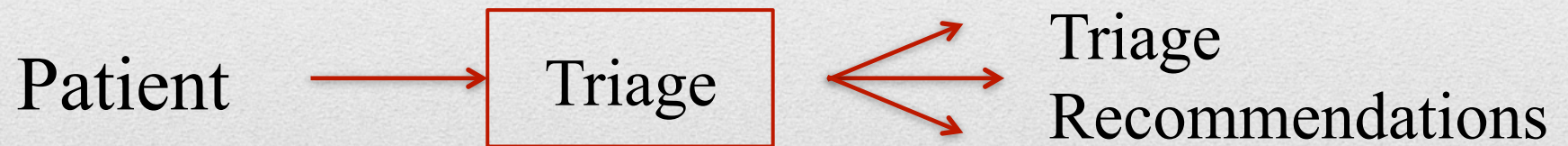# Bayesian Network for MSK Triage

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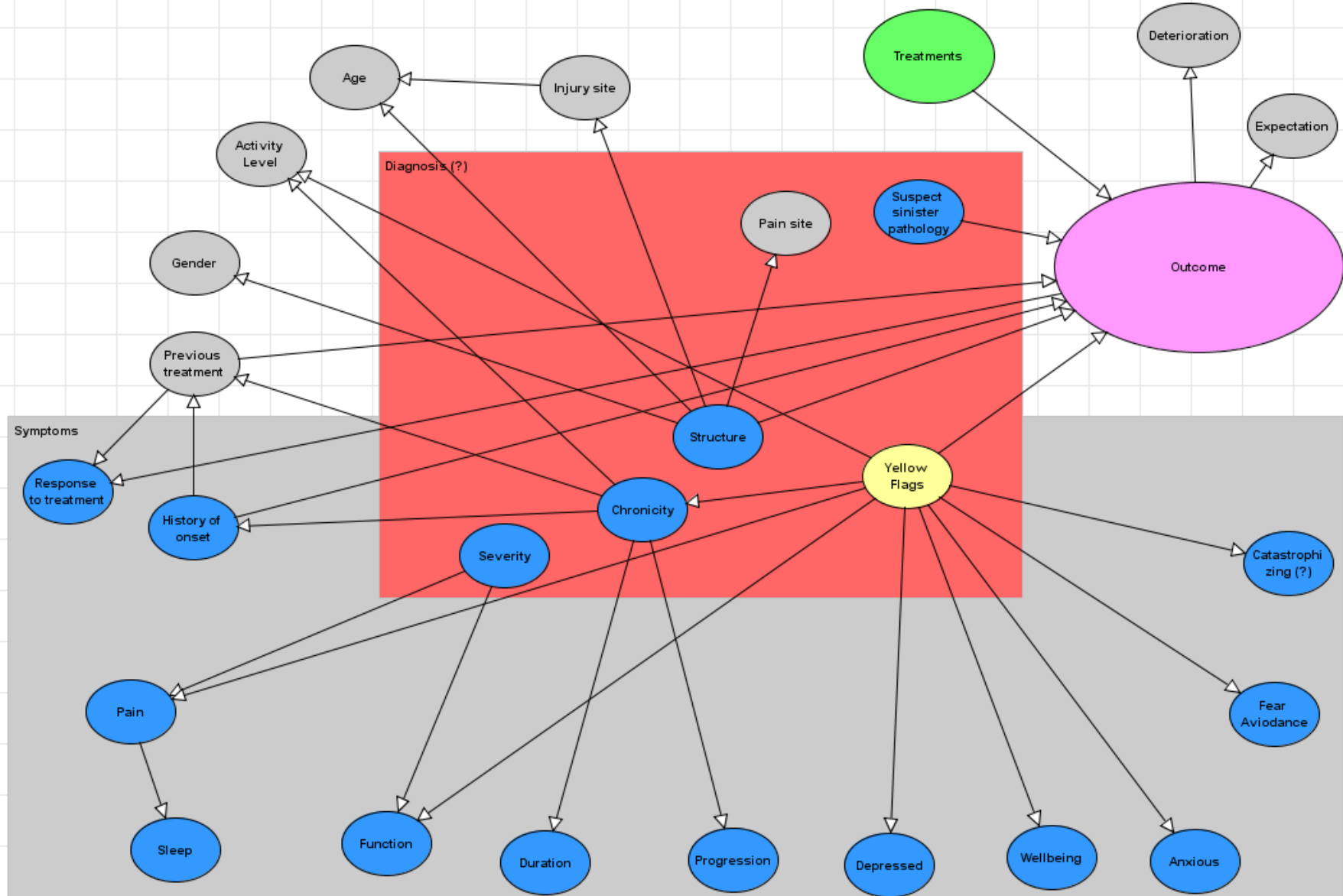
Aims

- Demonstrate model
- Describe the process
- Describe the relationship to evidence
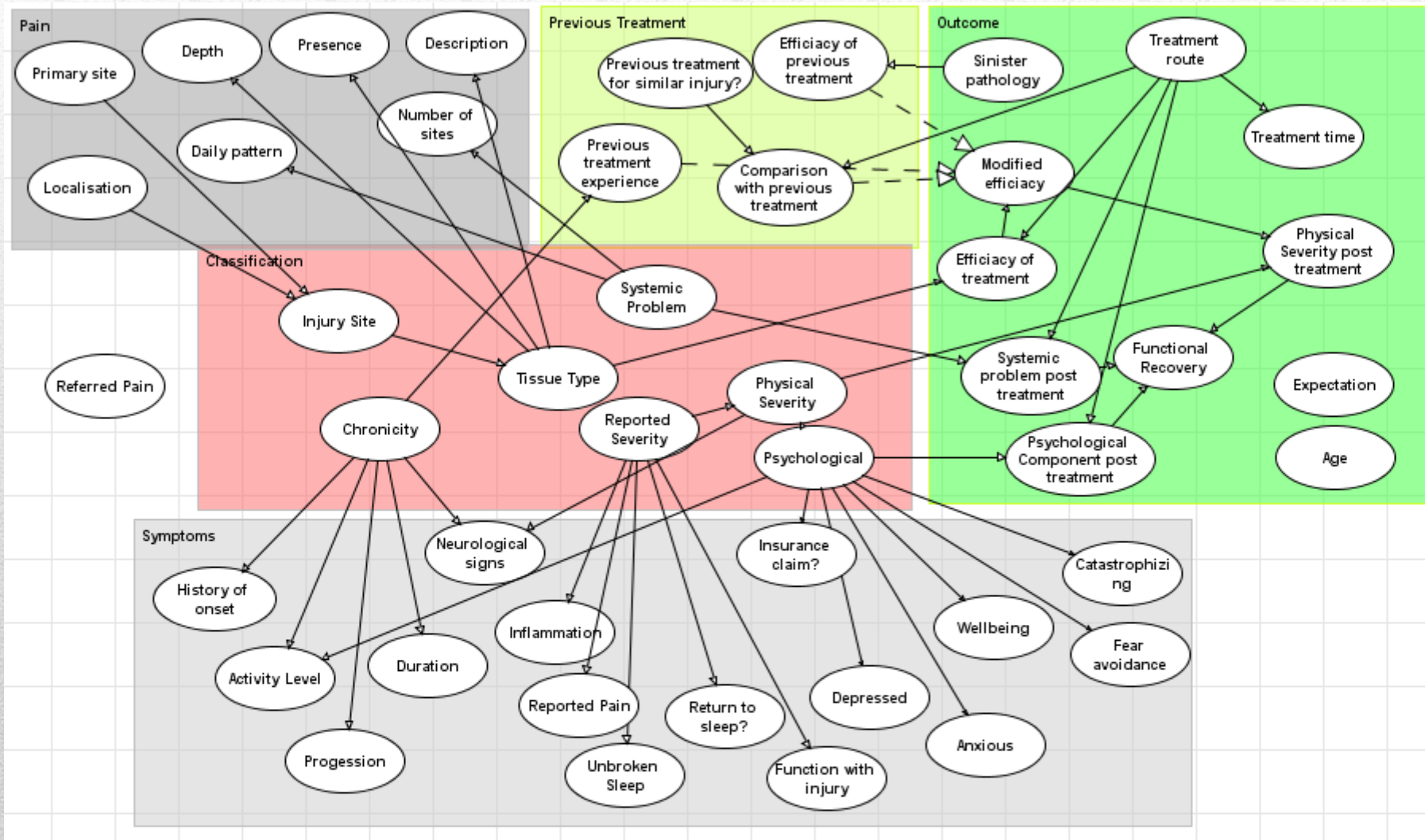- Current status

Context for MSK Triage BN

Patient → Triage → Triage Recommendations

Progression and revisions

Progression and revisions

Development of Triage BN

- Structure
  - Relevant variables
  - States of variables
  - Relationships between variables
- Parameters (numbers)
  - From data
  - From experts
- Validation

Development of Triage BN cont.

- Structure
  - Based on information from experts
    - Focus group
    - Several consultations with clinicians
  - Several stages of refinement
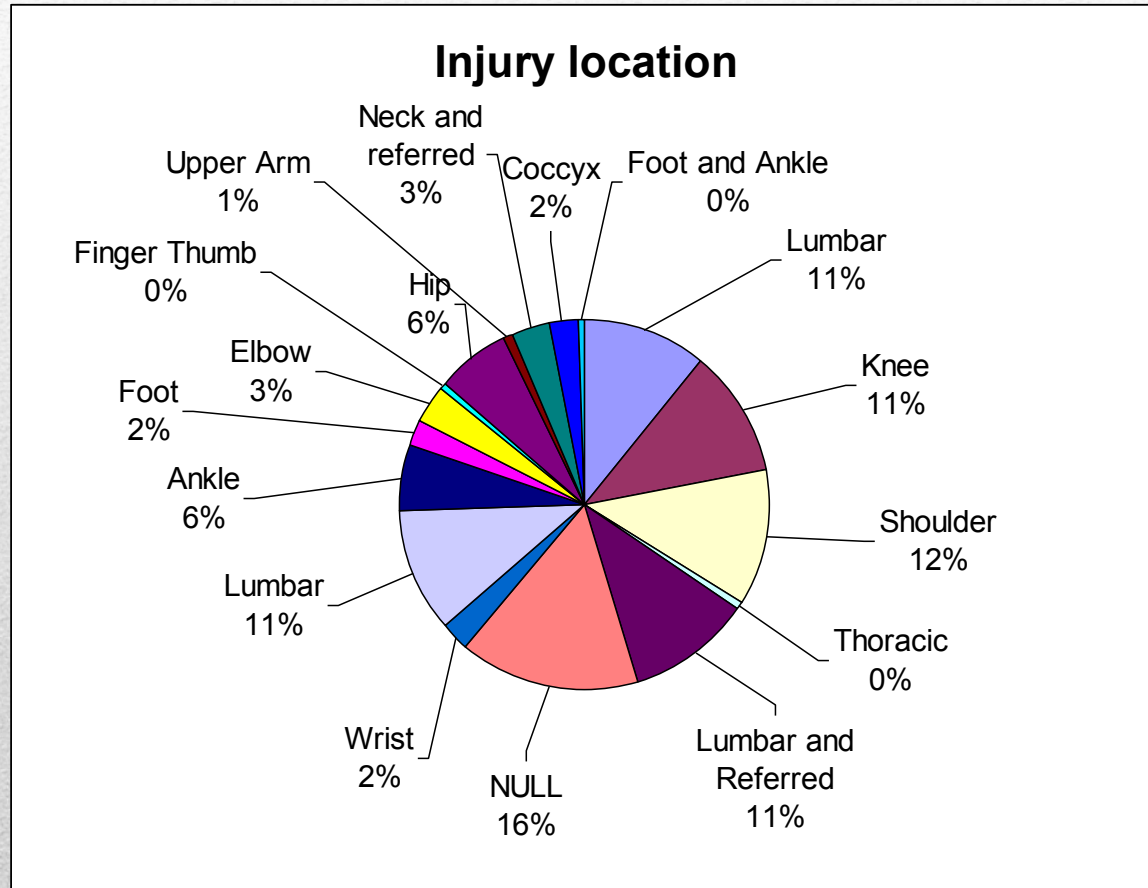
Development of Triage BN cont.

- For example:

    - It was explained that because the symptoms suggest insidious onset of injury, then there is a lessened likelihood of a **sinister pathology** being present. The expert also explained that **age** influences probability of a **sinister pathology** existing (e.g. if the person is over 30 years old, then there is an elevated probability of a sinister pathology existing such as cancer).

    - **POSSBILE NEW LINK**: Sinister pathology → Age

Development of Triage BN cont.

- Parameters
  - From data if possible
  - From expert panel otherwise

Development of Triage BN cont.

- Parameters
  - Example data

Injury location

Neck and referred 3%
Upper Arm 1%
Coccyx 2%
Foot and Ankle 0%
Finger Thumb 0%
Hip 6%
Lumbar 11%
Elbow 3%
Knee 11%
Foot 2%
Ankle 6%
Shoulder 12%
Lumbar 11%
Thoracic 0%
Wrist 2%
NULL 16%
Lumbar and Referred 11%

Development of Triage BN cont.

Parameter development and refinement using case scenarios and expert panel

Patient information

Patient 1 Symptoms	Value
Function with injury	Slight problem
Return to sleep	No
Unbroken sleep	No
Inflammation	True
Reported pain	Severe

Development of Triage BN cont.

Parameter development and refinement using case scenarios and expert panel

Uncertain classification

Patient 1	Value	Weight
Chronicity	Acute (0-2 weeks)	6/10
	Subacute (2 weeks – 3 months)	4/10
	Chronic (> 3 months)	0/10
Psychological component	Low	9/10
	Medium	1/10
	High	0/10

Development of Triage BN cont.

Parameter development and refinement using case scenarios and expert panel

Outcome

Patient 1	Treatment 1	
	Value	Weight
Treatment time	0-2 weeks 2-6 weeks 6 weeks-3 months 3+ months	6/10 4/10 0/10 0/10
Efficacy of treatment	Very low Low Medium High Very high	1/10 1/10 5/10 2/10 1/10

Next Steps?

- Quantification
  - Data
  - … including outcome and 'true' diagnosis
- Validation
  - Possible trial