

## Mapping your practice environment

If someone asks “what do you do”? You can show them a ‘knowledge graph’ of your practice environment. Knowledge graphs (graphs) are a visual representation of people and concepts in your practice environment. More importantly, graphs display the *relationship* between them. The term ‘knowledge graph’ was coined by Google (Ehrlinger & Wöß, 2016). We use the Google term because it has gained widespread acceptance other than the previous ‘node to arc graph’.

Graphs are a ‘snapshot’ of human reality which enables nurses to map out concrete and abstract concepts in their environment. For example, people, documentation and computers are concrete concepts. Abstract concepts may be processes, ‘nursing care’, ‘bullying’, ‘checking DDs’ or ‘patient education’.

Knowledge graphs are a ‘spin-off’ of nurse Artificial Intelligence (AI) research here in Australia (Shields.P, 2018). Graphs were originally (and still are) used to teach AI about the clinical nursing environment. It occurred to us that nurses could construct their own graphs and cut out the ‘middle person’.

A graph of your practice environment is useful for:

- 1) Persistent organisational memory: Knowledge graphs are consumable knowledge which can be stored, this means, processes are not lost if a key member leaves the organisation
- 2) Process modulation: Knowledge graphs may be used to add, or delete redundant processes, thus improving patient outcomes and productivity
- 3) Evidence: Knowledge graphs may be useful as evidence to show managers where resources/money could be better placed
- 4) Knowledge graphs are machine readable which means they may be a step toward automating the accreditation process
- 5) A display to inform nursing students (and others) what a particular nurse actually does during a shift.

Figure 1 is a graph constructed by a surgical nurse. The yellow boxes are called nodes (concrete and abstract concepts) and the lines (arcs) detail a labelled relationship. Two nodes connected by an arc may represent a relationship or a process. We found that nodes tend to form clusters as can be seen in Figure 1’s computer and documentation cluster. Clusters occur in ‘real life’, because ultimately, a graph is a ‘snapshot’ of human reality.



You can construct your own graph with a pencil and paper but Tufts University provide a free easy to use Windows program called Visual Understanding Environment (VUE) (Tufts, 2016).

Draw the graph a little at a time; leave it and come back, adding things as they come to mind. You may be surprised how your environment turns out!

Graphs are subjective; our future project will be to construct a 'group graph'. We will recruit nurses who do the same job in one practice environment. Each nurse will draw a graph and we will compare them to see commonalities and differences.

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