# Workflow Issues

## Discussion Scope

Spans clinical, administrative, financial, etc. Includes synchronous and asynchronous exchanges. Focus is REST but needs to work in Messaging and services (Operation) approaches too.

## Relevant Resources

“Workflow” resources – manage requests for action and responses to requests for action:

* Order, OrderResponse,
* ProcessRequest, ProcessResponse (these resources include a mixture of action request, query and transport-level actions)

“Definition” resources – Define what can be done:

* Questionnaire
* At least one more is needed to cover the notion of Protocols (study protocols, chemotherapy protocols, order sets, etc.) Performed protocols?

“Request/Intent” resources – resources that define proposals, plans or requests for action:

* ReferralRequest, ProcedureRequest, NutritionOrder, VisionPrescription, MedicationOrder, DiagnosticOrder, Appointment, DeviceUseRequest, SupplyRequest – These all mostly work the same way
* CarePlan – this acts as a grouper for other proposals/plans and can’t be instantiated as a request
* ImmunizationRecommendation – this also can’t (currently) be instantiated as a request

“Action” resources - resources that capture the record of some action (possibly based on a proposal/request):

* Procedure, MedicationAdministration, MedicationDispense, Immunization, Encounter, EpisodeOfCare, Communication, SupplyDelivery, Coverage, PaymentNotice, PaymentReconcilliation, ExplanationOfBenefit, DeviceUseStatement

“Confirmation” resources – resources that provide information while also satisfying workflow requirements

* AppointmentResponse, EligibilityResponse, EnrollmentResponse, ClaimResponse

“Finding” resources – Information that has been gathered about a subject, possibly in response to a request:

* FamilyMemberHistory, RiskAssessment, Observation, DiagnosticReport, ImagingStudy, QuestionnaireResponse
* AllergyIntolerance, Condition, MedicationStatement

## Use Cases

1. Need to differentiate between existence of records and “request to action” the record. I.e. Posting a prescription to a server shouldn’t cause pills to start being counted to fill the prescription, but there does need to be a mechanism to trigger the counting of pills.
2. Most important “please action” is around creation of an order. However, can have similar requirements for “order is suspended” or “order is aborted”
3. Need a way to tie the responses to an “action” request to the request, particularly where not all actions will be tied to the same request. E.g. multiple “requests to dispense” against a single prescription – the dispense record would be tied to the individual requests.
4. Need to handle the cascade of requests and fulfillments. For example: Decision support engine creates a proposal for a patient to be on a medication protocol. Clinician adds a planned use of the medication therapy adjusting for patient weight and other factors. Intern creates a draft order. Physician activates the order. Pharmacy encodes the order. Pharmacy dispenses the medication to the ward. Pharmacy generates a MAR indicating the nursing administration schedule. Nurse administers the medication. So need to relate: Protocol, *Proposal, Plan, Draft Order, Activated Order, Encoded Order, Administration Order*, Dispense and Administration. At present, all italic artifacts would use the MedicationOrder resource. Need a way to tell them apart and also link them together (so plan can point to proposal, etc.)
   1. This includes relationships created through delegation and transfer
5. In the messaging world, at least, need to be able to submit requests for action on status that don’t necessarily echo back the entire structure. E.g. “Suspend this order” – “Ok, suspended” or “No, can’t suspend”. Or even “What’s the current status of this order?” – “In progress” – need to convey where within the business steps a given request is at
6. Need to be able to propose and plan status changes of other resources. E.g. “You should stop medication X”, “You should suspend blood draws for the next 12 hours”. (And need to have audit and provenance around the proposals and plans, as well as responses that say “I will” or “I won’t”.)
7. Compensating actions: Some resources allow the action to be “undone” by changing the status on the resource to “cancelled” or “entered in error” or equivalent. Other resources are reversed by introducing a new resource that “undoes” the action of the previous resource (e.g. reversing a claim). Workflow will need to support both approaches (and it will need to be obvious which approach gets used when
8. Order has timing information, including complex schedule information. Why is this needed and how does it relate to the timing information present on the order itself.
9. Composite orders: How do we handle orders for multiple types of things (drugs + devices + procedures)?
10. We have overlap in some spaces E.g. SupplyRequest vs. DeviceUseRequest vs. VisionPrescription
11. Consistency
    1. Naming of resource – Request vs. Order vs. Prescription
    2. Naming of resource elements
    3. Order of resource elements
    4. Nesting capability within requests (DiagnosticOrder vs. ProcedureOrder) – what’s the boundary between what’s in a request vs. what’s handled by Composite Order?
    5. Whether “ordering” information is present – who should perform
    6. Whether intended “fulfiller” information is present
    7. What statuses are used – workflow statuses such as accepted/rejected; whether proposed and planned are included
    8. Whether status history is present
12. We currently use “Status” to differentiate Proposed/Planned/full order. However, Proposals and Plans can also be draft, suspended, cancelled – which means that when an instance takes on one of those statuses, we lose the fact it was a proposal or plan. (So do we need some sort of a “mood” type thing on Order? - Could also be used to distinguish things like placer order vs. filler order.)

## Historical precedents

ORC (and a bit of OBR/OBX) segment in v2

ControlAct in v3

### Interested WGs

OO, PC, MnM, FM, II, Pharmacy, HSI, PA, FHIR-I

### Deliverables for next meeting

1. Spreadsheet that compares resource contents in each category: Lloyd
2. Identify candidate connectathon use-cases (interesting from “how will this work” as well as interesting to implementers)
   1. Radiology remote read: Keith B.
   2. Cross-departmental (admission, eligibility, orders, observations): Mary-Kay
   3. Lab order w/ negotiation, delegation and cancellation: Eric H.
   4. Pharmacy process (decision support recommendation -> plan -> order -> encoding -> mar -> dispense -> administration): Scott R.
   5. Referral lifecycle (including negotiation): Keith B.
   6. Visit appointment: Brian Post.
   7. Charge capture: Kathleen C.
   8. Protocol -> Decision support -> order set -> composite order: Patrick L.
3. Primer on BPMN and related methodologies as they might apply to this problem space & resources: Keith
4. List of resource scopes: Lorraine
5. Candidate Protocol resource: Lloyd