Ordering a chest X-Ray:

PRODIGY:

The “Chest radiograph” action step is shown below.

A Read code should be specified here.

EON:
The “Chest radiograph” action step is shown below.
Ordering an X-Ray

Ordering an X-Ray is modeled as an action step, as shown in
Figure 1. It shows the **grade of evidence**.
The X-Ray action

The task done in the X-Ray action step is a medically-oriented task, as shown in Figure 2.

Asbru:

\[
\text{<plan name="chest-radiograph">}
\text{  <explanation text="Evidence for ordering a chest radiograph before treatment is of Grade II-2."/>}
\text{  <plan-body>}
\text{    <user-performed/>}
\text{  </plan-body>}
\text{ </plan>}
\]

There is no formal modeling of grade of evidence and also not of the procedure ordered.

PROforma:
The chest X-ray is modeled as an action within the CXR and initial treatment plan.

\[
\text{action :: Order_CXR ;}
\text{  caption :: 'Order CXR' ;}
\text{  procedure :: 'Order CXR' ;}
\text{ end action .}
\]
The grade of evidence and the order are not modeled.

Grade of evidence:

GLIF: modeled as a slot of any guideline step

![GLIF grading example](image1)

EON: slot of an action or subguideline steps

![EON evidence rating example](image2)

PRODIGY: evidence rating slot of an action step and a subguideline step. Can take the values a.d, I, II, and nil. The rating system is not specified.

Asbru: plain test in the explanation slot of a plan

PROforma: can be modeled as plain text in the description slot of a task

Chest X-Ray and treatment in any order or strictly sequential

GLIF, EON:
Using choice steps to check if there are conditions to withhold X-Ray, or if ACEI is the cause of cough. Control flow follows from the possible results of the choice step. Actions can be executed in any order using a branch step.

PRODIGY:
The entry scenario (chronic cough) is followed by 3 alternative actions. Each has rule in and out conditions.
The X-Ray action is strictly ruled out if an x-ray was already done. It is greyed out if there are reasons to withhold the X-Ray. The user can choose to execute the X-Ray and treatment in any order (the “Chest radiograph not essential” subguideline has an exit point to the Treating Cough step).
Asbru:
The Cough-Overall plan has two subplans: unordered, and in-sequence.

The in-sequence plan is executed if the filter precondition:
chronic-cough equal yes and
(not (presumed-PNDS equal yes and young equal yes and smoker equal no)
or pregnant equal yes
or ((plan administer-ACE-I was activated at (now–4 weeks))
and (has-chronic-cough equal yes and has-chronic-cough latest starting-shift
was 1 week after plan administer-ACE-I was activated)))

The unordered plan has an opposite filter precondition: Not filter of cough-in-sequence
PROforma:

Very similar to Asbru. The plan CXR_and_initial_Rx has components that represent CXR_first and CXR_in_parallel. They both can be executed only after the Scheduling_decision completed.

plan :: CXR_and_initial_Rx ;
  caption :: 'CXR and initial treatment' ;
  description :: 'Scheduling of CXR and initial treatment' ;
  precondition :: Chronic_cough = Yes ;
  component :: Scheduling_decision ;
    component :: CXR_first ;
      schedule_constraint :: completed(Scheduling_decision) ;
    component :: CXR_in_parallel ;
      schedule_constraint :: completed(Scheduling_decision) ;
  end plan .

The Scheduling decision computes the Scheduling_decision as either CXR_in_parallel or CXR_first. The criteria for choosing CXR_in_parallel are:
( ACE_related = Yes ) OR
( Age_group = Younger and Smoker = No and Presumed_PNDS = Yes ) OR
( Pregnant = Yes and Sex = Female ) ;

The criterion for choosing CXR_first is that CXR_in_parallel was not chosen:
argument :: for, ( netsupport( Scheduling_decision, CXR_in_parallel ) < 1 )
decision :: Scheduling_decision ;
caption :: 'Scheduling decision' ;
description :: 'Chest Radiographs should be ordered before any treatment is prescribed in nearly all patients with chronic cough (Grade II-2)' ;
choice_mode :: single ;
support_mode :: symbolic ;
candidate :: CXR_first ;
  argument :: for, ( netsupport( Scheduling_decision, CXR_in_parallel ) < 1 ) ;
  recommendation :: Netsupport( Scheduling_decision, CXR_first ) >= 1 ;
candidate :: CXR_in_parallel ;
  argument :: for, ( ACE_related = Yes ) ;
  argument :: for, ( Age_group = Younger and Smoker = No and Presumed_PNDS = Yes ) ;
  argument :: for, ( Pregnant = Yes and Sex = Female ) ;
  recommendation :: Netsupport( Scheduling_decision, CXR_in_parallel ) >= 1 ;
end decision .

The actions CXR_in_parallel and CXR_first have preconditions that check whether the result of the Scheduling_decision was CXR_in_parallel or CXR_first, respectively.