# Translation of Guideline Knowledge for Decision Support

- Collaborators at Stanford, Harvard and Columbia
- Task: Knowledge engineers individually encode guidelines for vaccine administration and for workup of breast mass
- Test: Submit standardized patients
- Outcome: Different recommendations would be given for the same patient

Patel VL. JAMIA 1998

Challenge of Representing Guideline Knowledge Electronically
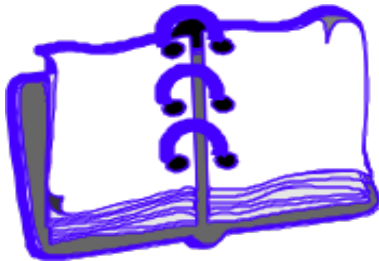
Published Guideline

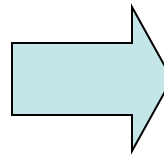**Black Box**
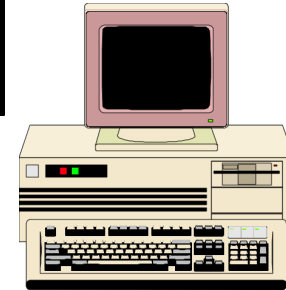
Computer-Based Guideline Implementation
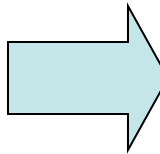
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┌─────────────────────────────────────┐
│  ┌──────────────────────────┐        │
│  │   Narrative Guideline     │        │
│  └──────────────────────────┘        │
│              │                        │
│              ▼                        │
│  ┌──────────────────────────┐        │
│  │    Semi-structured        │        │
│  └──────────────────────────┘        │
│              │                        │
│              ▼                        │
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│  │     Semi-formal           │        │
│  └──────────────────────────┘        │
│              │                        │
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│  │        Formal             │        │
│  └──────────────────────────┘        │
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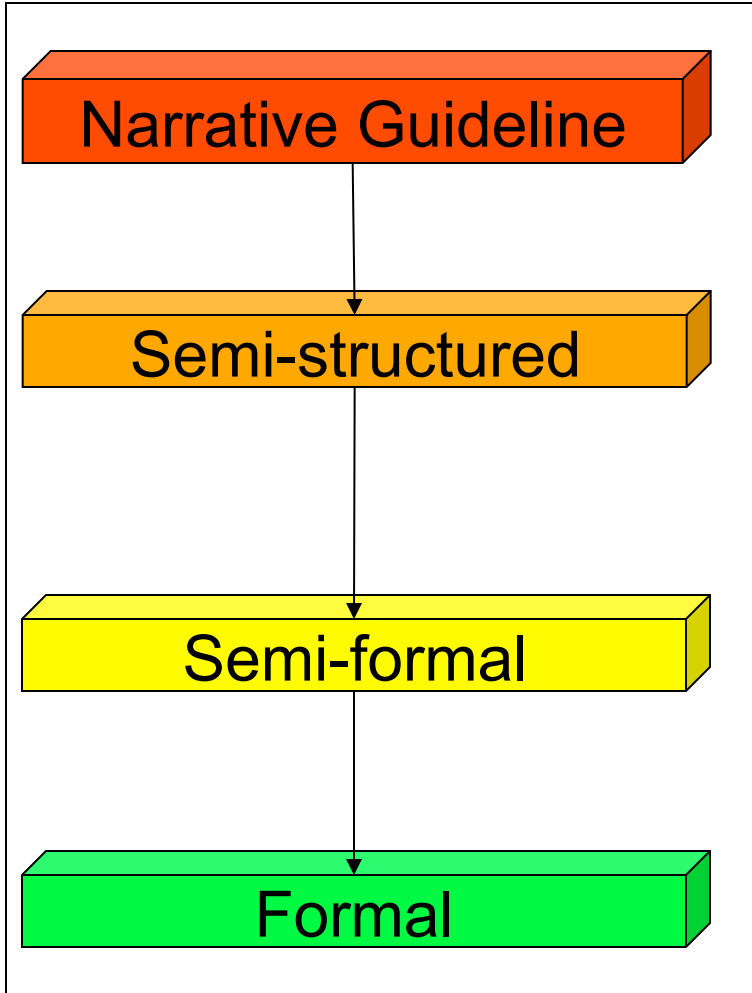
Select Guideline

Applicability
Quality
Utility

Narrative Guideline

COGS, AGREE
GLIA
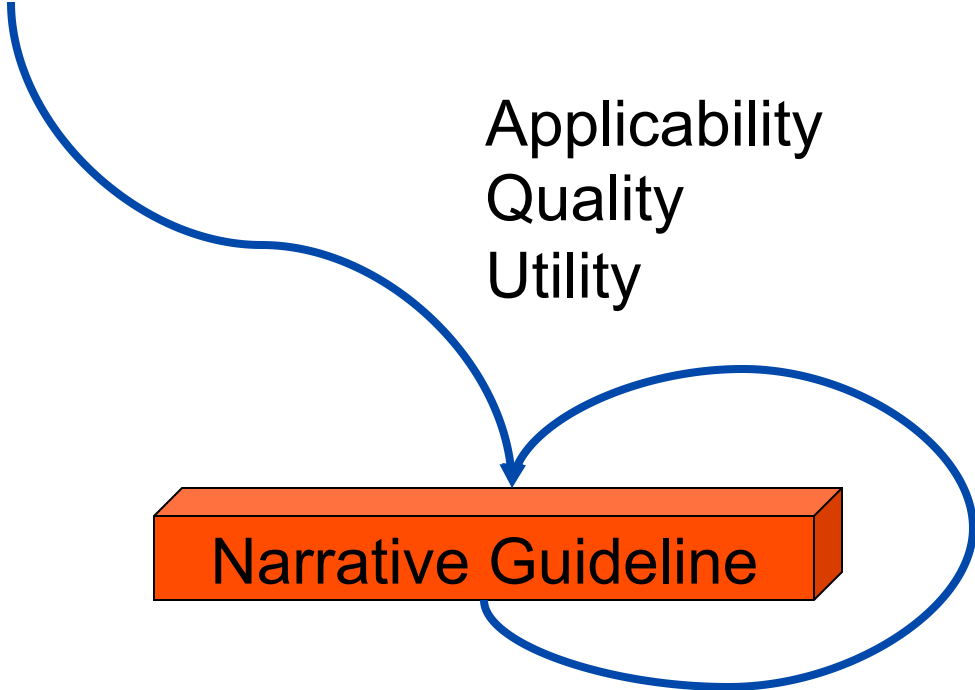
Narrative to Semi-Structured
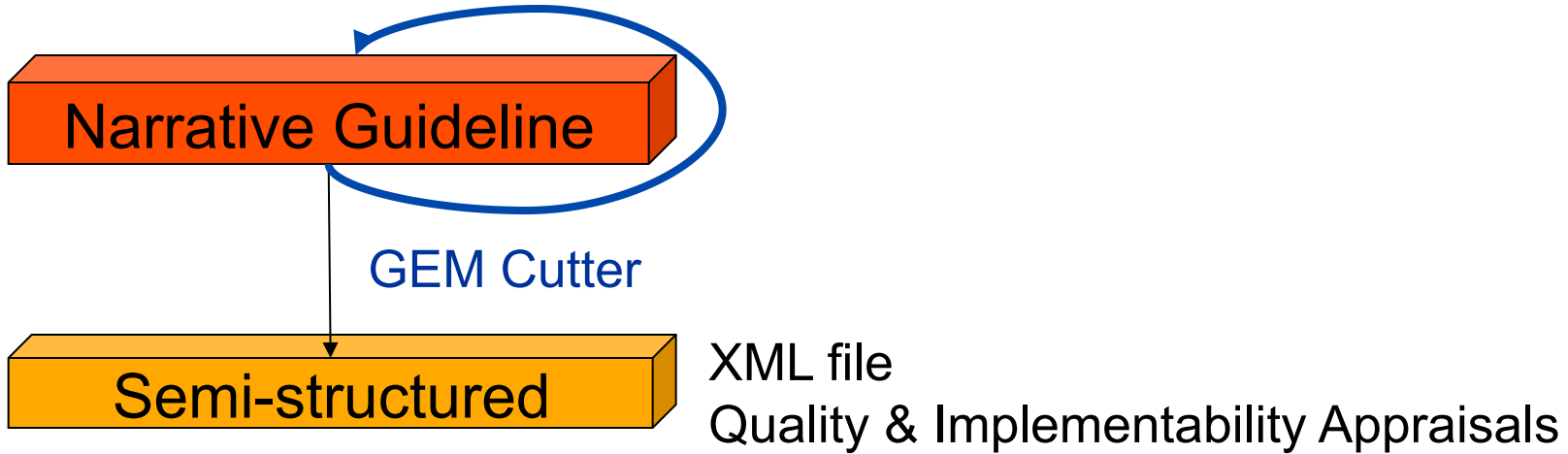
Semi-Structured to Semi-Formal

Narrative Guideline

Semi-structured

XML file
Quality & Implementability Appraisals

EXTRACTOR Transforms

Semi-formal

Statement logic
Coded decision variables & actions
Action-types

Narrative Guideline

Semi-structured

Semi-formal

Statement logic
Coded decision variables & actions
Action-types

Local workflow & barrier (technical, workflow variance, people, organizational) analysis; local codes; origins/insertions

Formal

Local EHR scripting language; UI choices

Knowledge About Appropriate Care

BRIDGE-Wiz

Narrative Guideline

COGS, AGREE GLIA

GEM Cutter

Semi-structured

XML file
Quality & Implementability Appraisals

EXTRACTOR Transforms

Semi-formal

Statement logic
Coded decision variables & actions

Action-types
Local workflow & barrier analysis;
Local codes
Origins/insertions

Formal

Logic encoded in local EHR
scripting language;
User interface selections