Considerations for Care Transitions
Matrix Table "A" – Elements

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	User Notes (Elements)
1	Matrix Table “A” (Elements) lists the logical components of a care transition. Many healthcare processes entail the transfer of information, knowledge, data, responsibility, persons or physical artifacts. There are many synonyms and near-synonyms for "care transition," including “transition of care,” “transfer,” “transport,” “handoff,” “sign-out,” “referral,” “consultation,” etc. The Matrix intends to comprise them all, by understanding “transition” in the broadest possible way. Usually, transitions are pairwise transactions between Initiators and Receivers, but may involve teams. Breakdowns and errors in patient care can often be traced to failures in one or more critical Elements of an exchange. The Matrix is intended to “atomize” transition processes to allow clinicians, quality and safety reviewers, guideline developers, software developers, researchers and managers overseeing healthcare operations to isolate issues in their analysis of this important aspect of care delivery. There are similarities between the logistics of healthcare transitions and those of other industries (e.g., retail sales, airlines, hotels). The nuances of difference are seen in Elements such as Payloads and Tasks. Some of the terms used in the Matrix are used in non-standard ways or unfamiliar in a healthcare context. Some concepts from other industries have not penetrated into healthcare very well; also healthcare, like every human activity, has its own unique ramifications.
2	Column headings are to organize exposition: **Description:** Defining the dimension an Element is attempting to capture. **Discussion, clarification, elaboration:** Explanatory notes that clarify the Description. **Failure modes, risks, barriers:** For each scenario, what tends to go wrong? **Supportive materials, etc.:** Tools to improve transition effectiveness, efficiency and safety. These will eventually be flagged for appropriateness for different users
3	Row numbers are for convenience in editing.
4	This work is not being offered as a fait accompli; rather as a work under construction. The current version is being released to collaborators in incomplete form, with the expectation that, as cells in the Matrix become thoughtfully filled, the overall structure may morph from insights gained along the way.
5	The application “FIND” function allows searching for any term or phrase.
6	Matrix Table “B” lists *Scenarios* (use cases) illustrating how Elements can be identified in common care transitions

A	INITIATOR			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	Who (role) is initiating the transition?	Initiator is usually responsible for preparing the outgoing transition package. The initiator may be undefined; transitions may be initiated by the patient. Intramural transitions differ from extramural; transitions within healthcare facilities differ from transitions outside healthcare facilities.	Relevant to Initiator in the given role	Relevant to Initiator in the given role
7	Patient	Self-referral	Language, knowledge, economics, competence	
8	Parent, guardian, representative	Typically with legal authority to consent		
9	Spouse, family member, partner	Authority to consent in some circumstances		
10	Unrelated friend, bystander	No authority to consent		
11	Physician	• Primary responsibility: Attending, treating, referring, ordering • Secondary responsibility: Consulting, assisting	Time pressure, familiarity with of procedures, forms	
12	Nurse	Many roles	Time pressure	
13	Other medical professional			
14	Non-medical professional	In an official role, otherwise acting as bystander		
15	Emergency services			
16	Law enforcement	E.g., court-ordered psychiatric evaluation	Knowledge gap; conflict of interest	

B	RECEIVER			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	Who is receiving the payload, task, responsibility?	Receiver may be prepared; or may not have received advance notice.		
17	Specific facility	E.g., University Hospital	No records available; patient unable to list past providers; takes 9 weeks to obtain partial records	Personal Health Record (PHR); Portable PMR; CCD/CDA (Dossia, Cal-INDEX, Availity; Relay Health).

B	RECEIVER			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	Who is receiving the payload, task, responsibility?	Receiver may be prepared; or may not have received advance notice.		
18	Non-specific facility	E.g., Emergency department, Burn Unit, pharmacy		
19	Specific provider			
20	Provider or group type	E.g., Cardiologist, psychiatrist		
21	Specific group of providers			
22	Non-specific service	E.g., Ambulance, police		

C	TRANSPORT CARRIER			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	What is the transportation carrier/vehicle/method for the human and physical payloads?	May be unspecified; arranged by Initiator, Receiver, patient or other party. May also be the Initiator or Receiver.		
23	Ground ambulance		Communications	
24	Private vehicle		Lack of equipment	
25	Unknown			
26	Wheelchair		Access	
27	Ambulatory		Mobility	
28	Attendant, accompanying person	E.g., parent carries child into exam room	Authority	

D	HUMAN PAYLOAD			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	Who is the person being transferred?	Characteristics, physiological status, mental status, legal status, vulnerabilities, risks, language barrier?		
29	Adult – conscious, competent, cooperative			

D	HUMAN PAYLOAD			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	Who is the person being transferred?	Characteristics, physiological status, mental status, legal status, vulnerabilities, risks, language barrier?		
30	Adult – not conscious or not competent or not cooperative			
31	Older minor – conscious, competent, cooperative			
32	Older minor – not conscious or not competent or not cooperative			
33	Infant			
34	Cadaver			
35	Accompanying person			

E	OTHER (PHYSICAL) PAYLOAD			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	Property, objects other than persons being transported	Specimen; documents; personal property; medical supplies/equipment; DVD of images; X-ray film		
36	Medical supplies, pharmaceuticals, blood products		Misplaced, stolen	
37	Documents, media		Misplaced, stolen	
38	Assistive devices, equipment	E.g., dentures, corrective lenses, splint, crutches	Misplaced, stolen	
39	Biological specimen	E.g., blood, urine, organs	Misplaced, stolen	
40	Personal property	E.g., wallet, purse, keys, jewelry	Misplaced, stolen	

F	INFORMATION PAYLOAD			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	What information needs to be transferred?	Information, instructions, Tasks; problems, warnings, concerns, contingencies. Structured, unstructured, visual, audible, non-verbal, explicit, implicit, concise, verbose, obvious, ambiguous?	Relevant to various kinds of content.	
41	Verbal content		Incomplete information, privacy breach, data loss, corruption	SBAR, I-PASS
42	Small message (Kilobytes)	E.g., written data, text, forms		Task List, Care Plan
43	Large message (Megabytes)	E.g., audio, video, large chart, electronic file	Technology	CCD/CDA, Summary record
44	Very large message (Gigabytes)	E.g., multimedia, medical imaging	Technology	DICOM

G	COMMUNICATION MEDIUM & MODE			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	Through what medium is communication accomplished between Initiator and Receiver?	Synchronous; asynchronous; real-time; delayed? Is there an intermediary responsible for storing, forwarding, filtering, preserving?	Relevant to various modes of transmission.	
45	Verbal report		Human factors	SBAR; “Read-Back”; audio/video recording; voice-recognition
46	Electronic communication within secure system	Unstructured, semi-structured or transfer of a fully structured record set	Technology	
47	Text messaging			
48	Video teleconference	Includes remote monitoring, “patient generated data,” tele-health, tele-medicine		

H	TASKS & CONTINGENCIES			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	Nature and scope of responsibility being transferred from Initiator	What responsibility is being transferred? Includes Tasks to be managed on route; Tasks that will become the responsibility of the Receiver on arrival. Some responsibilities are upon CARRIER and some upon RECEIVER. Is there delegation of responsibility? Full responsibility or limited? Temporary? Defined by task completion? Open-ended? Is it a request for advice? Technical service? Does the Initiator remain on the case? How does the transfer change roles? How are residual tasks addressed? Is there a request for advice? Assumption of care? Intervention? Collaboration? Which party is accountable for closing the agenda(s) that have been transferred?	Relevant to various kinds of responsibility Default contingencies are not complete or relevant	"Task Lists" and "Care Plans." A comprehensive Task List or Care Plan might accompany the patient (see Information Payload), entailing numerous future actions and contingencies. But, this "TASKS" Element focuses only on a set of expectations (which might take the form of "orders") pertaining to the immediate transition. As with all "orders," they are subject to the Receiver's informed judgment.
49	Transfer of full responsibility for an indefinite period	Initiator expects to resume care	Tasks/plans not communicated, goals not understood, Receiver not prepared, equipped, competent, appropriate, available	Task List or Care Plan
50	Transfer of full responsibility for a defined period	E.g., sign out to on-call provider; anesthesiologist manages resuscitation parameters in the OR	Incomplete sign-out, ambiguity, misunderstanding	
51	Joint responsibility – referral	Receiver becomes principally responsible, but Initiator retains some active responsibility		
52	Joint responsibility – consultation	Receiver has limited responsibility; may not have direct patient contact		
53	Joint responsibility – collaboration, shared care	E.g., surgical team, ICU team, specialist management of defined aspects of care		
54	Permanent discharge from care	Transfer to another provider	Emergency	

I	AUTHORIZATION			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	The nature and scope of the authority being transferred from Initiator	What authority is being transferred? What is the authority relationship between Initiator and Receiver? Is it role/credential based or task based? How has authority/competence been assessed? Communicated? Verified? Legal ramifications?	Relevant to kinds of authority	
55	Normal	Authority normally associated with a healthcare provider	Nobody in charge; multiple people in charge	Care coordination
56	Limited	E.g., authority to review protected health information		HIPAA Business Associate Agreement
57	Legal custody of a person		Custody rights may not be valid or clear	Court order
58	Access to selected information	E.g., epidemiological, statistical, financial, quality, performance, administrative		HIPAA exceptions
59	Right to treat against patient's wishes			

J	VOLUNTARINESS			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	To what degree is the transition voluntary?	Patient's outlook regarding the transfer; patient preferences. Is there conflict? Planned, unplanned, unexpected?	Relevant to patient's mental status	
60	Normal	Fully voluntary		
61	Impaired	E.g., intoxicated	May be variable	
62	Involuntary or against objection	E.g., 72-hour mental health hold		Formal processes
63	Not applicable	E.g., unconscious, infant, etc.		

K	COMPLEXITY*			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	How complex is the transition?	How many steps/components in the process? How many steps/components in the tasks that are involved? How many people involved? How "fragile" is the transfer process? Are there hazards to patient or providers? * "Complexity doesn't really evoke the sense we're trying for, but it's the best word we could come up with.	Relevant to nature of the complexity.	
64	Minimal	E.g., discharge home from dental office after uneventful tooth extraction under IV sedation	Complexity may change; Receiver may not have necessary resources	
65	Low	E.g., transfer to rehab from hospital after total knee replacement		
66	Moderate	E.g., air ambulance pickup of critically ill newborn		
67	High	E.g., rural internist refers non-English-speaking pregnant woman with multiple sclerosis, no insurance, prior premature labor, twin pregnancy, epilepsy for OB care 200 miles from home E.g., Mountain rescue of climber with possible cervical fracture; spine board, hypothermia risk; hazard to rescuers; helicopter, costs	May involve multiple transfers, complex team, communications, etc.	
68	Extreme	E.g., Decompensating Ebola patient transported from West Africa to facility in USA.	High demand for resources, specialized knowledge, equipment, etc.	

L	LATENCY			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	What is the transition latency?	Delay between the initiation of the transition and the triggering of the next alert?	Relevant to degree of latency.	
69	Zero	"Please help me transfer this patient from bed to chair." "This is Mr. Jones."		
70	Minimal	"Follow this hall to the Radiology Department." "Here's a cup for your urine specimen; bring it back to the nurses' station."		
71	Short	"We'll have the results of your biopsy in a week."		
72	Intermediate	"Your baby is due in 8 months." "Come back next year for a mammogram."	Ongoing or intervening modification of tasks/needs	Standard pre-natal record
73	Long	"You should repeat your colonoscopy in 10 years."	Record storage, access, Task tracking, reminders	
74	Indeterminate	"You have a 22% chance your cancer will recur in your lifetime."	Task tracking	

M	PRIORITY			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	How urgent is the transition?	Can it wait? Emergency? Routine? What priority compared to other transitions for Initiator?	Relevant to urgency	
75	Low	Workers Compensation evaluation of chronic back pain		
76	Medium	Referral for suspected early renal failure		
77	High	Referral for acute fracture		
78	Extreme	CPR in progress		
79	Unknown or unspecified	Patient arrives in waiting room		

N	NOTICES, ACCEPTANCE, ACKNOWLEDGEMENT			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	Closing the loop: 1. How does the Initiator notify the Receiver of the transition? 2. How does the Receiver respond to the Initiator?	May take the form of an administrative "handshake." What format and channel are used, if any? When is notification necessary? What happens when a referral, consult or transfer is accepted or declined?	Relevant to bilateral communication	
80	Verbal	Verbal report from hospital nurse to rehab facility nurse	Staff not available to take call	SBAR; "Read-back"
81	Written document, forms	Specialist returns a report of the consultation to the PCP; health plan faxes an authorization covering payment for a specialist procedure	No closure	
82	Electronic message	"We have received the records, thank you."		Automated referral & follow up system
83	Automated system	"Patient received"; "The ER is on divert"; "Waiting time is 10 minutes"		Automated referral & follow up system
84	None	Self-pay; walk-in; emergency		

O	DOCUMENTATING THE TRANSITION			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	How is the transition documented?	How is metadata about the transition recorded? This category is different from "NOTICES" above, although the documents that record acceptance or refusal may also become part of the document trail for the entire process.	Relevant to the form of documentation	
85	Verbal			Send info to the PCP, etc.
86	Written documents, forms	EHR; claims submission to payer	Not incorporated into the patient record	
87	Electronic record – formal	Formal location in electronic record for transfer documentation	Missing forms	
88	Electronic message – informal	E.g., email message	Lost forms	
89	Electronic record – automatically generated		Inaccurate forms	

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90	Electronic metadata	E.g., transaction logs, surveillance recordings	Reliability?	

P	STATUS TRACKING			
	Description	**Discussion, clarification, elaboration**	**Failure modes, risks, barriers**	**Supportive materials, standards, references, guidelines, best practices, resources, links**
	How is the status of the transition tracked?	What status categories are relevant to the specific scenario? How is completion/resolution tracked? How would a failure become discovered? Rules, alerts, alarms, follow-up, tickling, reminders, notices, audits, reports, surveys? What about subsequent (chained) transitions, subordinate or component transitions, circular transitions (where the task returns to the Initiator after some intermediate task is completed)?	Relevant to stage	Alerts, monitoring, rules, guidelines.
91	Contemplated, foreseen			
92	Scheduled			
93	Initiated, in progress			
94	Successfully completed			
95	Diverted, interrupted, modified, canceled			
96	Failed	Patient died in the ambulance; helicopter crashed.		