such work, or
 - (b) We do not consider this specific gap to be of real significance, or
 - (c) we feel that the Industry is not in a position to be impartial in investigating it, or
 - (d) We already have it under investigation --- no further effort needed.

The Scientific Advisory Board has, moreover, reached the point where experience over the years has resulted in the recognition of certain areas in each of which programs of research can be planned from which answers to some of the existing questions should be obtained or at least envisioned.

It seems, therefore, that presentation of areas in which gaps in knowledge exist is a far safer guarantee (a) of developing fruitful cooperation and (b) of maintaining elasticity and freedom of Industry supported research, than is the submission to a cooperating group of a myriad of individual problems of varying relative priority values and of doubtful acceptance by all the cooperating agencies.

As an example of the area type of approach, the attached outline of the field of cancer (lung and oral cavity) is submitted. It is not offered as either a complete or final presentation of the subject. It does, however, indicate that three broad avenues of attack exist and are basic --- namely, Epidemiological, Animal Models and Experimentation and Clinical-Laboratory.

These same avenues of attack are needed in Cardiovascular Diseases, Chronic Respiratory Diseases and Psycho-pharmaceutical problems.

Between now and June 20th similar outlines in these fields can be prepared --- hopefully not for use at that meeting, but as guides to Industry supported groups for discussion at the meeting on Agenda ~~for Cooperation~~. In the meantime the staff of the Council for Tobacco Research will use for its help and guidance all the data on detailed and specific gaps as its disposal.

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GAPS IN KNOWLEDGE

CANCER

A. LUNG & ORAL CAVITY

EPIDEMIOLOGICAL

Trends in Incidence

Accuracy of data - primary vs. secondary

Classification of Lung Tumors

Squamous vs. Adenocarcinomatous

Predisposing Factors

Influence of sex
Influence of race
Influence of familial factors
influence of personality traits, life habits
Influence of present or past infections

Availability of Data for Multivariant Analysis

B. ANIMAL MODELS AND EXPERIMENTATION

- * Use of whole smoke = selection of targets & exposure techniques.
- * Probable need of many models to form the whole picture, and what species?
- * Further need of analyzing component parts of problem.
- * Use of both in vivo and in vitro techniques.
- * Definition of the problem.

C. CLINICAL-LABORATORY

- * Quantitation of lung exposure.
- * Chronic irritation - generic, specific meaning of tissue changes.
Evaluation of carcinoma in situ
Availability of slides
- * Use of twin studies.
- * Development of tests for degrees of susceptibility and non susceptibility.
- * Lung clearance phenomena in relation to later malignancy.

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