

Initial Analysis

Module 2

Occupation: Medical Doctor

Patrick O'Brien

Professor Ekbia

## **Introduction**

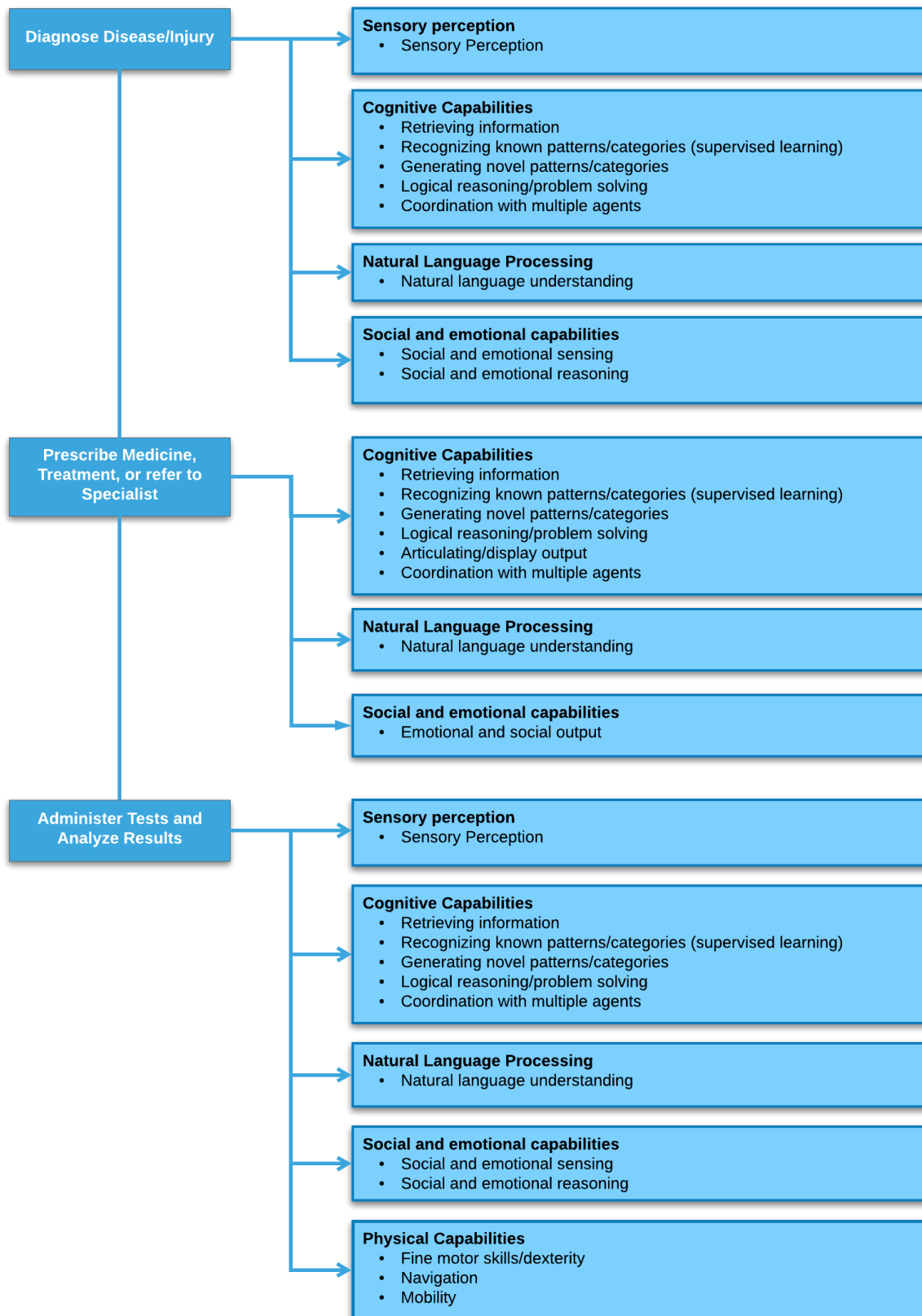
The medical profession is generally accepted to be a highly skilled and a highly paid field. I chose this field from previously pursuing this occupation and access to professionals that are currently working and some that are in medical school. It is also an interesting field to discuss automation as the general public considers it such a highly skilled occupation it's difficult to see automation as a risk. My initial analysis will be breaking down the activities that a Medical Doctor needs to accomplish their occupation and mapping each of these activities to a set of capabilities with a level of risk for automation susceptibility. This report will highly follow the McKinsey Report's methodology.

## **A Word on Specialists**

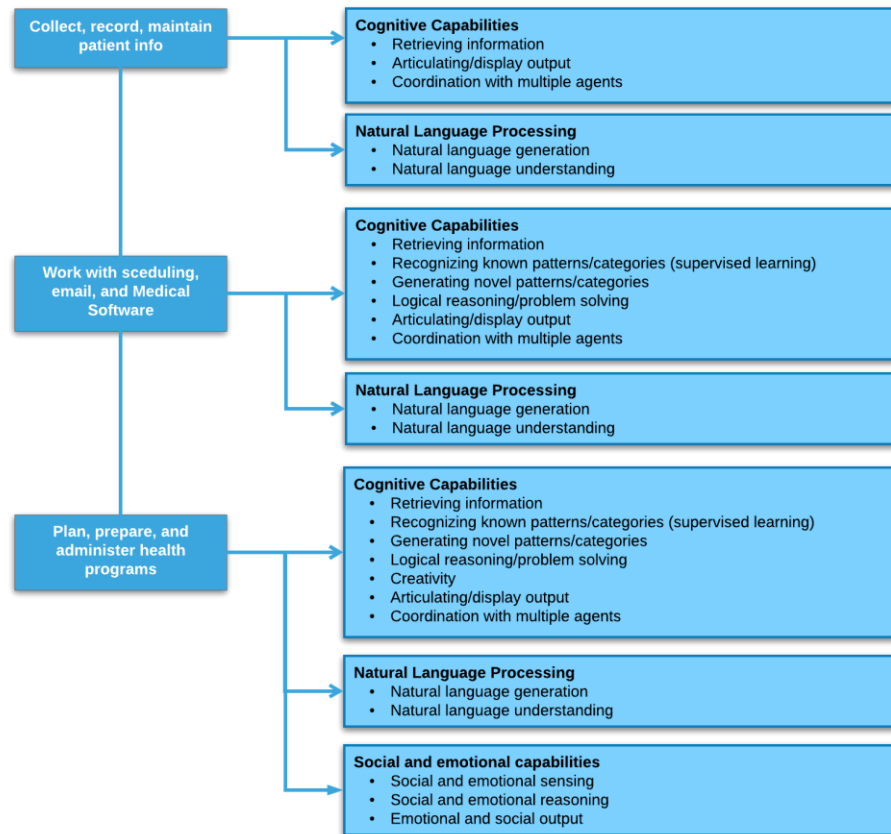
In my research I have discovered that it is difficult to narrow down a specific title for a Medical Doctor since the field is so vast. It is primarily broken up into a large set of specialties that each have different responsibilities and focus. I have highlighted on the tasks and categories of work that are mostly shared by all of them. Yet some responsibilities discussed could be specific to one specialty (e.g. A Cardiothoracic Surgeon could perform open heart surgery, but a Neurosurgeon would not). The main discipline I have focused on specifically is Family and General Practitioners as they have a wide range of job responsibilities that can reach all subfields.

## **Susceptibility to Automation**

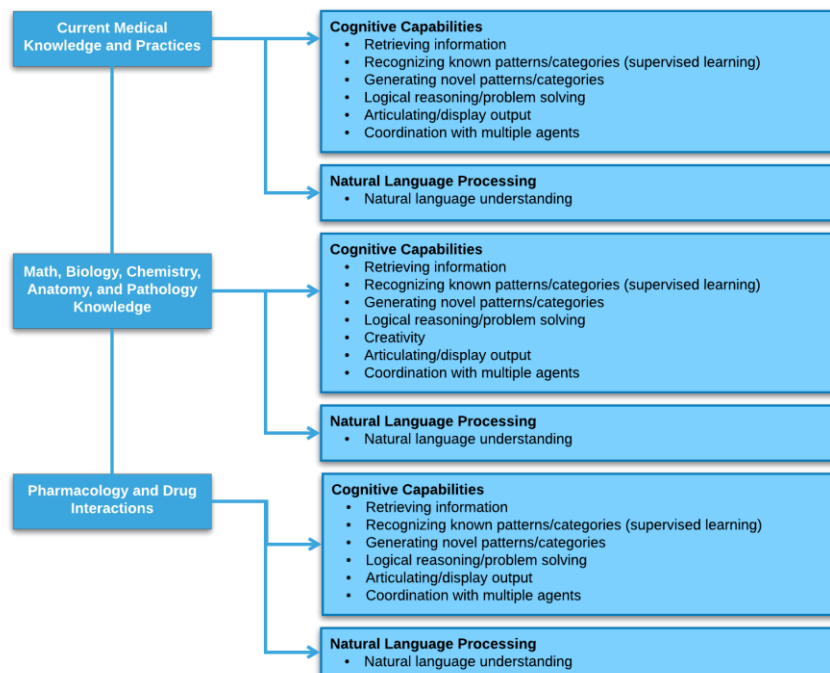
The diagrams separated the Activities into categories for viewing purposes. The medicine activities are arguably the most associated with the responsibilities of a Doctor require cognitive capabilities for retrieving and analyzing information from multiple sources. Cross referencing information from the patients and knowledge of medical procedures/information takes sensory perception and natural language understanding to make sure the correct diagnosis and then proper prescription of medication/treatment is achieved. Administering tests and analyzing results requires physical capabilities that would be difficult to automate. Yet according to Dr. Rusnak on NueMD, with the oversight of a Doctor a lot of these diagnostic processes could be automated for quicker results. A human will almost always be likely to verify the results that the technology has come to. He argues a lot of the social and emotional communication between a patient and their Doctor would be difficult to automate. Especially when receiving bad news or trusting which treatment to choose. Patients would have a difficult time responding to a machine voice and how to decide their treatment of choice. Referring to the diagram under the communications section all of the Activities map onto almost all of the capabilities. Working with patients and other health professionals require sensory perception, cognitive abilities, natural language processing, social and emotional, and physical capabilities resulting in some of the more difficult categories to automate. In the knowledge and documentation sections sensory perception, emotional and social, and physical capabilities are not as needed. These Activities are much more likely to get automated and will increase the speed at which a Medical professional will be able to achieve the more cognitive, social, and physical capabilities. Based on the research from O\*NET and the activities needed; a Medical Doctor does not have a high risk of automation currently. Yet many of the routine and administrative and diagnostic tasks that a Doctor performs will be automated with the presence of a Doctor.

**Medicine**

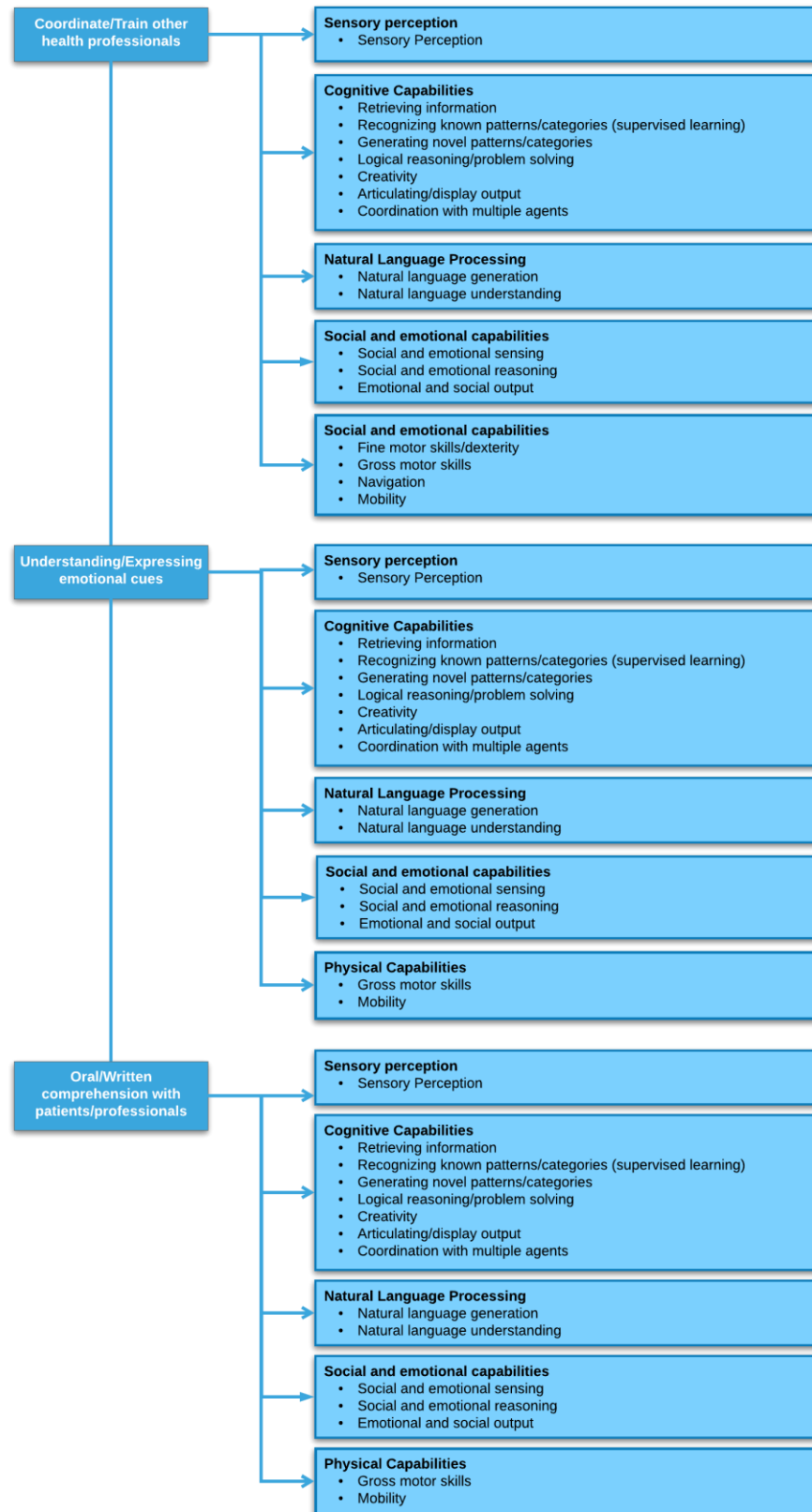
## Documentation



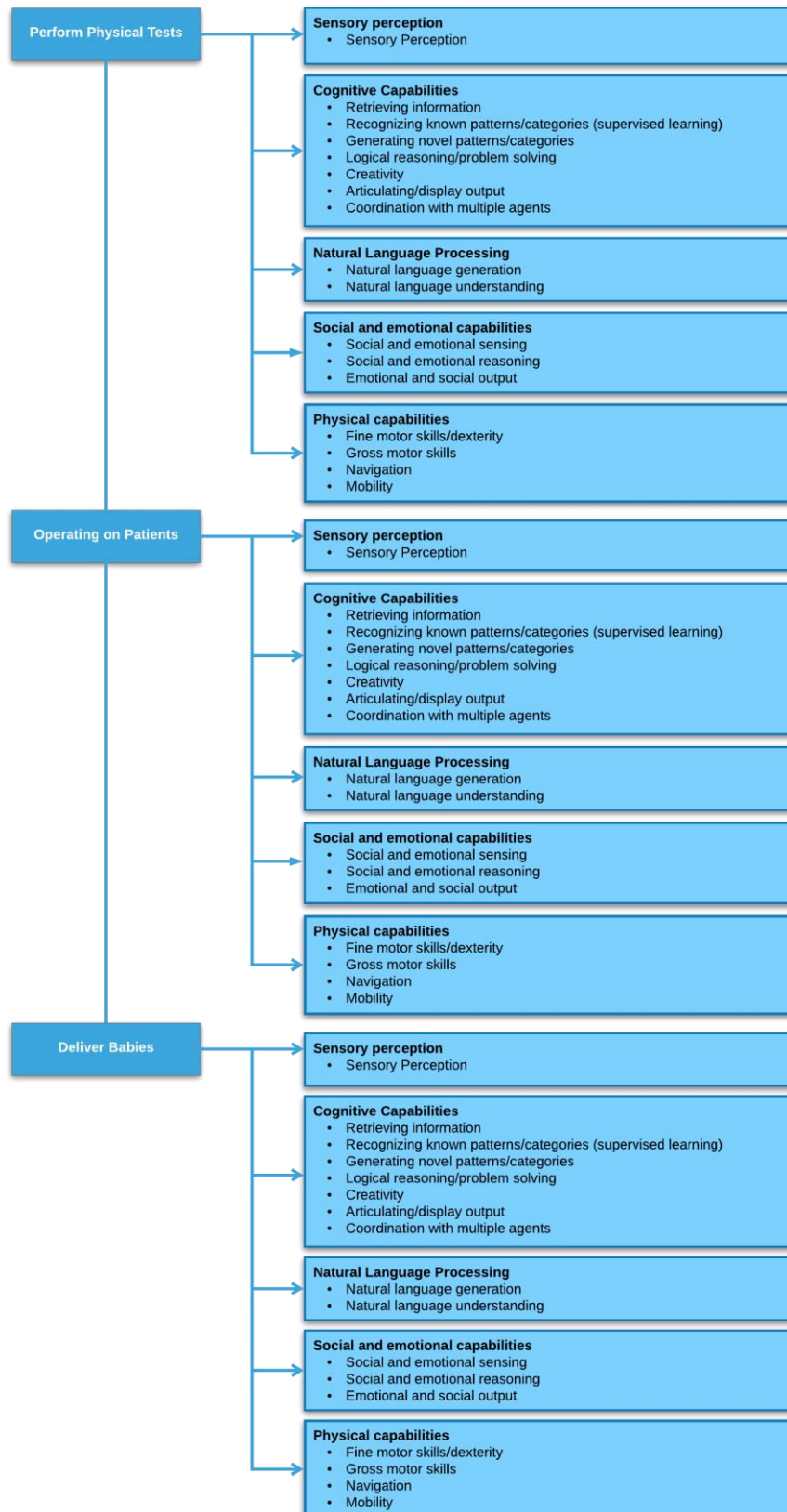
## Knowledge



## Communication



## Physical Tasks



### References

McKinsey Global Institute (2017). *A Future that Works*.

O\*NET Online. *Summary Report For: Family and General Practitioners*. Retrieved at

<https://www.onetonline.org/link/summary/29-1062.00>

Rusnak MD, William. (2018). *Technology Will Automate the Diagnostic Process, But It Won't*

*Replace the Doctor*. Retrieved from [https://www.nuemd.com/blog/technology-will-](https://www.nuemd.com/blog/technology-will-automate-diagnostic-process-won%E2%80%99t-replace-doctor)

[automate-diagnostic-process-won%E2%80%99t-replace-doctor](https://www.nuemd.com/blog/technology-will-automate-diagnostic-process-won%E2%80%99t-replace-doctor)