CHESS, A COMMUNITY HEALTH AND ENVIRONMENTAL SURVEILLANCE SYSTEM

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1. Introduction

The Community Health and Environmental Surveillance System (CHESS) relates community health to changing environmental quality. CHESS consists of a series of epidemiologic studies in sets of communities representing consistent exposure gradients to common environmental pollutants. The keystone of the CHESS program is the *coupling* of sensitive health indicators to comprehensive environmental monitoring in sets of communities representing a consistent pollutant exposure gradient, thus allowing temporal and spatial replications of dose response studies.

EPA health research needs are practical and problem oriented. CHESS research is thus pragmatic and our goals are threefold: (1) to evaluate existing environmental standards; (2) to quantitate pollutant burdens in exposed populations; and (3) to quantitate health benefits of pollutant control.

2. Chess historic development and present overview

Obligations to prepare air quality criteria documents and set air quality standards were legislated in the Clean Air Act of 1967. CHESS evolution began in the fiscal year of 1968 (FY 68) with the health appraisal of air quality standards (Figure 1). The CHESS concept developed simultaneously with the growth of a multidisciplinary "critical mass" in FY 1969. Growth for this single medium approach (air) was by initial demonstration of both health indicators and monitoring within established CHESS areas and their subsequent expansion into new areas (FY 1970–71). The recent creation of the Environmental Protection Agency (EPA) signalled a more comprehensive and, now, multimedia approach to environmental hazards. CHESS will be fully operational for air pollution effects by FY 1973 and for multimedia toxic substances by FY 1975. Present CHESS operations consist of three basic, integrated functions, namely, Data Collection, Bioenvironmental Measurements, and Information Synthesis, supported by a fourth function, research and development, and coordinated by a