Dynamic Adaptation of EHR Structure for Automated Compliance Evaluation

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**CONTEXT**
Integration of Clinical Practice Guidelines (CPGs) within Electronic Health Record (EHR) systems

**BENEFITS**
- Broad dissemination
- Real implementation
- Effective enactment

**CONTRASTS**
- Bias towards specific pathologies
  - tailoring the EHR structure to a restricted set of CPGs
- Weakening of practical feasibility and usability
  - tailoring the EHR structure to any applicable CPGs

**CONTRIBUTION**
- Configurability with respect to specialties and guidelines in specialties
  - leveraging on a Reflective SW Architecture
  - achieving bias avoidance, usability, and completeness
- Rule-based representation of CPGs recommendations
- Automated compliance evaluation
  - Clinical diagnoses and courses of action versus CPGs and local protocols
- Dynamic adaptation of EHR content
  - From unbiased general structure to CPGs–oriented structure

**METHODS**
1. Clinical information is collected within an unbiased general structure
2. A diagnostic hypothesis is formulated
3. CPGs applicable to the case are automatically identified
4. The EHR structure is adapted to focus on concepts referred into applicable CPGs and relevant for clinician’s compliance

**RESULTS**
- An implementation of the described EHR system, focused on CPGs for valvular heart disease management, is presently on trial in various Cardiology clinics at the Careggi hospital in Florence
- Preliminary experimentation shows feasibility and benefits of the proposed approach
- Ongoing activity is directed to exploit the system in the automation of retrospective analyses of compliance