

THE DAILY STRUGGLE

by

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THE DAILY STRUGGLE

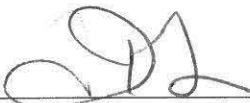
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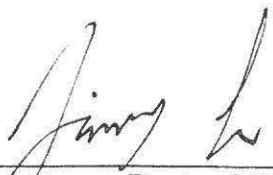


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ABSTRACT

Background: Contact lenses have been a large market in the profession of Optometry, and with all of this attention, innovations to contact lenses are a constant process. With an increasing market and production for daily lenses, it becomes a challenge to the practitioner with the decision to change the modality of a patient's contact lens based on affordability, convenience, and overall patient happiness. This research project evaluated the effect on a practice when changing the options from monthly (1M), biweekly (2W), and daily disposable (DD) lenses to a practice that only fits DD lenses. It explored how the change in modality affected the patient base, and it then used this data to project a change in revenue for the practice. *Methods:* An infographic was used to educate non-DD lens patients on the specifications of DD lens wear, including: comfort, convenience, cost, and health benefits. Following the infographic, patients then took a fourteen-question survey to evaluate their perception of DD lens wear and ultimately if they would change to a DD lens, stop wearing lenses due to discontinuation of other modalities in the practice, or stay with the practice but get contact lenses elsewhere. From this survey, revenue was projected using a financial analysis of the change in cost of goods and doctor compensation. *Results:* Via analysis and future projections a change in modality of a practice to only DD lenses decreased the overall contact lens patient base, while increasing the practice's revenue. *Conclusion:* Changing a practice to an DD only contact lens modality increased the practice's overall contact lens revenue as well as provided the patient base with a more convenient, healthier lens option.

Key words: modality change; daily contact lens; patient base; revenue

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CHAPTER 1

INTRODUCTION

Contact lenses are an increasingly popular choice to correct for patient refractive error. The American Optometric Association (AOA) estimates that 45 million people in the United States wear contact lenses. About 15% of adolescents, 25% young adults, and 15% of adults over the age of 25 are wearing contact lenses. Of these, nearly 90% are wearing soft contact lenses. (1) With such a substantial portion of the population wearing soft contact lenses, we can stipulate that there is an increasingly large market for contact lens sales. According to Baird's 2016 analysis, the contact lens market value is 2.5 billion dollars with a 5% sales growth per year. (2) With such a reliably growing product in the profession of optometry, it is in our interest to focus on how these contact lens sales can affect a practice and our profession in the future. When looking more closely at soft contact lenses, we have three main modalities; DD, 2W, and 1M lenses. The practitioner normally evaluates which contact lens to fit on the patient based on ocular health, lifestyle and comfort of the patient, and cost to the patient.

Ocular health is the most important to the practitioner when fitting contact lenses on patients. Associated contact lens complications include but are not limited to: corneal neovascularization (1-20%), peripheral ulcer (2-3%), bacterial keratitis (1.2-25.4%), acanthamoeba keratitis (1-33/million), giant papillary conjunctivitis (1.5-47.5%), dry eye (50%), and allergy aggravation. (3) Many of these conditions are sight threatening, namely the infectious complications. For this reason, practitioners have annual examination to reevaluate fits, lens conditions, and health of the ocular surface. Many of

these conditions are preventable by the fit, material, and solution being used; namely neovascularization, GPC, allergy aggravation, and dry eye. The other infectious complications can be caused by wear schedule and hygiene noncompliance, and unfortunately some are incidental. Constantly the practitioner is working towards preventing these incidents through educating the patient on appropriate wear time, hygiene and solution use. The Centre for Contact Lens Research at the University of Waterloo found that non-compliant patients reported a significantly higher rate of complication than compliant wearers (26% versus 18%). (4) Another study shows that 82% of DD contact lens wearers are compliant compared to 25% of 2W wearers and 34% of 1M wearers. (5) According to a study at the University of California Berkeley, DD lenses have lower risks for severe contact lens related microbial keratitis and associated vision loss. (6) Much of this decrease in risk is thought to be associated with the absence of case and lens hygiene requirements with DD lens use compared to 2W and 1M lenses. With an increasing market for soft contact lens use there is concern for an increase in incidence of associated sight threatening complications. DD lenses can eliminate the need for solution storage and lens hygiene and improve compliance to preserve patient ocular health and vision.

Although ocular health plays the largest role for the practitioner in prescribing contact lenses, lifestyle, cost and comfort play a role in patient decision making. DD lenses are perfect for busy patients that do not want increased hygiene responsibility, either due to not having the time or have trouble remembering to do it on a regular basis. Many of these patients are children, young adolescents, athletes, hospital staff, frequent flyers, and corporate professionals. However, lifestyle typically plays a smaller role than

comfort and cost, especially cost. Often times patients are willing to sacrifice comfort and lifestyle for a cheaper contact lens. The patient most commonly affected by discomfort are those affected by persistent allergic conjunctivitis. About 20% of the world population is affected by some form of allergy, and ocular symptoms are present in about 50% of allergic patients. (7,8) This often leaves these patients trying numerous types of lenses until they are comfortable or discontinue contact lens wear all together. However, it has been shown that DD lenses provided improved comfort in 67% of study participants with allergy related contact lens discomfort. (9) 1M and 2W lenses are a very comfortable choice for patient without ocular allergy complications, but for these patients with persistent ocular allergy complications DD lenses have been a more comfortable choice.

The final piece to contact lens prescribing is cost. Cost is often the largest hurdle for practitioners in the contact lens fitting arena. Do the benefits outweigh the costs? Many patients and practitioners argue that the decreased responsibility of hygiene and storage supplies (solutions and cases) is worth the extra cost of the DD lenses. For patients that drop or rip their lenses, and are unable to reuse that lens, the cost of replacing a DD lens is cheaper than a 2W/1M lens. Additionally, the destroyed or lost 1M/2W poses a much more significant loss of wear time compared to DD lenses. However, patients still have preconceived notions about DD lenses being significantly more expensive than other modalities. For part time wear schedules DD lenses are typically less expensive. Moreover, if we were to assume that all lenses stay intact, and the patient wears their lenses as scheduled for an entire year, then the cost is not as significant as most patients have preconceived. One estimate places the cost difference

between DD and 1M/2W contact lenses at as little as thirty cents per day. (10) This greatly depends on the types of contact lenses and solutions being used, but the purpose of this statistic is to show that the difference in cost is manageable for budget-tight patients.

If the practitioner can educate the patient on ocular health, lifestyle and comfort benefits at a marginal cost difference, then more patients may show interest in using DD contacts over 2W/1M lenses. Ultimately putting less patients at risk for sight threatening complications. Additionally, with an increasing market for DD lenses and soft lenses in general, this transition can bring a revenue gain to help boost private practice and the profession forward. This research project will infer changes to a private practice's patient base and revenue through survey-based analysis after changing a from multi-modality to DD-only.

CHAPTER 2

METHODS

An infographic and survey was anonymously distributed to all contact lens patients within the past two years of the University Eye Center (UEC) at Ferris State University. The infographic educated patients on the health benefits of DD lenses versus 2W and 1M lenses, the lifestyle convenience and increased comfort of using DD lenses, and how a significant increase in cost is a misconception when choosing DD lenses. After subjects read this infographic, they were prompted to take the survey. The survey had the following questions:

After looking over the information about daily contact lenses, they are an option that I would like to try:

Agree, somewhat agree, neither agree or disagree, somewhat disagree, disagree, I currently wear DD

Has your eye doctor ever given you the option to try daily CLs?

YES OR NO

If my doctor prescribed DD lenses for me, my perception about their clinical skills would improve:

Agree, somewhat agree, neither agree or disagree, somewhat disagree, disagree

If your eye doctor prescribed DD CLs which of the following would you do?

Switch to DD, get your 2W/1M online, switch to a doctor that prescribed the CLs that are not DD, stop wearing CLs

Rate the following characteristics in terms of importance (1-5 scale):

Safety, Comfort, Simplified replacement schedule, Simplified lens hygiene, Cost

Have you ever permanently stopped wearing a 2W or 1M replacement soft CL due to discomfort or infection?

YES OR NO

Have you ever permanently stopped wearing CLs due to the responsibility of storage and cleaning maintenance? YES OR NO

2W/1M contact and lens solution cost about 1.25\$ per day, and DD cost less than 2\$ per use. Knowing this, would you make the change to dailies?
YES OR NO

What is your annual household income?
<\$20,000, 20K-40K, 40K-60K, 60K-80K, 80K-100K, >100K

If your doctor offered a mail-in rebate for ordering a yearly supply of DD, would you be more likely to order them from the practice?
YES OR NO

Which is the replacement schedule for your soft CLs:
Daily, 2W, 1M, IDK, I don't wear soft CLs

What is your age?
18-28, 29-39, 40-50, 51-61, over 62

How do you currently buy your CLs?
Online, Doctor's office, different doctor's office, other – please describe

How often do you visit your eye doctor to renew your CL prescription?
2x annually, 1x annually, q18 months, q2 years, other – please describe

The survey was used to infer patient perception of DD lenses, how they may affect loyalty and patient impression, and the importance of comfort, safety, convenience, and cost to the patient. Additionally, from these survey questions, data was extrapolated to infer a change in revenue when changing from a multimodality practice to a DD only practice.

Calculations used the average cost to the practitioner and a forty percent markup retail cost to the patient to generate a change in revenue. The average annual cost to the practitioner of spherical, toric, and multifocal 1M/2W and DD lenses was used from these four main manufacturers: Alcon, Bausch and Lomb, Coopervision, and Vistakon. The Alcon monthly lenses were Air Optix sphere, toric, and multifocal, and the DD

lenses were Dailies Aqua Comfort sphere, toric, and multifocal. The Bausch and Lomb monthly lenses were Ultra sphere and multifocal, and the DD lenses were BioTrue sphere and multifocal. The Coopervision monthly lenses were Biofinity sphere, toric, and multifocal, and the DD lenses were Clarity 1 sphere, toric, and multifocal. Finally, the Vistakon monthly lenses were Oasys sphere, toric, and multifocal, and the DD lenses were 1 Day Moist sphere, toric, and multifocal. The average cost of an annual supply to the provider, and the retail annual supply to the patient are as follows:

Table. 1

Average Annual Cost of Contact Lens Type

Type of Lens	Annual Supply Cost to Provider (In USD)	Annual Supply Retail to Patient (In USD)
1M/2W Sphere	117.99	165.19
1M/2W Toric	158.59	222.03
1M/2W Multifocal	207.51	290.51
DD Sphere	329.52	493.53
DD Toric	452.37	633.32
DD Multifocal	499.40	699.16

The average cost for an annual supply of 1M/2W lenses to the provider is 161.33 USD, and at a forty percent markup retails for 225.91 USD. The average cost for an annual supply of DD lenses to the provider is 427.01 USD, and retails to the patient for 608.67 USD. On top of these costs, the University Eye Center (UEC) fee schedule was

used to calculate the cost of contact lens examinations. Established contact lens examinations with a contact lens renewal cost the patient 34.00 USD, and established contact lens examinations with a new contact lens fitting costs 68.00 USD.

Using this fee schedule and the average cost of the DD and 1M/2W lenses, a difference in revenue was calculated. Subjects that answered “yes” to changing to daily lenses while currently wearing 1M/2W lenses was used to make these calculations. There were 30 subjects that currently wear 1M/2W lenses and 22 subjects that wear DD lenses. The Established 1M/2W value represents the difference in cost and retail, and was added to the cost of an established CL fit for a total of 98.58 USD/subject. This was considered net profit for the practitioner. Similarly, the Established DD value was set to 215.66 USD/subject. The sum of the established revenue for 1M/2W and DD lenses was termed the Total established revenue. Now, we are assuming a change from a multimodality practice to a DD only practice. The New DD lens profit was calculated by adding the profit margin to the value of a new contact lens fitting fee for a total of 249.66 USD/subject. With this change, many subjects currently in 1M/2W lenses will not leave the practice, but instead purchase their lenses online. This was calculated as a total of 34.00 USD/subject and referred to as the Remaining established 1M/2W. The New DD value, Established DD value, and Remaining established 1M/2W was added as the New revenue gain. The New revenue loss was the 1M/2W lens subjects that chose to leave the practice and valued as a negative 98.58 USD/subject. The difference in New revenue gain and New revenue loss was termed Total new revenue, and the difference in this value and Total established revenue gave the Net revenue change. The Net revenue change

represents the gain or loss in revenue when changing from a multimodality practice to a DD only practice.

Further calculations were made to project a revenue change based on rebate opportunity for each type of annual purchase of DD based on subject responses of “yes” to considering DD lenses if a rebate is offered. It is possible to potentiate the revenue gain, if we assume an averaged rebate based on the individual manufacturers rebate policies for purchasing an annual supply of DD. Acuvue Moist lenses average at 133.33 USD for the three types of lenses (sphere, toric, and multifocal). Dailies AquaComfort Plus was 150.00 USD, Clariti 1 was 130.00 USD, and BioTrue was 200.00 USD. The average of these rebates is calculated to be 153.33 USD. Since the rebate value is not applied as a cost to the practitioner, the increased value of patients willing to switch to DD lenses increases, and the revenue change is calculated as follows. The DD with rebate value represents all patients interested in DD lenses if a rebate is offered and calculated the same way as the New DD value was calculated; 249.66 USD/subject. This value was added to the Established DD total and the Remaining 1M/2W value (34.00 USD/subject). This resulted in the Total revenue with rebate, and difference from the Total established revenue gave the Net change in revenue with rebate.

CHAPTER 3

RESULTS

Table. 2

Calculated Revenue Before the Change to DD Lenses

Established 1M/2W (56.86%):	30 (98.58) = +2957.40 USD
Established DD (43.14%):	22 (215.66) = +4744.52 USD
Total established revenue:	+7603.34 USD

Table. 3

Net Revenue Calculated After the Change to DD Lenses

New DD:	14 (249.66) = +3495.24 USD
Established DD:	+4744.52 USD
Remaining Established 1M/2W:	14 (34.00) = +476.00 USD
1M/2W Leaving practice:	-2 (98.58) = -197.16 USD
New revenue gain:	+8715.76 USD
New revenue loss:	-197.16 USD
Total new revenue:	+8516.60 USD
Net revenue	8516.60 – 7603.34 = +915.26 USD

DD lenses are often offered with a mail-in-rebate for a purchase of an annual supply. If a rebate were to be offered in purchasing DD lenses, 86.21% of subjects believe that would work favorably in choosing DD lenses. For the subjects that would buy their 1M/2W lenses online, 92.86% would consider switching to DD lenses if rebate

was offered. Additionally, of the two subjects that would leave the practice, both would consider switching to DD lenses if a rebate was offered. Of the 29 subjects that are currently in 1M/2W lenses, 14 would buy online, 2 would leave and 13 would switch to daily lenses. Of the 16 that would buy online or leave the practice, 15 would consider DD lenses if a rebate was offered.

Table. 4

Calculated Change in Net Revenue with DD Lens Rebate

DD with rebate:	$29 (249.66) = +7240.14 \text{ USD}$
Established DD:	$+4744.52 \text{ USD}$
Remaining 1M/2W:	$1 (34.00) = +34.00 \text{ USD}$
Total revenue with rebate:	$7240.14 + 4744.52 + 34.00 = +12018.66 \text{ USD}$
Net change in revenue with rebate:	$12018.66 - 7603.34 = +\mathbf{4415.32 \text{ USD}}$

CHAPTER 4

DISCUSSION

All four avenues play a role in clinical decision making for prescribing contact lenses: ocular health, comfort and convenience, and cost. Whereby convenience plays the smallest role for the both the practitioner and the patient, comfort and ocular health both being important for the patient and the practitioner, and cost plays a significant role for the patient's decision making. Inarguably, ocular health is the most important in the eyes of the practitioner. Patients wearing DD lenses are much more likely to comply to the wear schedule, and do not require a hygiene regime. Contact lens complications are directly related to wear schedule non-compliance and poor hygiene. Thus, it is possible to surmise that DD lenses have a decreased risk of complications compared to 1M/2W lenses. Research has shown that DD lenses have a decreased risk of moderate to severe infectious keratitis compared to 2W/1M lenses. The goal as a practitioner is to create the lowest possible risk of complication for the patient.

Patients, on the other hand, are not normally thinking about the health risks of contact lenses, but instead the convenience of wear schedule and hygiene responsibility, comfort, and cost. Convenience of wear schedule and decreased hygiene responsibility are used more as a last resort selling point for the practitioner, and often times the patient's main reason for seeking a change in contact lenses. This quality of DD lenses is directly related to entice the patient on resolving wear schedule noncompliance and poor contact lens hygiene upkeep. Again, a way to preserve the ocular health of the patient.

Comfort and cost were shown to be more important than convenience in the survey. Comfort is most commonly an issue for patients with persistent ocular allergy complications, and DD lenses have been shown to increase comfort for these patients. At that point, it is a battle for the practitioner to be able to explain how the comfort and ocular health benefits outweigh the cost, because we want the best ocular health outcomes in the most comfortable lens at an affordable price.

In terms of a change in patient loyalty and revenue, the results of the survey show a favorable outcome if the practice were to switch from a multimodality model to a DD only model. However, the calculations only consider contact lens examination fees and contact lens net revenue based on averaged values. Further research into specific age groups, their specific brand and type of lens, and their maximum annual willingness to pay would allow for a more in-depth analysis of the true trends that would result from a practice change to DD-only contact lens sales. Furthermore, this research project leaves out routine exam fees, spectacle lens sale changes, and sunglass sale changes based. Additionally, it is limited to a one-year revenue evaluation and fails to predict future changes in annual net revenue. Thus, further research will be required to look specifically into how change a practice to a DD-only model will change these fees and sales trends.

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APPENDIX A

IRB APPROVAL LETTER



Date: Jan 11, 2018

To: Amy Dinardo
From: Gregory Wellman, R.Ph, Ph.D, IRB Chair
Re: IRB Application *IRB-FY17-18-50 Daily Disposable Contacts in Private Practice*

The Ferris State University Institutional Review Board (IRB) has reviewed your application for using human subjects in the study, *Daily Disposable Contacts in Private Practice (IRB-FY17-18-50)* and approved this project under Federal Regulations Exempt Review Category Category 2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Approval has an expiration date of three years from the date of this letter. **As such, you may collect data according to the procedures outlined in your application until Jan 10, 2020** . Should additional time be needed to conduct your approved study, a request for extension must be submitted to the IRB a month prior to its expiration.

Your protocol has been assigned project number IRB-FY17-18-50. Approval mandates that you follow all University policy and procedures, in addition to applicable governmental regulations. Approval applies only to the activities described in the protocol submission; should revisions need to be made, all materials must be approved by the IRB prior to initiation. In addition, the IRB must be made aware of any serious and unexpected and/or unanticipated adverse events as well as complaints and non-compliance issues.

This project has been granted a waiver of consent documentation; signatures of participants need not be collected. Although not documented, informed consent is a process beginning with a description of the study and participant rights, with the assurance of participant understanding. Informed consent must be provided, even when documentation is waived.

As mandated by Title 45 Code of Federal Regulations, Part 46 (45 CFR 46) the IRB requires submission of annual reviews during the life of the research project and a Final Report Form upon study completion. Thank you for your compliance with these guidelines and best wishes for a successful research endeavor. Please let us know if the IRB can be of any future assistance.

Regards,

A handwritten signature in black ink, appearing to read "Gregory Wellman".

Gregory Wellman, R.Ph, Ph.D, IRB Chair
Ferris State University Institutional Review Board
Office of Research and Sponsored Programs