Talk - Penna Oct 3,

THE PROBLEMS OF HAZARDOUS LEAD EXPOSURE IN RELATION TO INDUSTRY AND THE PUBLIC HEALTH

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One item in the general field of industrial toxicology

Origin

Development of American industry, especially chemical

Continual change - new products, new uses for old products

Present urge for rapid production

Objectives

A. Elimination of toxic hazards in industry by

(1) Determining physiological activity of materials, not only in high dosage, but more especially in low dosage over long period.

(2) By establishing safe limits for such long exposure

(3) By limitation of exposure to safe limits

(4) By substitution of non-toxic for toxic materials where possible

(5) By protective devices, (clothing, respirators, etc.)

B. Prevention of hazards to public in distribution and use of industrial products by

(1) Knowing properties and effects of materials

(2) Anticipating their uses

(3) Providing proper instructions and warnings for proper use and handling

(4) Controlling transportation, distribution, and sale

Methods

A. Laboratory Studies

(1) Methods of detection and analysis

(2) Animal experimentation (including observation on human subjects)

Toxicity, Physiology, Pathology, Bacteriology, and Parasitology

B. Plant surveys and studies

C. Studies on general population

D. Biometry

Results of toxicologic studies - direct and indirect

All these methods and problems to be illustrated by presentation of certain studies on industrial lead hazard

The problem of lead intoxication

A. General lead hazards of public

(1) Normal lead absorption - chiefly from ingestion -

(2) Threshold of dangerous exposure by ingestion

B. Industrial lead hazards - chiefly inhalation

(1) Threshold of dangerous lead inhalation

(a) Lead content of air

(b) Evidences of lead absorption among workmen

The means of solution of the problem

Lies in a comprehensive study of the occurrence and distribution of lead compounds, their entrance into the human organism under a variety of circumstances, and their physiological behavior in detail after gaining entrance.

Absorption, distribution, secretion as illustrated in observations on human subjects.