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## Using Action-Types to Design Guideline Implementation Systems

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**Background:** Translation of the knowledge contained in practice guidelines into tools that influence clinician behavior at the point of care remains a challenging problem. Plans to implement each recommendation must be individualized, but some components of these plans are reusable. Actions called for by guidelines can be categorized reliably into 14 action-types: Test, Inquire, Examine, Monitor, Conclude, Document, Perform (Procedure), Refer / Consult, Educate / Counsel, Prescribe, Prevent, Advocate, Prepare, and Dispose (Admit / Discharge / Transfer).

**Purpose:** We hypothesize that defining action type(s) for each recommendation can suggest useful, reusable components of an implementation plan.

**Methods:** To identify reusable design considerations, we conducted a focus group comprising 8 clinicians who have experience and expertise in the design of guideline implementation systems. For each action-type, the panel was asked to identify commonly used implementation activities and services that users would perceive to be valuable. Such activities might aid the clinician's or patient's decision-making or the successful completion of a planned course of action. The results were categorized and themed and used to populate the action-type model.

**Results:** The panel described a set of replicable considerations for implementation of guideline recommendations based on specific action-types. For example, implementing recommendations of the "test" action-type might incorporate (among other considerations): presentation of test options/alternatives, test costs, scheduling options, interpretation aids, patient education, requirements for preparation, and a "tickler" follow-up system. Likewise, a recommendation categorized as a "prescribe" action-type might be supported by presenting drug information, safety alerts (drug-allergy, drug-drug interaction), dosage calculation, pharmacy transmission, and corollary orders.

**Discussion:** Categorization of action-types in guideline recommendation statements can be used to derive reusable design patterns for implementation. Offering beneficial services that support clinician and patient adherence facilitates successful implementation.