INDUSTRIAL MEDICINE

By Dr. W. J. McConnell
Assistant Medical Director
Director, Industrail Health Section
Metropolitan Life Insurance Company

Industrial medicine may be defined as that branch of medicine which is concerned largely with the application of the principles of preventive medicine in advancing the health and efficiency of men and women who work in the various industries. It has become almost synonymous with "manpower" maintenance.

Based initially on the necessity of caring for accidental injuries, subsequent upon the enactment of workmen's compensation laws, industrial medicine today has far exceeded this original concept. The industrial doctor became less of a surgeon and more of a physician and an administrator of a plant health department.

The functions and responsibilities of the industrial physician are complementary to those of the private practitioner. The former directs his efforts largely to the industrial environment and the improvement of industrial health through preventive measures and the early detection of diseases; the latter directs his efforts to the treatment of the individual and the improvement of National Health.

The health programs of industrial plants may vary exceedingly one from another depending upon the differences in health needs of various groups of workers. Optimum programs can only be tailored to fit each plant after adequate study. Nor can the health services be considered separate and apart from other plant services. Close cooperation and teamwork with the personnel and the safety departments as well as with the supervisors and foremen must be enlisted.

Broadly speaking, the industrial health program falls into two broad categories, supervision of the working environment and the supervision of the industrial worker. The supervision of environmental conditions with respect to materials which the worker handles; the physical factors to which he is exposed

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such as dusts, fumes, gases, vapors, solvents, ventilation, and illumination; the manner in which he works; the housekeeping and sanitation of his environment - in short, all factors which may affect the worker's health adversely, is largely an activity of the engineer and chemist but one that cannot be detached from medical participation if results are to be adequate and properly oriented. Not infrequently the existence of a toxic exposure is first made evident by the physician's examination of an employee. The industrial physician does not need to be an engineer or a chemist, but he should know what toxic materials and processes are present in the plant he serves and he should be able to recognize the clinical evidences of harm resulting from such exposure.

Medical supervision of the worker implies a selection for the job on a physical and mental basis. The preplacement examination facilitates placing the prospective worker in a job for which he is best, or at least, suitably fitted. Approximately 40 percent of applicants for work have defective vision - 25 percent never had any correction. It is obvious that a man cannot produce his peak of work if he literally cannot see what he is doing. A man with chronic heart disease cannot be expected to engage in strenuous manual labor, but there are jobs he and others with physical defects can fill with safety to themselves and others. The preplacement physical examination is the first step in preventing future trouble, and also is fundamental to job satisfaction. This examination also affords the physician the opportunity to advise the new employee to consult his private physician or dentist regarding the correction of existing defects.

The on-the-job medical services include a continuing supervision of the employee's health. His physical condition may change as may also his job. Workers subject to certain hazardous exposures may require weekly or monthly supervision which may involve special examinations, including laboratory and other diagnostic procedures. So likewise for those with chronic ailments who may require frequent supervision to insure their efficient continuance in their jobs. All other employees as well as

executives, should have annual health examinations when possible. Such examinations are the basis of a diagnostic service for workers and the very cornerstone of health education. The periodic examination must be thorough and is best recorded on one of the standard record forms which have been developed for that purpose. It should always be remembered that the physical examination, in itself, has no merit unless the findings are carefully discussed by the physician with the person examined, and make the basis of such correctional program as may be indicated. At the employee's request a confidential report of the pertinent findings of his physical examination should be sent to his physician.

The medical department provides the medical and surgical treatment of occupational complaints and injuries, and the emergency treatment of nonoccupational illness and injury. If continuing care is required for the latter, the patient should be advised to place himself under the care of his physician. The morale of the employee is high when he realizes that in the event of an industrial injury or the occurrence of illness while on the job, adequate, efficient and friendly medical service will be immediately available.

All employees leaving the job because of injury or illness, and those returning to work following absence resulting from injury or illness should be cleared through the medical department.

The maintenance of accurate and confidential medical records of all employees is necessary for the effective administration of any health program. These records should be analyzed monthly as to cause and severity, and also by departments in order to discover where excessive illnesses and injuries among workers are occurring.

Other important functions of a plant medical service include regular inspection of the working environment and of change houses to determine the adequacy of protective equipment; the supervision of eating facilities; rehabilitation programs; and the promotion and participation in health and nutrition services for employees. The activities involved cover quite a wide range, but their relationship for the

maintenance of employee health is logical and practical. The benefits accruing to industry from a well-planned health program to serve the needs of the individual plant have been demonstrated repeatedly by many of the largest and oldest industries in the country.

The burden of sickness, accidents, and deaths is one which weighs most heavily in suffering and economic loss upon the workers themselves, but it is also one which imposes a serious economic loss upon industry. Sickness and physical incapacity among workers, whether causing absence from work or not, is a costly factor resulting in under-production, spoiled goods, high disability costs, high labor turnover and low morale.

Lost time from sickness averages about eight days a year among males and about twelve among females. These are "across the board" averages and do not tell the story of individual cases of sickness. This loss affects industry and the worker alike, and much of it is preventable through the application of the principles of industrial medicine.

A survey of more than a thousand industries conducted by the National Association of Manufacturers discloses some of the advantages of an industrial health program. Of one thousand and eight companies, more than 20 percent had a reduction in absenteeism. Two hundred and thirty four companies reported an average reduction of practically 30 percent. Nearly 90 percent of 824 returns showed a reduction in labor turnover. One hundred and eighty six companies put their reduction at an average of 27.3 percent. Ninety three percent of 1,067 companies report a reduction and nearly one-half of them report reductions averaging 28.8 percent. Of 606 companies, 92 percent said that their medical service had reduced the incidende of occupational diseases.

Our experience in Government-owned explosive plants in World War II is perhaps the first large-scale demonstration of what a vigorous industrial health and hygiene program can accomplish by preventing illness and conserving man power in a large industry presenting exposures to many poisonous compounds. During more than 37 months of war, despite the difficulties associated with rapidly increasing production of explosives, unskilled labor, a fairly high labor turnover, and frequent changes of production processes and schedules, a considerable reduction was effected in the prevalence of fatal, disabling, and nondisabling illness from occupational disease and in the transfer of workers away from their regular jobs because of occupational diseases.

In 101 explosive establishments with an average of 309,000 operating employees that produced 95 percent of all military explosives in the United States there were only 28 fatalities because of occupational disease: 22 from trinitrotoluene, 3 from nitrogen oxides, 2 from carbon tetrachloride and 1 from ethyl ether - a rate of less than 3 fatalities per 100,000 workers per year. Of these 28 fatalities only 6 occurred in the last 18 months of the war despite a great increase in production. The quarterly rates of occuptional illness and dermatitis sufficiently severe to cause loss of time from work were reduced from a peak of 3.8 in the spring of 1943 to an average of 1.4 for the last year of operations, a decrease of 63 percent at a time when production was highest.

Despite the magnitude of explosives production, the total of 22 fatalities due to trinitrotoluene is but a small fraction of the 475 fatalities reported from TNT and related compounds during limited production in World War I.

From all available evidence it is believed that the results of the industrial health program compare favorably with those of the Ordnance safety program. The Chief of Ordnance has reported that during World War I, facilities of the United States which produced 40 percent of military explosives used by the Allies

In World War II, the government-owned contractor operated plants producing 95 percent of all United States military explosives have suffered only 5 fatalities per billion pounds of explosives produced.