<u>A3</u>

Step	Data_item	Representation	Rep.
Adults with low back limitations	Age	ClinicalAttribute	Age.instance.value > 18
not improving over 4 weeks		Name:age	
		Time	
		Value	
		Unit:year	
	activity	Symptom	I1 = get (activity intolerance
	intolerance due	Name: activity intolerance due	due to low back pain and/or
	to low back pain	to low back pain and/or back-	back-related leg symptoms,
	and/or back-	related leg symptoms	last, before (activity
	related leg	Time:	intolerance due to low back
	symptoms	Start_time	pain and/or back-related leg
		End_time	symptoms – 4 weeks, last)
		Duration	
		Location:	I2 = get (activity intolerance
		No_of_events	due to low back pain and/or
		Severity	back-related leg symptoms,
		Quality	last)
		Moderating factors	
	activity	Symptom	I_1.instance.severity <=
	intolerance due	<i>Name:</i> activity intolerance due	I_2.instance.severity
	to low back pain	to low back pain and/or back-	
	and/or back-	related leg symptoms	
	related leg	Time:	
	symptoms	Start_time	
		End_time	
		Duration	
		Location:	
		No_of_events	
		Severity	
		Quality	
		Moderating factors	
Second Physical and History	Physical exam and History	Diagnostic Procedure	
Neurological symptoms in lower	Neurological	Symptom	Lower_back_pain.instance.ass
limb(s)?	symptoms in	Name:Lower back pain	ociated_symptoms ==
	lower limb(s)	Time:	Neurological_symptoms
	10 ((0)	Start_time	Treatorogreat_symptoms
		End_time	
		Duration	
		Location: lower limbs	
		No_of_events	
		Severity	
		Quality	
		Moderating factors	
Significant sciatica present > 4	Lower back pain	Symptom	Lower back pain.instance.
weeks	r	Name: Lower back pain	Associated symptoms
-		Time:	== sciatica and
		Start_time	Lower back pain.instance.
		End_time	Associated
		Duration	symptoms.instance.duration >
		Location:	4 weeks

	1		
		No_of_events	
		Severity	
		Quality	
		Associated symptoms	
		Moderating factors	
D: 11 1 1 1		ū	T 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Primarily low back symptoms		Symptom	Lower_back_pain.instance.ass
		Name:Lower back pain	ociated_symptoms !=
		Time:	Neurological_symptoms
		Start_time	
		End_time	
		Duration	
		Location:	
		No_of_events	
		Severity	
		Quality	
		Moderating factors	
Evaluate for specific suspected	Evaluate for	Message_Action_Spec	
conditions: CBC, ESR, AP/lateral	specific	Message: Evaluate for specific	
x-rays, bone scan	suspected	suspected conditions.	
A-rays, bolic scall			
	conditions	Suggested tests may include:	
		CBC, ESR, AP/lateral x-rays,	
		bone scan	
		Destination:	
Tests for specific suspected	Tests for	DiagnosticProcedure	
conditions	specific	Name:	
Conditions	suspected	Time_of_observation:	
	conditions	Start_time:	
	Conditions	_	
		End_time:	
		Status: to_be_ordered	
		Result:	
Test results positive?	Test results	List of TestResult	for (int i=0; i <len(list of<="" td=""></len(list>
(The decision is triggered by the		(Name:	TestResult); i++) {
tests status being "results		Time_of_observation:	if List of TestResult[i].
available")		Time_performed:	is_positive()
avanable)			- "
		Test_value:) n	return true;
			}
			return false;
Age-related changes only?	Test results	List of TestResult	for (int i=0; i <len(list of<="" td=""></len(list>
			TestResult); i++) {
			if List of TestResult[i].
			is_positive() && equal
			((Age), TestResult[i].
			Explained_by()))
			return true;
			}
			return false;
Evaluate as indicated	Evaluate as	Message_Action_Spec	,
	indicated	Message: Evaluate as	
	marcatca	indicated	
		Destination:	
Obvious level of nerve root	Obvious level of	Diagnostic Procedure	Physical Exam.Diagnostic
dysfunction on physical	nerve root	Location:	Procedure.Test result ==
examination?	dysfunction on	Status: was_performed	"obvious level of nerve root
	physical	Start_time:	dysfunction"
	examination	End_time:	(CategoricalResult)
	- CAMIIIIIAHOH	Lua_ume.	(Categoricainesuit)

		Name: physical exam Observation_time:	
EMG (SEP)	EMG (SEP)	Diagnostic Procedure Name:EMG Status:	Status = order
		Diagnostic Procedure Name:SEP Status:	If (Age.ClinicalAttribute.value > 50 && Age.ClinicalAttribute.units ==
	Age	Clinical Attribute value: units:	year) then SEP.status = order
Evidence of nerve root dysfunction on EMG/SEP?	Evidence of nerve root dysfunction on EMG/SEP	Diagnostic Procedure Location: Status: was_performed Start_time: End_time:	EMG.Diagnostic Procedure.Test result == "evidence of nerve root dysfunction" .SEP.Diagnostic Procedure.Test result == "evidence of nerve root dysfunction"
Consult surgeon about choice of imagining study (MRI, CT) to define nerve root compression	PreReferralActi on	PreReferralAction From: To: Purpose: Expected answer: Urgency	Purpose == "characterize nerve root compression" Expected answer = imaging study type
Imaging Study	Imaging Study	Diagnostic Procedure	Imaging Study.Diagnostic Procedure.name == PreRefferalAction.ExpectedRe sult.status = order
Physiologic and anatomic evidence indicates nerve root compression?	Physiologic and anatomic evidence indicates nerve root compression	Diagnostic Procedure	Imaging Study.Diagnostic Procedure.name == PreRefferalAction.ExpectedRe sult.result == "nerve root compression" (Text Result)

Unexplained weight loss	Unexplained weight loss	Symptom	Unexplained weight
Chexplanied weight loss	Chexplaned weight loss	Name: Unexplained weight	loss.instance == true
		loss	ross.mstance true
		Time:	
		Start_time	
		End_time	
		Duration	
		Location:	
		No_of_events	
		Severity	
		Quality	
		Moderating factors	
Failure to improve with one	Activity intolerance due	Symptom	*I_1 = get (activity
month of therapy	to low back pain and/or	Name: activity intolerance due	intolerance due to low
month of therapy	back-related leg	to low back pain and/or back-	back pain and/or back-
	symptoms.	related leg symptoms.	related leg symptoms,
	symptoms.	Time:	last, less(pain killer
		Start_time	for LBP.start_time)
		End_time	*I_2 = get (activity
		Duration	intolerance due to low
		Location:	back pain and/or back-
		No_of_events	related leg symptoms,
		Severity	last, more(pain killer
		Quality	for LBP.start_time + 1
	T 1 1 1 1	Moderating factors	month)
	Lower back pain drug	Drug	T 1 1
	therapy	Name:pain killer for LBP	I_1.instance.severity
		time	<=
		Start_time	I_2.insrtance.severity
		End_time	
		Duration	
		Dose	
		unit	
Bed rest no relief	Low back pain	Symptom	Low back
		Name: Low back pain	pain.instance.moderati
		Start_time	ng_factor. != Bed rest
		End_time	
		Duration	
		Location:	
		No_of_events	
		Severity	
		Quality	
		Moderating factors:	
Duration of pain > 1 month	Low back pain	Symptom	Low back
_		Name: Low back pain.	pain.instance.duration
		Time:	> 1 month
		Start_time	
		End_time	
		Duration	
		Location:	
		No_of_events	
		Severity	
		Quality	
		Moderating factors	
		1.10 doluming factors	

Name: Intravenous drug abuse Intravenous drug abuse Intravenous drug abuse Intravenous drug abuse Intravenous drug abuse.instance end_time Intravenous drug abuse.instance end_time Intravenous drug abuse.instance end_time Intravenous drug abuse.instance end_time Intravenous drug abuse.instance.intravenous drug abuse.instance.intrave.ince.intravenous drug abuse.instance.intrave curvenous drug abuse.instance.intrave.intravenous drug abuse.instance.intrave.intravenous drug abuse.instance.intrave.intravenous drug abuse.instance.intrave.intravenous drug abuse.instance.intrave.intravenous drug abuse.instance.intravenous	Intravenous drug abuse	Intravenous drug abuse	Diagnosis	Intravenous drug
Time start_time end_time duration Urinary tract infection Urinary tract infection Diagnosis Name: Urinary tract infection start_time end_time end_time duration Skin infection Skin infection Skin infection Diagnosis Name: Urinary tract infection instance.end_time end_time end_time Advartion Skin infection Skin infection Skin infection Skin infection Trauma Trauma Trauma Trauma Diagnosis Name: Skin infection instance.end_time > Lower back pain.instance.end_time = End_time Duration Location: No.of_events Seventy Quality	muavenous urug abuse	muavenous urug abuse	~	
Skin infection Urinary tract infection Urinary tract infection Urinary tract infection Urinary tract infection Skin infection Skin infection Skin infection Urinary tract infection				
Urinary tract infection Urinary tract infection Diagnosis Name: Urinary tract infection start_time end_time duration Urinary tract infection start_time end_time duration Urinary tract infection instance.estrt_time Urinary tract infection instance.estrt_time Urinary tract infection instance.end_time > Lower back Diagnosis Name: Skin infection Skin infection.instance.estrt_time end_time duration Skin infection.instance.estrt_time End_time duration Urinary tract infection.instance.estrt_time Skin infection.instance.estrt_time End_time duration Urinary tract infection.instance.end_time > Lower back Diagnosis Name: Trauma Trauma = true Trauma Trauma = true Trauma Trauma Trauma Trauma End_time Duration Dosage unit Urinary tract infection.instance.estrt_time End_time Duration Dosage unit Urinary tract infection.instance.estrat_time End_time Duration End_time Duration Duration				
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Urinary tract infection Urinary tract infection Diagnosis Name: Urinary tract infection start_time end_time duration Skin infection Skin infection Skin infection Diagnosis Name: Skin infection start_time end_time duration Skin infection Skin infection Skin infection Diagnosis Name: Skin infection start_time end_time duration Trauma Trauma Diagnosis Name: Trauma start_time end_time duration Diagnosis Name: Trauma start_time end_time duration Diagnosis Name: Trauma start_time end_time duration Dosage unit Scription Corticosteroid Drug Name: Time Start_time End_time Duration Dosage unit Start_time End_time Duration Dosage unit Lower back pain.instance. Associated symptoms == sciatica Lower back pain.instance. Associated symptoms == sciatica				
Urinary tract infection			auration	-
Name: Urinary tract infection start_time end_time duration Urinary tract infection. instance==tr ue Urinary tract infection. instance.end_time > Lower back pain.instance.start_time end_time duration Skin infection Skin infection Skin infection Skin infection Skin infection Skin infection. Skin infection. instance.end_time Skin infection. instance.end_time > Lower back Duration Skin infection. instance.start_time end_time duration Trauma Start_time end_time duration Trauma. instance.end_time > Lower back pain.instance.start_time end_time duration Duration Dosage unit Symptom Corticosteroid.instance End_time Duration Location: No_of_events Severity Quality Severity Quality Skin infection. instance.end time > Lower back pain.instance.and time End_time Duration Location: No_of_events Severity Quality Skin infection. instance In	Urinary tract infection	Urinary tract infaction	Diagnosis	-
Skin infection Instance.end_time Lower back pain.instance.start_time end_time duration End_time Lower back pain.instance.start_time end_time Duration Dosage Unit Start_time End_time Duration Dosage Unit Skin infection Sintance Skin infection Instance Instance Skin infection Instance In	Officer wheetion	Office the conference of the c		
Skin infection Skin infection Diagnosis Name: Skin infection instance.end_time > Lower back pain.instance.start_time end_time duration Skin infection.instance.end_time > Lower back pain.instance.start_time end_time duration Skin infection.instance.end_time > Lower back pain.instance.start_time end_time duration Trauma				
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Skin infection Skin infection Diagnosis Name: Skin infection start_time end_time duration Trauma Trauma Trauma Diagnosis Name: Trauma start_time end_time duration Diagnosis Name: Trauma start_time end_time duration Trauma Trauma Trauma Diagnosis Name: Trauma start_time end_time duration Corticosteroid Drug Name: Time Start_time End_time Duration Dosage unit Sciatica Lower back pain Symptom Name: Lower back pain Time: Start_time End_time Duration Dosage unit Lower back pain.instance.start_tim e Corticosteroid.instance == true Lower back pain.instance. == true Lower back pain.instance. == true Lower back pain.instance. == true Sciatica Lower back pain Time: Start_time End_time Duration Location: No_of_events Severity Quality				
Skin infection Skin infection Diagnosis Name: Skin infection start_time end_time duration Trauma Trauma Diagnosis Name: Trauma Trauma Diagnosis Name: Trauma Start_time end_time duration Trauma Trauma Diagnosis Name: Trauma start_time end_time duration Trauma Trauma Trauma Trauma Trauma Trauma Trauma Trauma Trauma Corticosteroid Drug Name: Time Start_time End_time Duration Dosage unit Sciatica Lower back pain Name: Lower back pain Trauma Lower back pain Name: a true Trauma Corticosteroid.instance == true Lower back pain.instance.start_tim e = true Associated symptoms == sciatica Associated symptoms == sciatica			duration	
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Skin infection Skin infection. Infection. Infection. Infection. Infection. Infection. Instance.end_time Skin infection. Instance.end_time Skin infection. Instance.end_time Duration End_time Instance.end_time End_time				=
Name: Skin infection start_time end_time duration	Skin infection	Skin infection	Diagnosis	-
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Name: Time Start_time End_time Duration Dosage unit	corticosteroid	corticosteroid	Drug	Corticosteroid.instance
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			Time	
			Start time	
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Sciatica Lower back pain Symptom Lower back pain Name: Lower back pain pain.instance. Time: Associated symptoms Start_time End_time Duration Location: No_of_events Severity Quality			Duration	
Sciatica Lower back pain $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				
Name: Lower back pain Time: Start_time End_time Duration Location: No_of_events Severity Quality Pain.instance. Associated symptoms == sciatica			=	
Name: Lower back pain Time: Start_time End_time Duration Location: No_of_events Severity Quality pain.instance. Associated symptoms == sciatica	Sciatica	Lower back pain	Symptom	Lower back
Time: Start_time End_time Duration Location: No_of_events Severity Quality Associated symptoms == sciatica			1 -1	pain.instance.
Start_time == sciatica End_time Duration Location: No_of_events Severity Quality				
Duration Location: No_of_events Severity Quality			Start_time	
Location: No_of_events Severity Quality			End_time	
No_of_events Severity Quality				
Severity Quality			Location:	
Quality				
			Severity	
A				
			Associated symptoms	
Moderating factors			Moderating factors	

pseudoclaudication	Lower back pain	Symptom	Lower back
	1	Name: Lower back pain	pain.instance.
		Time:	Associated symptoms
		Start_time	== pseudoclaudication
		End_time	_
		Duration	
		Location:	
		No_of_events	
		Severity	
		Quality	
		Associated symptoms	
		Moderating factors	
morning stiffness	Lower back pain	Symptom	Lower back
		Name: Lower back pain	pain.instance.
		Time:	Associated symptoms
		Start_time	== morning stiffness
		End_time	
		Duration	
		Location:	
		No_of_events	
		Severity	
		Quality	
		Associated symptoms	
		Moderating factors	