



# ARCTIC HEALTH

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## Clinical experience with a decision support computer program using Bayes' theorem to diagnose chest pain patients.

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Middle Aged  
Myocardial Infarction - complications - diagnosis  
Norway  
Predictive value of tests  
Sex Distribution  
Software Validation

Abstract: A decision support computer program (DSP) was used by the emergency room physician as a diagnostic tool on patients admitted with acute chest pain to guide the referral of these patients either to the Coronary Care Unit (CCU) or general ward. The DSP used Bayes' theorem on 38 anamnestic and clinical variables to classify patients into one of nine diagnoses. During a six months trial period 32 physicians used the DSP to diagnose 493 patients admitted with acute chest pain. The physicians referred the patients to CCU or general ward based on their clinical judgements, the ECG findings and the diagnostic estimates given by the DSP. The program correctly diagnosed 150 (84%) of 178 patients with acute myocardial infarction and 63 of 112 patients with unstable angina. However, acute ischemic heart disease (acute myocardial infarction or unstable angina) was correctly classified by the DSP for 259 (89%) of 290 patients. By using the DSP, the number of patients unnecessarily referred to CCU was reduced from 35% to 19% and the number of patients in need of CCU observation misallocated to general ward was reduced from 13% to 10%. Thus, use of the DSP in the emergency room on easily available anamnestic and clinical variables may improve referrals to the CCU, optimize therapy and resource use.

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