

Case Study #13:

Cardiac Radionuclide Imaging and Cost Effectiveness

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SUMMARY

Cardiac radionuclide imaging is a new and rapidly expanding diagnostic technology that promises to make significant contributions to the diagnosis and management of heart disease. Dynamic changes are occurring in the technology at the same time diffusion is taking place. The combination of diffusion and technological development creates an imperative for careful evaluation and prospective planning.

Clinical applications of cardiac imaging include the diagnosis of coronary artery disease, evaluation of cardiac function abnormalities, verification of the diagnosis of acute myocardial infarction (heart attack), and monitoring of patients under treatment for establishing cardiac disease. * In 1978, an estimated 227,000 cardiac scans were performed, and expenditures for nuclear imaging equipment and radionuclides were \$225 million. About \$100 million of these expenditures can be ascribed to cardiac imaging. Projected figures for 1981 are for 1.5 million cardiac scans and total of about \$425 million. The potential target population for cardiac imaging

in the United States includes 12 million persons with suspected or established coronary artery disease and an additional 80 million asymptomatic adults 40 years of age or older who might become candidates for coronary disease screening programs.

The nuclear imaging equipment industry is highly competitive. The same is generally true of the radiopharmaceutical industry, the exception being the existence of a virtual monopoly for the production of one widely used radioisotope (thallium-201).

Capital costs to establish a radionuclide laboratory range from \$100,000 to well over \$500,000. Certificate-of-need determination can be avoided by establishing a laboratory stepwise, and it is doubtful whether the "new service" rule would apply. The resource costs of individual scanning procedures range from \$72 to \$258; recommended charges range from \$155 to \$405. This apparent discrepancy between costs and charges deserves further exploration.

The efficacy of cardiac imaging techniques in identifying physiologically significant coronary disease appears to be at least equal to, and prob-

*Definitions of some of the medical terms used in this case study are provided in app. A.