Aiming to emphasize the educational potential of hypermedia applications and the flexibility offered by the ITS, the authoring factory tutors provide:

- the presentation of a clinical case in hypermedia format;
- all related information about the patient in hypermedia format;
- effective tutoring strategies according to the student level and performance;
- assistance during the case solution.

After handling **HYPERDOCTOR**, the physicians professors must to:

- define medical cases and point to its objective;
- elaborate and write the case;
- identify the information formats to be presented;
- select or prepare the instructional audio-visual material;
- define the users stereotypes according to the case;
- relate the users stereotypes to the tutor contents;
- define feedback and comment according to the users' stereotype;
- solve the case using the provided material.

Before following these steps, physicians are able to access **HYPERDOCTOR** and start to build medical tutors. The authoring factory **HYPERDOCTOR** provides to authors:

1. tools and editors for editing the cases and facilities for the insertion of sound and visual information;
2. support for creating texts, importing image, sound, video and animation sequences;
3. support for creating the hypermedia webs, which contain the cases presentation, through the providing of links among pieces of information;
4. help for organizing the medical knowledge in hypermedia format;
5. assistance for defining students requirements and performance to build the student model;
6. help for defining and specifying these levels, and for relating them to the hypermedia base;
7. aid for each phase of the tutor building;
8. assistance for creating of the Cases Base;
9. provides support for the pedagogical tutoring.

From the primary phases of **HYPERDOCTOR** design, we have searched to reach high degree of user-friendliness and use and learn easiness. Therefore, our previous experience has shown that some specialized support in the handling of authoring tools is always need, both in audiovisual area and in programming area. To make easier the physicians' work with the system, it offers a pre-defined shaping of the hypermedia webs. The nodes of these webs perform as typed nodes [Fig. 1]. In order to compose this shaping, we chose the five steps for solving medical cases, proposed by Cox [1996]:

**STEP 1** - the patient perception - decomposed in:
- personal and family medical history;
- symptoms;
- physical aspects;
- clinical analysis (pulse, auscultation, corporal temperature, arterial pressure).

**STEP 2** - the analysis of patient specific aspects, such as laboratories’ reports (blood, urine) and the usual and common heart analysis results (electrocardiogram, thorax X rays)
STEP 3 - the searching of evidences and additional information, such as more complex heart analysis (echocardiogram, myocardial cintilography, heart and thorax ultrasonography) and enzymes' measurement.

STEP 4 - the categorizing of diagnosis classes. The student identify possible diagnosis and refuse others.

STEP 5 - the formulation of a diagnosis.

Fig. 1 - Parcial Meta Representation of Typed Nodes - HYPERDOCTOR

3.2.2 STUDENT MODE

It is composed of an interface for accessing the intelligent hypermedia tutors and cases base. When a study session is started, the student fills a form and is presented to questions to be answered. The answers will determine his/her classification, and activate the related stereotype. After classifying in one stereotype, all students receive the same medical case description. It means that the knowledge embedded in the hypermedia nodes can be consulting under how much different perspectives as available stereotypes defined by the tutor’s author. It is expected that a non-cardiologist physician presents a better structured knowledge than a medical student. For that reason, feedback, help and hints provided by the system are different for each stereotype, even considering that all students are accessing the same information sources.

The interface design [Figure 2] has hypermedia format and links for external tutors built in Sisautor. The tutoring strategy adopted in the teacher model is non-intrusive and based on Bruner construtivism. Bruner approach embraces the exploration of alternatives and the spiral curriculum. As mentioned, when a case session is started, the student is classified in one of the stereotypes. A particular navigation path is presented and the system does not interfere in the student’s choices. If the student requests for helping or want to present a diagnosis, the system interferes, providing help, evaluation, feedback and comments about the student navigation. From the evaluation, the system classifies the student in other stereotype and offers one of the two options: a new navigating on the hypermedia web in order to