Project: **A Solution to Medication Tracking for Cataract Surgery**

What was the challenge?

For this project we were given a set of basic, yet confusing instructions for patients who are undergoing cataract surgery. With this surgery, patients are required to take medication before and after the surgery for at least 8 weeks and the issue is on how to properly and effectively instruct patients on the use of the medications required for cataract surgery.

What was the solution?

My solution to this problem is to design a clear and informative instruction booklet explaining to patients how to properly take these medications, followed with an adhesive medication calendar, which will help keep the patients on track when taking the eye-drop medications for a lengthy time period.

My approach for this problem is to break down the provided instructions to their most simplest form. Cataract surgery is commonly seen with seniors, and this became the foundation for the instructional booklet. The notion of learning by doing is a learning strategy many youth par-take in and is the base for the adhesive calender – interactive and engaging.

I was able to break the medications up into: before and after steps – and their associated steps – for the patient to easily read and understand. From there, I researched some common recommendations for pre-surgery and

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post-surgery and came across the most frequently seen issues patients may have, particularly post-surgery, and developed my idea further based on this information.

My idea to have an instruction booklet is to aid and inform the patients without overwhelming them with lots of small type. The booklet has been designed following Reigeluth's Elaboration theory, where it is essential to have a strict sequence of instructions from the most broadest aspect leading into the most complex aspect of the problem (Pappas, 2014). It is expected that the physician will explain the booklet and the calender to the patient when they give the patient the surgery package prior to the surgery. The physician should make sure the patient clearly understands how to use the calender and knows what information is in the booklet.

The calender is designed to act as a visual aid. According to Lombardi, "learning-by-doing is generally considered the most effective way to learn" (Lombardi, 2007). The use of the calender will allow the patient to write on it with a white-board marker, making notes and tracking their medication usage. Because the patients are working with the calender regularly, the physical interaction and the repetitive checklist provides the learning through doing experience, and allowing a unique experience for each patient that uses the calender. Reigeluth's theory works for the calender in the sense that it allows the patients to work through their learning experience from start to finish – working through a sequence (Culatta, 2015). However, it is Lombardi's theory, and the foundation for the calender, that adheres to the authentic or situated learning for the patient.

Figure 1: Example of simple 4-page instructional booklet

What was the effect?

According to Andrew A. Dahl, MD, FACS, most patients don't feel any significant pain after surgery, but some discomfort is expected (Dahl, 2016). It was mentioned that vision will be blurred for some time after the surgery (WebMD Medical Reference, 2016), so I focused my idea around colour coding, larger font sizes and icons for the patients to easily see. Colour coding is directed towards the medications and calender and the larger font is for the booklet and the calender. I felt it was necessary to research the surgery for patients, prior to and after, to gain the best understanding for finding a
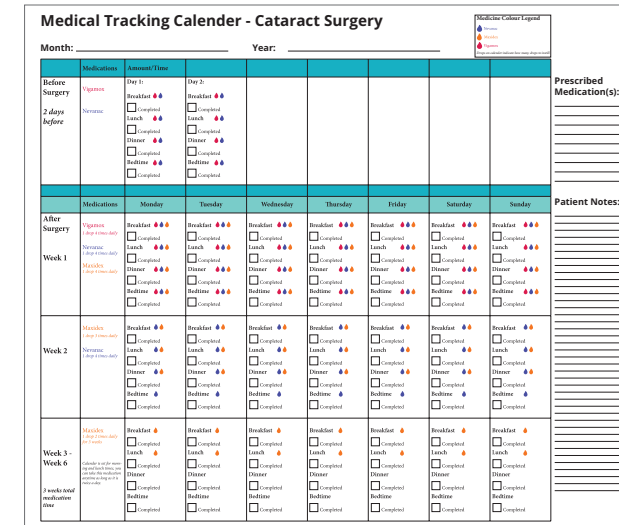

Figure 2: Example of adhesive calender for patients to use.

solution to the problem. When I started with this project, my demographic was for patients 18 years of age or older. It was only after doing research I knew to centre my demographic on the 50+ age range, as cataracts are more likely to occur in seniors, but can occur in anyone (WebMD Medical Reference, 2016).

From the research and the instruction sheet provided, I compared the information and was able to cut any unnecessary information and direct attention onto the most important content the patient would need to know. The idea to break the content down, so the instruction booklet

is designed with short sentences and bullet points, walks the patient through the process of taking the medications both before and after the surgery stress free. The adhesive calender is developed to accompany the instruction booklet and help the patient keep track of multiple medications on a daily basis for a given amount of time.

The purpose for having two instructional materials is to aid different types of learners. With this type of surgery, the age demographic and physical ability can vary. Therefore, it was important to consider both factors. The instructional

booklet is designed to aid seniors, where as the calender is designed more towards younger demographics. The font is clear, direct and large for easy reading in the booklet. For the calender, the medications have been categorized by colour and icons to differentiate amounts and time to take medications.
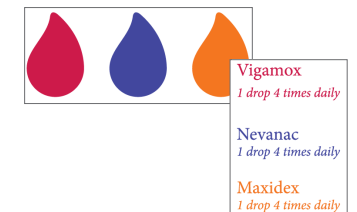

Figure 3: Breakdown of colour coding and iconography

Because the calender is designed more for a younger demographic, the font is slightly smaller and the patient is required to check off the medications taken on a daily basis. As well, the calender has been designed not to exclude the old demographic by incorporating colour coding and visual cues. The calender has purposely been designed to act as a visual tracking tool for patients to see there medication usage. For the purpose of this project, the calender has been designed specifically for cataract surgery, but it can easily be manipulated to work with a variety of medical procedures.

	Medications	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
After Surgery **Week 1**	Vigamox *1 drop 4 times daily*	Breakfast ◆◆◆ ☐ Completed	Breakfast ◆◆◆ ☐ Completed	Breakfast ◆◆◆ ☐ Completed	Breakfast ◆◆◆ ☐ Completed	Breakfast ◆◆◆ ☐ Completed	Breakfast ◆◆◆ ☐ Completed	Breakfast ◆◆◆ ☐ Completed
	Nevanac *1 drop 4 times daily*	Lunch ◆◆◆ ☐ Completed	Lunch ◆◆◆ ☐ Completed	Lunch ◆◆◆ ☐ Completed	Lunch ◆◆◆ ☐ Completed	Lunch ◆◆◆ ☐ Completed	Lunch ◆◆◆ ☐ Completed	Lunch ◆◆◆ ☐ Completed
	Maxidex *1 drop 4 times daily*	Dinner ◆◆◆ ☐ Completed	Dinner ◆◆◆ ☐ Completed	Dinner ◆◆◆ ☐ Completed	Dinner ◆◆◆ ☐ Completed	Dinner ◆◆◆ ☐ Completed	Dinner ◆◆◆ ☐ Completed	Dinner ◆◆◆ ☐ Completed
		Bedtime ◆◆◆ ☐ Completed	Bedtime ◆◆◆ ☐ Completed	Bedtime ◆◆◆ ☐ Completed	Bedtime ◆◆◆ ☐ Completed	Bedtime ◆◆◆ ☐ Completed	Bedtime ◆◆◆ ☐ Completed	Bedtime ◆◆◆ ☐ Completed

Figure 4: Zoom-in example of design with symbols and time-tracking incorporated.