Practice Reports

The Value of Nonmeasurable Goals in Vision Rehabilitation: Two Case Studies from the Virginia Department for the Blind and Vision Impaired

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The Virginia Department for the Blind and Vision Impaired (DBVI) statewide low vision program was developed over 30 years ago in response to the care low vision patients were not receiving within the medical model. At that time, Marge Owens, the current director of the program, noticed that optometrists measured success with acuities and the optical specifications of prescribed low vision devices, and that this procedure rarely correlated with success from the patient's perspective. To address this problem at its root, DBVI trained case managers to provide in-home functional vision assessments, and empowered them to authorize payment to regional low vision examiners (that were trained and paid by DBVI) that best addressed their patient's needs. This arrangement allowed case managers to ascribe value to many aspects of care that were not measurable. Thus, the primary focus of such care became vision rehabilitation, and low vision devices became solely a means to that end.

Since much of what constitutes successful vision rehabilitation is measurable, specific quantifiable goals are key to ensuring a commitment that is shared by the patient. There are many nonmeasurable goals, however, that are also important, and these areas had not been addressed in a system based on metrics. The consideration of how the patient's social support and environment may affect vision rehabilitation is one example. The patient's adjustment to vision loss and its potential affect on vision rehabilitation is another example. Since I am an optometrist, however, I will limit my discussion in this report of important nonmeasurable goals to the low vision exam itself.

Low vision exams require a high level of inductive reasoning, which is, by definition, impossible to measure. Although the best results of deductive reasoning can be proven true or false, the results of inductive reasoning produce open-ended possibilities. The low vision examiner is not given an external measurement of success for any given patient; even a list of patient goals is inadequate to measure success. The low vision examiner needs to define patient success in the most expansive way, by considering possibilities that the patient, and even the case manager, have not considered. As with all forms of inductive reasoning, there is no fixed external endpoint with which to measure anything. Without being too philosophical, this idea of measurement is the core difference between science and art: one can be measured and one cannot.

I do not mean to imply that a case manager without an optometric education cannot evaluate the quality of a low vision exam. If that evaluation is based only on the amount of time spent, the number of devices prescribed, or even the final level of acuity achieved, it may miss the entire point of the exam. Fortunately, it is possible for the case manager to focus on the quality of the inductive reasoning of the optometrist. Does the low vision examiner engage her or his knowledge of the visual system to reassess goals while gathering data, or does that examiner delegate testing to a less-educated professional who cannot respond as well to shifting expectations during the exam? Does the low vision examiner, with extensive knowledge of how multiple variables interrelate to affect vision, demonstrate the low vision devices during the exam, or is that left to someone else with a prescribed "plan A," but not necessarily a "plan B" or "plan C"? The answers to these

questions may not be a clear yes or no. Fortunately, since DBVI utilizes a system that does not rely on metrics for third-party reimbursement, quality assurance is relatively free from assuming that only those aspects of care that can be measured are important, and educated, trained professionals are largely free to rely on their subjective assessments of what constitutes a success, which is different for each patient. Also, by empowering vision rehabilitation professionals to authorize the department's payment of the regional DBVI-trained low vision examiner of their choice, the department allows those case managers to consider aspects of clinical care that cannot be measured, but which are nevertheless important to the patient.

By presenting two stroke-related vision rehabilitation cases managed by DBVI, I hope to give some insight into the value the department places on such nonmeasurable goals.

Case one

A 52-year-old male experienced an occipital lobe stroke that resulted in his ability to only detect hand motion in either eye. DBVI has since been involved in his rehabilitation. The patient has been receiving orientation and mobility training, and he is being taught to travel independently with a long cane. He has been trained to function without vision in his home office using Job Access With Speech (JAWS) screen-reading software. The patient's DBVI case manager felt he also needed glare protection indoors and outdoors, as well as further emotional closure regarding his vision loss.

I chose this example because the patient was referred for a low vision exam to achieve goals that were entirely nonmeasurable. The case manager was in the best position to determine the value of these nonmeasurable goals in the context of rehabilitation, and it was therefore appropriate that he had the power to make the referral within the system.

Although optical low vision devices can sometimes be prescribed to make certain visual tasks easier for limited periods of time throughout the day, patients benefit from glare reduction every hour their eyes are open. For those concerned with measuring outcomes by weighing variables, this reduction in glare needs to result in a much greater emphasis on sun-wear evaluations within a program than is normally advocated by a clinician. Sun-wear evaluations not only determine the color of light that produces the least glare, but also the specific sun-wear design and fit that best reduces that glare. The results of such evaluations cannot be predicted by, and do not correlate with, contrast sensitivity findings. Although contrast sensitivity testing may be important to the ophthalmologist treating and following progressive eye disease, it has no direct effect on the improvement of functional vision, and there is no number assigned to the value of reduced contrast sensitivity that correlates with any specific treatment. There is simply no method to maximize contrast by reducing glare other than a full sun-wear evaluation in each relevant lighting setting. For this reason, all DBVI patients with light perception receive such sun-wear evaluations, while contrast sensitivity testing is optional.

Those patients experiencing emotional difficulties adjusting to their vision loss are referred outside the system for therapy as needed. I have received several referrals from case managers, however, who believe the patient's primary difficulty in accepting their visual loss stems from not fully understanding it. In each case, the case manager has assured me that my explanations have been helpful in that regard. It would be impossible to measure any accelerated rehabilitation that such explanations might produce. It is also important to note that the quality of rehabilitation is not measured only by its speed, but also by its depth of impact. Again, the case manager was in the best position to determine the value of

this nonmeasurable goal in the context of rehabilitation, and it was therefore appropriate that he had the power to make the referral within the system.

I reviewed the patient's most recent medical eye report and determined that he was compliant with instructions and follow-up. At the time of his low vision exam, his uncorrected distance acuities in his right eye was 1/700, and 3/700 in his left eye. Previous exams had indicated that his difficulty was not refractive, yet the patient still hoped glasses would compensate for his vision loss. I explained that they would not. The patient had been a photographer, and he therefore easily understood when I explained that his problem was not optical. He wondered why no one had explained this to him previously, but someone might have; communicating information to someone grieving for an immense personal loss often involves more than simply repeating it. One reason DBVI case managers are in the room with the low vision examiner during the course of the low vision exam is to ensure patients understand the information being conveyed to them.

Over the course of the previous year, the patient had noticed an improvement in his vision. This improvement was verified by his ophthalmologist, who had recently measured finger-counting vision in the superior visual field of each eye. The patient reported always using his left eye for sighting targets in the past and indicated that he still felt it was his "dominant eye," even though he also reported his general visual impressions were identical in each eye. This distinction was important to him, because he maintained an interest in hitting golf balls. This continued interest in using his vision for such tasks helped explain the case manager's concern with the patient's incomplete acceptance of his vision loss.

The patient's uncorrected near acuity was 43M at 2 feet. (43M-sized print is 43 times the size of 1M print, which is equivalent to 8-point font, approximately the size of newsprint). Interestingly, the patient was able to correctly determine the direction of motion (up, down, and to each side), using 10M rotating stripes on an optokinetic drum. The patient was interested in why he was able to correctly determine the direction of motion of a smaller stripe than he could detect when it was stationary. I therefore discussed two separate anatomical visual pathways from the retina to the brain that have two mutually exclusive goals, speed and content. The Magno system is designed for quickly detecting motion, and appropriately governs peripheral and night vision. Its function would always be slowed with extra content such as detail and color, which are perceived by the Parvo system, which is more efficient when operating solely in the central visual field (Yoonessi & Yoonessi, 2011). The fact that the patient could better detect motion was consistent with his report of better peripheral vision, better night vision, and almost no color vision. The patient was well educated and inquisitive, and he indicated that he appreciated this explanation.

The patient noted that he saw white-on-white edges best. I pointed out a white desk with a white countertop against a white wall. He confirmed that these edges were clearer to him than anything else in the room at that distance. I discussed our plan to try using colored lenses for subjective contrast enhancement and glare reduction, without suppressing this sole measure of enhanced subjective acuity. By this time the patient had received orientation and mobility training, and had learned to travel safely; slightly improved visual function would not interfere with these gains. I demonstrated various colored lenses with side-shields indoors, and the patient reported that medium yellow significantly improved his subjective vision, but it decreased the advantage that white objects offered in edge detection. Light gray lenses with side-shields improved his subjective vision only somewhat, but they did not decrease

the advantage that white objects offered in edge detection. The patient wanted to try both options. Various colored tints were demonstrated outdoors in bright sunlight. The patient consistently preferred medium gray. The patient's case manager later reported that the patient found the gray sun-wear to be particularly helpful, both indoors and outdoors, and that my detailed explanations specific to the patient's vision loss appeared to significantly improve his adjustment to his visual impairment during the remainder of his vision rehabilitation therapy.

Case two

A 72-year-old female suffered a bilateral occipital lobe stroke that was worse in the right hemisphere, as well as a left parietal lobe stroke, which resulted in left hemianopia, a loss in the left half of the visual field in each eye. Her neurologist at the time reported two elements of Balint's syndrome: simultagnosia, or the inability to perceive the visual field as a whole; and optic ataxia, or the inability to move the hand to a specific object by using vision. I chose this example because the patient was referred for a low vision exam primarily to achieve goals that were nonmeasurable.

The case manager, a vision rehabilitation teacher, was having difficulty differentiating the patient's stroke-related visual symptoms from stroke-related cognitive effects. He felt it was important to make this distinction when pursuing vision rehabilitation. In addition, he felt that providing an understanding of this difference would benefit the patient's son, who was ascribing all her idiosyncratic stroke-related visual symptoms to cognitive effects. It was easy to imagine how this distinction might improve the patient's relationship with her son (who would participate in any meaningful rehabilitation effort), since it was difficult to imagine how this improvement might be measured. In addition, the case manager felt a low vision exam might be beneficial to the patient because increased contrast seemed to greatly improve her visual function, and because she reported significant difficulty with glare.

I reviewed the patient's most recent medical eye report and determined that she was compliant with instructions and follow-up. At the time of her low vision exam, I measured her uncorrected distance acuities as 10/700 in the right eye and 10/600 in the left eye. Her previous exams indicated that her difficulty was not refractive. I was interested in the case manager's finding that increased contrast improved her function. I was also curious as to whether colored filters might improve function by reducing pattern complexity, and whether tactile guides for near-visual targets would improve target recognition by allowing the patient to touch them. The patient's uncorrected near isolated letter acuity was 8M at 30 cm. She was only able to read this near target by running her finger down my hand and finger, which was pointing to it. Tactile guides improved target recognition, and this finding was repeatable. A portable closed-circuit television (CCTV) with yellow letters on a black background increased contrast and reduced glare, but the use of a CCTV only allowed her to locate the same-sized 8M letter on the screen, and it did not change her need to tactilely locate the visual target in order to see it. Although this 8M screen letter corresponded to a 0.8M isolated letter acuity on the page and gave her access to isolated letters in newsprint, her need to tactilely locate each letter would not permit efficient isolated letter acuity, much less continuous text acuity.

The patient stated that, when seated, she could "see everything," but that when moving, she could "not see well at all." She used her hands to feel her way along objects when walking with her son. I discussed her orientation and mobility with her case manager, who explained that independent travel training would be inappropriate, given the patient's memory issues. The confidence travel training would produce would be dangerous

when the patient forgot the technique. Therefore, we reviewed correct sighted guide techniques with her son. He had been guiding the patient from her right side. Although this arrangement placed her left eye (which she reported had "much" better vision) on her unprotected side, her left hemianopia had to be considered. If the patient's son guided her from her left side, it would place her remaining field on her unprotected side, but she reported that the quality of that remaining field was quite poor in her right eye. It was, therefore, not clear from which side her son should operate. I instructed him to guide the patient from whichever side she reported had the worse field of vision when moving, acknowledging that these preferences might not always be consistent, since she reported that simply walking changed her vision drastically. Given my difficulty with making a definitive recommendation, however, it was doubtful that the distinction would be tremendously significant. In keeping with a primary goal of the low vision exam, I explained this situation to her son thoroughly.

I demonstrated various light-colored lenses and page filters indoors, but none improved subjective vision by reducing visual clutter or decreasing glare. I always demonstrate colors across the spectrum, since there is no correlation between a disease process and the specific wavelengths that may produce bothersome glare. Outdoors in bright sunshine, medium plum sun-wear with side-shields reduced glare and improved comfort.

Providing a better understanding of the idiosyncratic nature of the patient's vision loss to her son was a primary goal of the low vision exam. The success of that goal was dependent on the patient's son, specifically on his attention and level of concern. The goal's subjective nature did not make it less important. The case manager later reported that our discussion did help the patient's son better manage both his mother's and his own expectations, and that it was immeasurably beneficial to her vision rehabilitation, because he no longer ascribed her odd visual symptoms to other stroke-related cognitive issues.

Conclusion

I hope to inspire a discussion about the importance of nonmeasurable goals in vision rehabilitation and low vision care. Any such discussion should begin by simply acknowledging that such goals exist, at least on the part of the patient or any professional attempting to pull together the pieces of the patient's life that have been fragmented through vision loss.

Reference

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Creative Description: Audio Describing Artistic Films for Individuals with Visual Impairments

Agnieszka Walczak

Audio description is a service aimed at widening accessibility to visual media such as film and television for all individuals, especially for people with sensory disabilities. It offers people who are blind or have low

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