

11. Specification of supporting materials and strength of evidence/recommendation

In this section we review the different elements of support material and references to strength of evidence and recommendation that the guideline modeling methods support. Table 1 summarizes the information.

Table 1. specification of support material by the different guideline-modeling methods

	Asbru	GLIF	EON	PRODIGY	PROforma	GUIDE
Comment	+	+	+	+	+	+
Explanation	+		+	+	+	+
Quick Help				+		+
Trend prompt				+		
Action prompt				+		
References and URLs	+	+	+	+		+
Strength of recommendation		+	+			+
Strength of evidence		+	+	+		+

a. Supporting material

All the methodologies have comment fields for their constructs. Asbru, EON and PRODIGY support explanations. EON uses the WOZ explanation system [7] that has an argumentation structure and also structures the order of presenting information. EON can thus give explanations such as “Add thiazide diuretics because it also helps manage the patient's other comorbidity”. WOZ uses specific structures in the Support_Material class, which is structured like a reference.

PRODIGY has many ways of providing explanations and making the user aware of things that she may otherwise miss. For example, the action and trend prompts encourage the user to enter information about the trend of the patient's condition (e.g., improving). This makes users more aware of what the guideline is recommending and the way in which decisions are carried out. PRODIGY's “quick help” aids users when using their system in a very specific way [what way?????????].

The GUIDE model provides help for the decision-making process. When asking for help, a URL is called, where the user can run a decision tree for a diagnostic test choice. The help method embeds a decision tree or an influence diagram with a fixed structure that general enough to represent all the tasks falling in a certain “decisional problem” class (e.g., “choice of the diagnostic tests”).

Distinct attributes for storing references and URLs are present in PRODIGY, EON and GLIF.

Arezzo supports limited internal documentation with text “captions” for tasks and/or arguments while the Newcode tool can also access a URL for more extensive on-line documentation. “Quick help”, “trend prompts” and “action prompts” can all be implemented simply and directly in Arezzo using the task constructs provided by the language

b. Strength of evidence and recommendations

Strength of recommendation (e.g., necessary, recommended, suggested) is the weight that guideline authors give to some of the guideline’s recommendations. GLIF and GUIDE can express strength of recommendation. In EON, relations such as “compelling indication” and “relative indications” embody the notion of strength of recommendation. The developers of PROforma view information about strength of recommendations as either internal to the guideline (when it represented through the weighting system of the decision process) or external (meta-data, as it were) and dealt with in the documentation for the application.

EON, GLIF, PRODIGY, and GUIDE distinguish between strength of recommendation and strength of evidence. Strength of evidence is the amount and quality of supporting evidence for a recommendation. Although strength of recommendation and strength of evidence are usually concordant, there are some circumstances where they may be quite different. One example of a case where strength of recommendation and strength of evidence are not concordant is the treatment of bacterial meningitis with antibiotics [8]. Emergent antibiotic treatment is the undisputed standard of care in bacterial meningitis. There is widespread consensus regarding the necessity of giving antibiotics as soon as possible, even

before the diagnosis is confirmed. Therefore, the strength of recommendation is high. This is despite the fact that no clinical trials were carried out to support this recommendation. In fact, the relatively little evidence that exists suggests that delaying antibiotic treatment is associated with improved outcome in bacterial meningitis. Hence the strength of evidence for antibiotic treatment is low.