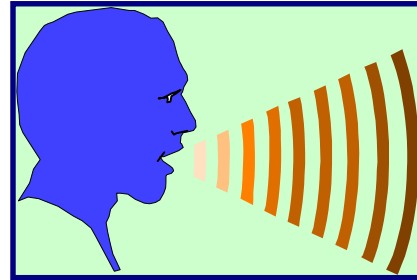


# EXSYS Case Study

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## Voice Driven Medical Diagnosis

*Medical Univ. of South Carolina  
(used by the Family Medicine Center and its consortium.)*



Anemia is widely perceived as a single disease when, in fact, it is the presence of a variety of disorders that cause decreased hemoglobin concentration.. Many diseases can cause anemia and thus the skilled physician must collect and organize all the clues he can and then try to decipher the underlying cause.

Clinical Hematology Expert Support System (CHESS) was designed to assist the practicing physician in making an efficient and accurate hemotological diagnosis. The knowledge automation system is used and accepted by those within the medical profession who are less knowledgeable about blood disorders. For routine use, data needed to interact with the system is input through a keyboard, or a voice-recognition unit (i.e: when looking through a microscope), primarily as numbers, either of options displayed or quantitative data.

The diagnostic system's knowledge was acquired through numerous discussions with practicing expert clinical hematologists. While the intial system was first designed for anemia, erythrocytosis decision logic was incorporated to include red cell, white cell and platelet problems. The knowledge base captures the usual sequence of thought and questioning while examining a patient. The system is designed to guide the user to diagnosis in an optimal manner by minimizing the requirement for quantitative laboratory data, while at the same time, asking pertinent questions in the same sequence that an expert clinical hematologist would ask them.

The system is not only an expert diagnostic system but also an expert teaching system for medical students as well. It provides the user with the ability to ask why a specific statement is displayed, how a conclusion was reached, and shows the user the optimal sequence of questions.