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# LIHS Mini Master Class

## Process Modelling

Using a simple modelling technique to help understand complex activities in health and social care.

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\* Images courtesy of Microsoft Clipart



# Why model?

- Diagrams provide a convenient abstraction
  - to clarify one's own understanding
  - to show to others for discussion, debate and clarification
  - to provide high level documentation
- Diagrams are used to communicate information to people.
- Diagrams should therefore be clear, simple, unambiguous.
  - i.e. They should follow rules!

# Use in health and social care?

- Very complex system(s).
- Patients follow complex paths, with huge variations.
- Modelling these paths could improve quality and efficiency of care.



# Process modelling is well established

- Text books
- Close association with software engineering
- Worldwide standards for modelling (UML)

... but not in health and social care

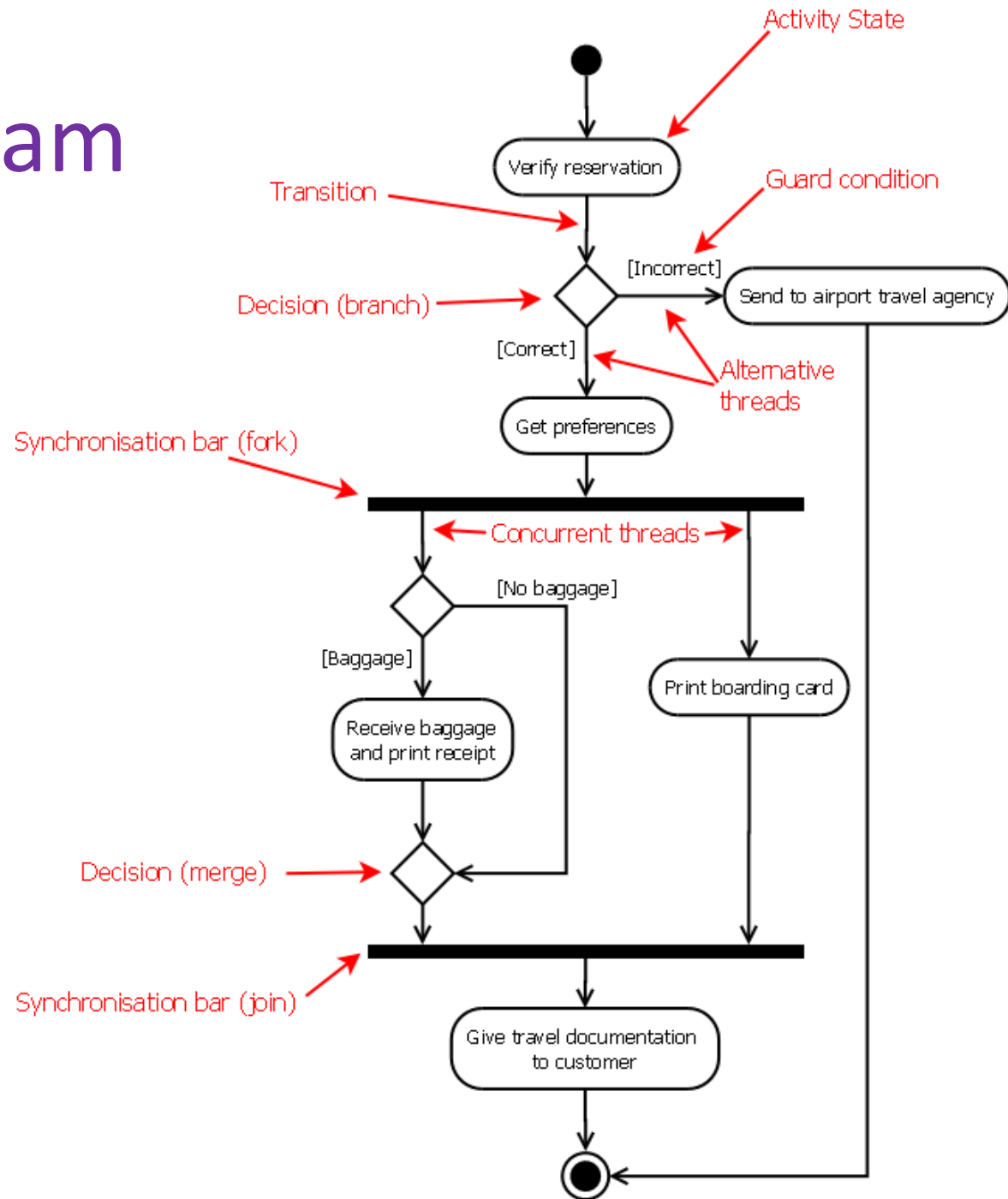
# UML – Unified Modelling Language

*“The Unified Modeling Language (UML) is a language for specifying, visualizing, constructing, and documenting the artifacts of software systems, as well as for business modeling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems.”*

The Object Management Group [www.omg.org](http://www.omg.org)

- Nine UML diagrams – focusing on Activity Diagrams today

# Activity diagram syntax



# Agile modelling

- Models may be produced quickly and cheaply  
... and changed quickly and cheaply.
- Use as a starting point for discussion
  - Or to clarify understanding around a group...
  - Or to share vision for change...



# Redesigning lunch

Eating lunch in many different restaurants you could expect to find the same basic activities done either in parallel, in sequence or in iterations.

Reorganise the following activities to create an activity diagram:

<b>Go to...</b>	<b>Bring...</b>	<b>Prepare</b>	<b>Sit</b>	<b>Inspect Menu</b>
<b>Eat</b>	<b>Pay</b>	<b>Order</b>	<b>Clear Up</b>	

For:

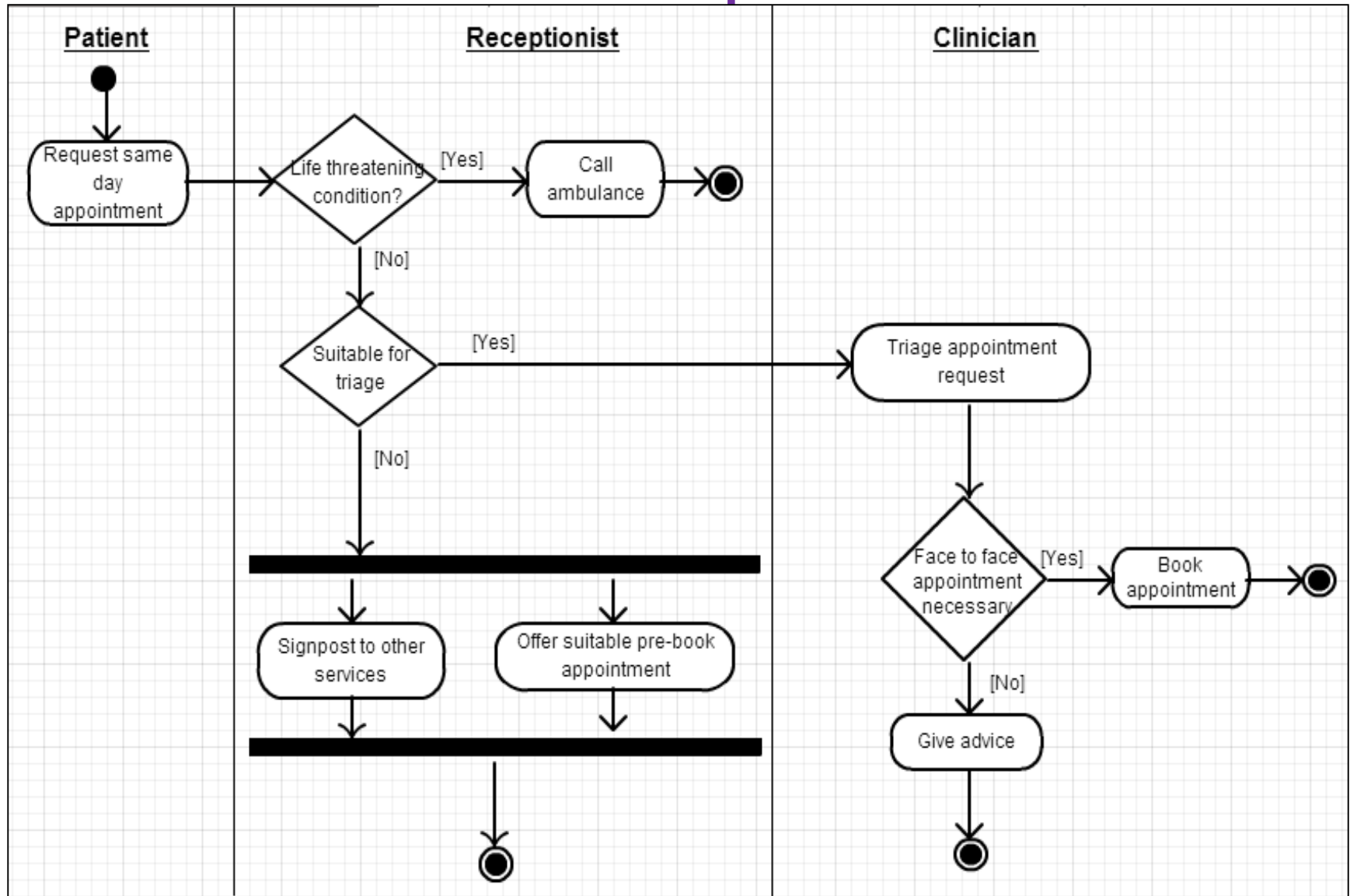
- a fast food restaurant
- a fine dining restaurant
- an all-you-can-eat Buffet Restaurant
- a pizza delivery service
- a shop selling sandwiches



\*



# Example



# Taking the activity diagram further

- Can help identify areas for improvement or change
- “Swimlanes”
  - To show who does what
- Quantifying
  - Timed activities
  - Categorisation of activities



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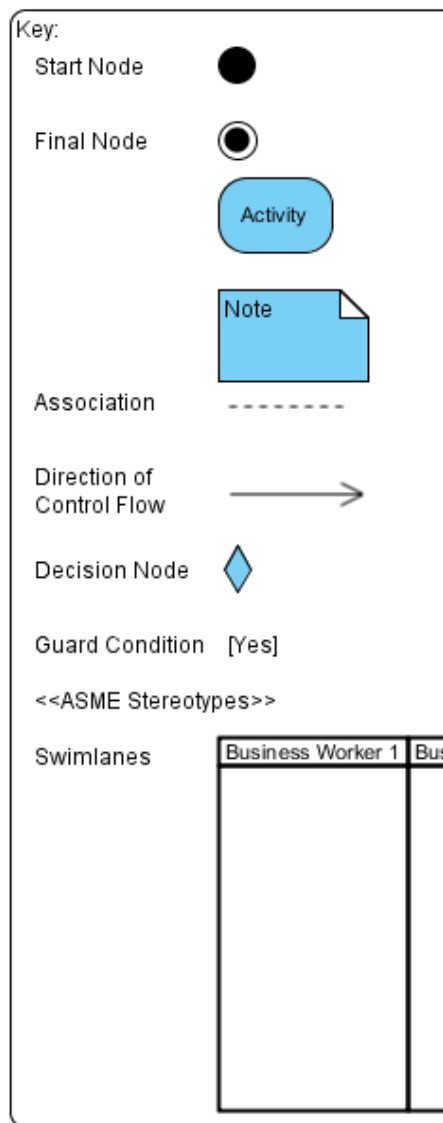
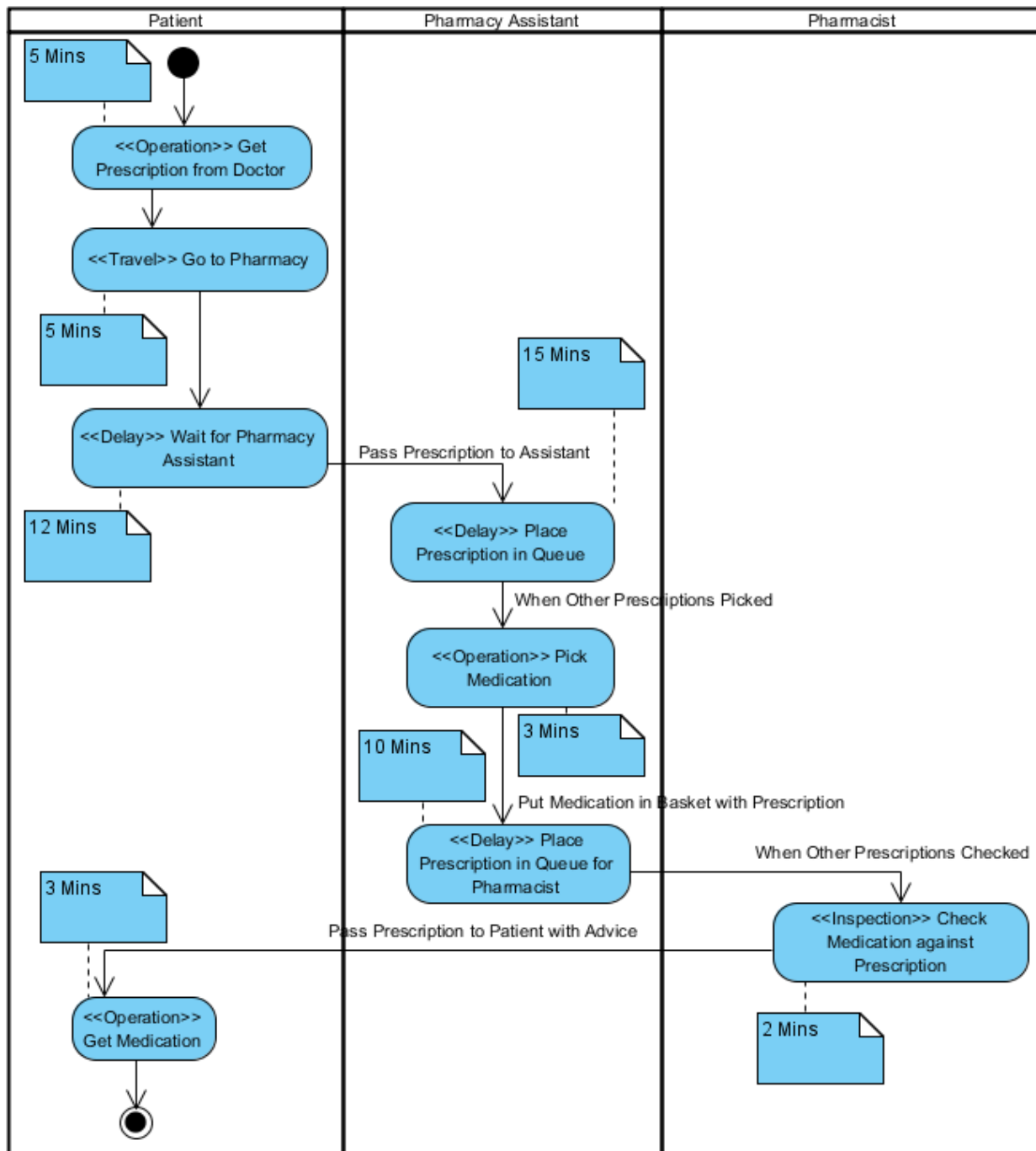


Diagram by MSc HI student, L Bamforth, 2011

# Other things to consider

- “Before and after” models
- Various levels of abstraction (7 +/- 2 elements)
  - Focus in on details or provide overview



# In conclusion

- Modelling health and social care activities can be useful for:
  - Clarifying processes
  - Sharing information
  - Identifying areas for potential improvement

# Further Information

- Object Management Group [www.omg.org](http://www.omg.org)
- Agile Modeling [www.agilemodeling.com](http://www.agilemodeling.com)
  - <http://www.agilemodeling.com/style/activityDiagram.htm>
- Crocker T., Johnson O. and King S.F. 2009. The Suitability of Care Pathways for Integrating Processes and Information Systems in Healthcare, *Transforming Government: People, Process and Policy*, 3(3):289-301