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Portable optometry: You can do eye exams anywhere

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Portable optometry: You can do eye exams anywhere

Abstract

The recent advances in portable optometric equipment and technology offer a greater potential than ever before for optometrists to leave their offices and increase their services and patient base. In this paper, we introduce management techniques for portable optometry along with various suggested forms. We discuss and list selected out of office equipment and discuss special services such as vision therapy, consulting, dispensing and contact lenses that can be done outside of the office. We conclude that full-scope optometry can be accomplished out of the office.

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PORTABLE OPTOMETRY
YOU CAN DO EYE EXAMS ANYWHERE

BY

MATHEW G. FINDLAY
DELL C. MORRIS

A thesis submitted to the faculty of the
College of Optometry
Pacific University
Forest Grove, Oregon
for the degree of
Doctor of Optometry
May 1996

Advisor: Thomas Samson, O.D.

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Grade Page

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A handwritten signature in cursive script that reads "Thomas J. Samson" followed by a circled "00". The signature is written above a horizontal line.

Thomas Samson, O.D., Advisor

Grade: A -

Date: 3-12-96

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Biographical Sketches of the Authors

Mathew G. Findlay was raised in Soda Springs, Idaho. He attended Soda Springs High School and graduated in 1985. Mathew met his wife Maria Santos while attending college at Brigham Young University. He graduated from B.Y.U. with a Bachelor of Science degree in Zoology. He attended Pacific University College of Optometry from 1992 to 1996. Mathew and Maria are the proud parents of Mark Mathew, age 3 and Rachel Maria, age 8 months. Mathew will be practicing in Montpelier and Soda Springs, Idaho upon graduation.

Dell C. Morris was raised in southeastern Idaho and moved to northern Utah after high school graduation. He attended Utah Valley Community College and Brigham Young University obtaining a Bachelor of Science degree in microbiology with minors in chemistry and music. Dell attended Pacific University College of Optometry from 1992 to 1996. He is the proud husband of Michele Herbert-Morris and father of two children, Anthony (age 6) and Sarah (age 1). Dell's future plans include a private practice in the Intermountain West and many years of future growth in optometry.

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Special thanks to the companies who have provided us information concerning their products.

Abstract

The recent advances in portable optometric equipment and technology offer a greater potential than ever before for optometrists to leave their offices and increase their services and patient base. In this paper, we introduce management techniques for portable optometry along with various suggested forms. We discuss and list selected out of office equipment and discuss special services such as vision therapy, consulting, dispensing and contact lenses that can be done outside of the office. We conclude that full-scope optometry can be accomplished out of the office.

I. Introduction

The roots of optometry are anchored in the histories of optometrists who went from town to town delivering services and glasses from bags and wagons. As Maurice Cox, D.O.S. tells us about our history, "...the refracting optician, who later became the optometrist, ... practiced in an established office but journeyed forth periodically to supply the visual needs of patients and prospects in areas not served by established practitioners ..."1 Today's portable optometry enables us to go out to the people rather than them coming to us.

Optometrists are now recognizing the opportunity to improve their services and patient base by leaving the office and performing their services in other locations. By improving their ability to analyze visual problems on location, they can provide services to their patients at home, at a job site, in a hospital, on a playing field, in a nursing home or at a computer workstation. By making these opportunities available to the public, patient services and satisfaction will increase and job or employment contracts may become available.

Many optometrists perform excellent services for their patients within the walls of their optometric offices. However, optometrists often do not realize the potential for leaving the confines of the 20 foot lane and performing additional services for their patients. The recent advances in portable optometric equipment and technology offer a greater potential than ever before for optometrists to leave their offices and increase their services and patient base at the same time.

II. Management

The need for portable optometry is here -- your job is to help people want your service and realize their need for it. In this section we will discuss how to market portable optometry so that people will learn more about your services and realize they want them. Good management and organization will keep those patients in your practice, therefore we will discuss some of the forms you can use to manage your portable optometric services.

Marketing portable optometry

One way to introduce yourself to the community is to contact local nursing homes and ask about their need for primary eye care services. George White O.D. suggests presenting yourself to the head nurse or health administrator. You can make it clear that you offer refractive services, eyeglasses, low vision services, post surgical care, and treatment of localized eye infections and herpes zoster.²

If you want to approach an organization such as a company, corporation or home care service, another option is to create an introductory letter to the administrator or health care supervisor who would benefit most from these new services. A sample letter is shown in Appendix 1.

This letter should be upbeat and positive about offering a new service in the community. Be prepared to back up each of your proposals with documentation on the plans and services you offer. To fit into each organization's structure, you may have to do a different job at each of the locations you serve. Some locations may only desire a few of your services such as consultation or basic eye

exams. Others may require all the services you offer and ask for more as well.

An important aspect of marketing is proper and complete research on each of the locations you approach. For example, even if you have an excellent presentation and proposal, if you do not participate in the basic insurance plan that covers all of the company employees, you will not have much to offer the company.

Conversely, if you approach those companies where you know that you accept the insurance or participate in the plans as a participating provider, you have a better chance of offering the company a service that it can already afford and increase your chances of acceptance.

Offers to participate in a company's infrastructure may allow you an inroad to becoming a provider on a panel you do not already participate with. By approaching the supervisor within the company and asking them to assist you in approaching the provider panel, you have added leverage in influencing the outcome of the decision of acceptance or rejection in the provider panel.

As with any of your other optometric services, mention portable optometry in all of your advertising and patient information. Mention portable optometry to your in-office patients and mention it in any speeches or lectures you give. List it as an option in your phone directory listings and yellow pages.

Forms and Management for Portable Optometry

The opportunity to practice in multiple practice settings can be stimulating and exciting. As Judith Lee, Contributing Editor of *Review of Optometry* explains, "Providing eye care to nursing home patients can be professionally and financially rewarding, but before

you jump in consider that optometrists who do so say nursing home care also presents challenges unlike those in conventional, office-based settings."² Portable optometry offers the opportunity to practice in many different settings, but organizing and managing standard office paperwork in a portable environment can be challenging. Much of the complication of patient information and paperwork can be reduced with a little forethought and planning. For example, think about the following areas even before you do your exams at the new site:

- Form for personal patient information
- Prehistory forms for the patient
- Exam forms for you to fill out
- Personnel to assist you at the site

Form for personal patient information

We have created a form that can be sent out to the patient before the examination so they can write down needed personal information. The space to the right of the box can be used by the doctor to write down other important information such as family members, special interests or hobbies, or any other information the doctor may want to remember the next time he sees the patient. An example of this form is found in Appendix 2.

Prehistory forms

A prehistory form that is complete and comprehensive greatly aids the doctor and pretesting technician in the analysis of the visual system. In essence, this form tells the doctor what the patient is "bringing into" the examination process. It also primes the patient to think about the questions that the doctor will ask again as the exam

continues. This helps the patient focus and prepare for situations later in the exam.

An example of a prehistory form is shown in Appendix 3. The prehistory form allows the patient to input in a written way the feelings and concerns they have at the onset of the examination. This particular form allows the patient to insert answers to generic questions. The blank space on the right of the box allows the doctor to follow up on any answers that he may need more information about and write it directly on the form. This form can also be mailed to patients prior to their examination so that they can fill it out before arriving. This can prevent confusion if you don't have a waiting room and decrease your no-show rate.

Exam Forms

Exam forms vary widely between each doctor and office. The exam form you currently use in your office may be perfectly adequate for you to use in a portable environment. Generally, the less paperwork you have to carry, the easier the paperwork will be, so reassess your current form to see if it could be more concise. In Appendix 4, we have included a sample of an exam form. A combination of features from this form or from other forms may work best for you. Some doctors even find that working from a blank page is the most effective for them.

Since you can provide just as complete an examination in portable optometry as you can in any office setting, be sure that your quality of records is the same as with any patient you would see in your office. Whatever your mode of recording, be sure to record

with the same completeness and quality that you use with all other patient interactions.

Personnel to assist you at the site

If you currently use office or technical assistants in your practice, consider bringing ancillary personnel with you when you visit your portable sights, especially if you are going to be seeing a large number of patients. Technicians can help you by:

- Guiding patient flow
- Obtaining pre-history information
- Performing initial tests or screening tests - much of the equipment for portable optometry can be used by ancillary staff
- Recording information as you perform the exam
- Explaining exam observations or results
- Training patients in contact lens use
- Training in safety eye wear use and practice
- Selecting and dispensing frames and lenses
- Scheduling patients for follow-up care

III. Equipment

The purpose of this section is to explain the features of various pieces of equipment that are uniquely suited to portable optometry. Please refer to Table 1 for a list of the equipment, the manufacturer, a brief product description, list price as of January 1996, and contact information.

Diagnostic Sets

We have only included one diagnostic set that is uniquely suited to portable optometry because of its compactness. Many doctors already have portable diagnostic sets that would work well in most situations. We did list the Ophthalmic Compac Set by Welch Allyn since it is even more compact. It features a retinoscope, ophthalmoscope, and transilluminator that can all be folded up into a 6" X 1.5" size. It also has an optional power source of AA or rechargeable batteries. It should be noted that a binocular indirect ophthalmoscope can also obtain excellent views of the fundus. According to Dr. Mark Kirstein, O.D., "If you feel like your B.I.O. is too cumbersome to carry to a house call, consider investing in a spectacle indirect with a portable power pack. My entire Keeler system, including a 20D lens, fits into a contact lens starter kit pouch. And, the optics at the spectacle indirect are as good as any larger model."³ Christopher Rinehart, O.D. indicates that "For the retinal evaluation, I use binocular indirect ophthalmoscopy. This gives me an excellent field of view. It also gives a good retinal view, even through most media opacities.

"Since many of the elderly patients have both cataracts and age-related maculopathy, this tool allows me to evaluate the retina in cases where direct ophthalmoscopy is useless."⁴

Lens Banks

Our definition of lens banks is any combination of lenses that allows the doctor to assess the patients refractive error and oculomotor coordination.

We have listed two trial lens set options other than the typical full set trial lens kit. Marco makes a Perimeter trial set with 28 spheres and 12 cylinders. It has the advantage of reducing the size and amount of equipment you would need to bring to your out of office exam site. It has the disadvantage of not having any pairs of lenses if you need to do a binocular balance and the patient has close to the same refractive error on both eyes. The other option is the Reduced Trial Set by Opti-Mark. It contains 22 pairs of +/- spheres, 9 pairs of cylinders, 3 prisms, 4 auxiliary lenses and a trial frame. It has less bulk than the typical trial set and should be adequate for most patients.

The Halberg Trial Clips are useful for doing an over-refraction on a patient who already has glasses. They can be slipped over the front of a pair of glasses and trial lenses can be inserted to do a refraction in the three lens wells that are available. More expensive versions come with a bubble level type guide.

The Retinoscopy Rack is useful for doing retinoscopy quickly when no phoropter is available. It can be accurate as long as the lenses are available in the rack to fit the patient's refractive error. Two options are listed under the lens banks section of Table 1.

The Rapid Screening Prism Bar by Keeler has the advantage of taking the place of both a vertical and horizontal prism bar. Since less equipment is better for doing out of office exams this has some advantage. The bar is used diagonally (45°) on either eye and has a range from 0 to 35 diopters. The prism bar can be used to take gross phoria and vergence data. It is also useful in measuring an angle of a strabismus. The Hand Held Risley Prism is a bit more accurate at

measuring phorias and vergences. It works on the same principle as the one on the phropter, but requires more manual dexterity.

There are two options for a portable phoroceptor. One is the Keeler Refracto Rack. It has a range of sphere powers from -10 to +10 in .50 diopter steps. It could be used as a mini phoroceptor or retinoscopy rack. It is also small enough to put into your pocket. This instrument is not included in our review chart because it has recently been discontinued so it might be possible to find a used one.

Another option is the Portastand made by Pat Cummings, O.D. in Sheridan, Wyoming. This device is designed from 2" PVC pipe and can be broken down for storage or transportation into a 50" long container. It has the ability to hold a standard phoroceptor over a hospital bed or wheelchair.

Perimeters

We have chosen the smallest and lightest perimeters available; however, none of these perimeters are easily portable. In order to practice full scope optometry perimeters are essential. We have listed three products to choose from. They are all about the same size, so a careful selection of qualities and price should be explored.

Tonometers

In the area of tonometry there are some excellent products to choose from that are easily portable and accurate. The Perkins Applanation Tonometer by Cletet Clark has the advantages of portability and uses the Goldman type standard measurement devices. "One instrument" says Dr. Kirstein "that has contributed greatly to the quality of my house call eye exams is my Perkins hand-held tonometer. Since it is a Goldmann type device, this

instrument is the standard of care for tonometry. It produces accurate intraocular pressures with the patient sitting or reclining. It is about the size of a retinoscope and is powered by four AA batteries. A little practice is required to ensure reliable IOP's."³ Dr. Philip Aitsebaoma reports that with this instrument, "If you have a patient who is not fond of opening his or her eyes you may have difficulty. I often have to use one hand to hold the eyes open while operating the instrument with the other hand."⁵ An accessory item, the Perkins Examination Telescope (P.E.T.), allows magnified viewing of the fluorescein "semi-circles" at arms length.

The ProTon Tonometer by Tomey and the Tono-Pen by Mentor are the most portable tonometers listed. Both can be carried in a packet and are accurate when compared to the Goldman standard.

The Pulsair by Keeler is the least portable tonometer listed. It has a size of 14"X12"X8" and weighs 16 pounds. It does have the advantage of being a non-contact tonometer with a gentle air puff that is acceptable to most patient populations.

Slit Lamps

We listed three models of hand held slit lamps to choose from; the SSL-65B by R.H. Burton, HH SL-14B by Kowa, and the Zeiss HSO 10 by Humphrey. Due to stability problems and lower magnification and illumination options, none of them are as good as a stationary slit. With experience, adequate views for contact lenses and ocular disease assessment can be obtained. Mark Kirstein, O.D. tells us that "The slit lamp is the most expensive and weighty piece of portable equipment. However, it is difficult to perform an ocular health exam without one. Hand-held slit lamps enable you to examine a patient

in a wheelchair or bed. These instruments are useful in your office, too, for any patient with back or neck problems."³ In this area, it is vital that you experience and assess the quality of the portable slit lamp you are considering before you make such a sizable investment. In general, the compromises are worth the cost if you can find an instrument that allows you the view you need in the location you want.

Keratometers

Two hand held keratometers are available; the KM-500 by Marco and the Renaissance by Alcon. Both offer portability and a light weight design. The units are easy to use by ancillary personnel. Dr. Philip Aitsebaomo O.D., reports the following problems. The Alcon model has a short battery life and no override button for keratoconic patients. The Marco unit doesn't fit very easily into one hand especially if you have small hands.⁵ With both units you are unable to assess mire quality as you can with a standard mire projecting keratometer.

Lensometers

Many portable lensometers are available. We have chosen to list three; the EI-7s Lensmeter by Nikon, the Renaissance Lens Analyzer by Alcon and the Pentax OLH-10. They are all very portable. The Renaissance has automatic detection of progressives, but also has a higher price. Dr. A. Philip Aitsebaomo says "The smallest hand-held lensometer I know of is the Pentax OLH-10. While it gives you the capability of reading the prescription power, cylinder axes are not very accurate."⁵

Autorefractors

The Retinomax by Nikon has now made autorefraction available in a portable instrument. It has the advantages of being hand held, able to take readings in any patient position, and comfortable enough for pediatric patients. It has a battery life of one hour and can print results from a distance without connecting to the base. Because it is relatively new, it is quite expensive.

Other Instruments

For acuity charts a typical printed Snellen chart is acceptable and portable. These can be obtained at many locations. For the elderly patients in nursing homes Dr. Robert Rosenthal, O.D. uses the Feinbloom low vision chart at 10 feet.⁶ Dr. Philip Aitsebaomo, O.D. likes the Feinbloom chart, but typically uses a gooseneck lamp to illuminate the chart since the 10/20 line is often not legible to patients in poor illumination conditions.⁵ We have also listed the B-Vat by Mentor that not only has various acuity charts but stereo acuity, suppression, associated phoria, fixation disparity, and contrast sensitivity. It's size, bulk, and weight make it less than ideal for portability.

The Lambda 100 Retinometer by Heine is used for assessing potential acuity of patients with media opacities. It is able to fit onto a rechargeable handle. It works on the principle of projecting finer and finer grating patterns until the patient can't recognize what direction the patterns are pointing.

Table 1

Selected Instruments For Out Of Office Exams

Product	Manufacturer	Product Description	List Price	Information
<u>Diagnostic Sets</u>				
Ophthalmic Compac Set	Welch Allyn	ophthalmoscope, retinoscope, and transilluminator that folds up into 6"x1.5" size	\$595	(800) 535-6663
<u>Lens Banks</u>				
Perimeter Trial Set	Marco	28 spheres and 12 cylinders, no trial frame	\$400	(800) 874-5274
Reduced Trial Set	Opti-Mark	22 pairs +/- spheres, 9 pairs cylinders, 3 prisms, 4 auxiliary lenses, includes trial frame	\$800	(800) 592-MARK
Halberg Trial Clips	Keeler	fit over patients spectacle frame, has 3 lens wells	\$78	(800) 523-5620
Retinoscopy Rack	Luneau	-15 to +15	\$139	(800) LOMBART
Retinoscopy Rack	Keeler	+6 to -6	\$404	(800) 523-5620
Rapid Screening Prism Bar	Keeler	works for both horizontal and vertical measurements	\$236	(800) 523-5620
Hand Held Risley Portastand	Richer Pat Cummings, O.D.	Same as one on phropter only hand held PVC stand that holds a standard phoroceptor. Can be broken down into a container 50" long.	\$249	(800) LOMBART \$295 (307) 674-7331
<u>Perimeters</u>				
Field Analyzer 720	Humphrey	80lbs. 23 5/8" X 22 3/4" X 19"	\$14,950	(800) 423-4393
LD 400 Autoperimeter	Dicon	20" X 20" X 24"	\$9,495	(800) 426-0493
Octopus	Interzeag	65lbs. 22" X 16" X 16"	\$10,995	(800) 672-6280
<u>Tonometers</u>				
Perkins Applanation Tonometer	Clement Clark	hand held, Goldman type	\$910	(800) 848-8923
ProTon Tonometer	Tomey	accessory items - P.E.T. for viewing at arms length 5 1/2" X 3 7/8" X 1 3/8", 19oz.	\$199 \$1,995	(800) 30-TOMEY
		accessory items - rechargeable handle and recharging unit	\$317	
Tono - Pen XL	Mentor	7 1/4" X 1" X 7/8", 2.25oz., used in any patient position	\$2,795	(800) 992-7557
Pulsair 2000	Keeler	non-contact tonometer, 14" X 12" X 8", 17.95lbs.	\$5,995	(800) 523-5620

<u>Product</u>	<u>Manufacturer</u>	<u>Product Description</u>	<u>List Price</u>	<u>Information</u>
<u>Slit Lamps</u>				
Burton 750 Hand Held Slit Lamp SL-65B	R. H. Burton	rechargeable	\$2,350	(800) 848-0410
HH SL-14B	Kowa	magnification 16X or 10X, 32oz.	\$3,995	(800) LOMBART
Zeiss HSO 10 Hand- Held Slit Lamp	Humphrey	total magnification 12X, battery adapter	\$3,500	(800) 423-4393
<u>Keratometers</u>				
KM - 500 Hand - Held Keratometer	Marco	good for 1 hour of use	\$3,445	(800) 874-5274 EST
Renaissance Keratometer	Alcon	25 readings without a recharge	\$5,995	(800) 289-1991
<u>Lensometers</u>				
EL - 7S Lensmeter	Nikon	battery or adapter power source	\$1,525	(800) 438-8782
Renaissance Lens Analyzer	Alcon	small foot-print, automatic detection of progressives	\$4,295	(800) 289-8782
Pentax OLH-10	Pentax	battery operated	\$690	(800) LOMBART
<u>Autorefractors</u>				
Retinomax	Nikon	hand held, battery life 1 hour	\$13,735	(800) 438-8782
<u>Other Instruments</u>				
Charts (Laminated)	OOGP	snellen, kindergarten, and illiterate	\$8	(800)654-3829
B-Vat II (Mid-level)	Mentor	multiple types of charts displayed on a monitor, not easily portable	\$4,295	(800) 992-7557
Lambda 100 Retinometer	Heine	used for assessing potential acuity of patients, fits onto battery or rechargeable handles	\$939	(800)367-4872

IV. Special Services

Just as you could specialize in a number of different areas in a regular office setting, you can also do the same in portable optometry. Some of the areas are optional and some of the areas such as disease evaluation are part of a regular eye examination. We will discuss:

- Ocular Disease and Special Testing
- Vision Therapy
- Consulting
- Nursing Home Care
- Dispensing
- Contact Lenses

Ocular Disease and Special Testing

Complete visual testing requires the assessment of ocular health and the confirmation of the presence or absence of any disease or disease process. No visual exam is complete without an eye health checkup.

Ocular diagnosis

Ocular disease diagnosis begins at the first conversation with the patient and continues until the last thoughts of the patient leave the doctor. A complete case history is vital to the knowledge that a doctor must have to adequately understand the patient and their visual system. Aids to the doctor in the diagnosis area include:

- A prehistory form the patient fills out
- Pretesting completed by a visual technician
- An examination form that is complete and succinct
- Tools to properly assess and treat the patient

Ocular diagnosis continues with a thorough examination. Dilation of the eyes should be performed at the discretion of the doctor. We recommend compliance with the AOA guidelines concerning dilation.

A recommended supply of diagnostic pharmaceutical agents should include:

- 2.5% phenylephrine
- 1% tropicamide
- Paramyd
- 1% cyclopentolate
- Rose Bengal strips
- Sterile saline
- Fluorescein strips or Fluress
- A topical anesthetic

Ocular visualization techniques for portable optometry include:

- Portable slit lamp
- Direct ophthalmoscope
- Binocular indirect ophthalmoscope

Ocular therapy

Therapy and management of ocular disease broaden the scope of medications to carry. The wide range of ocular diseases possible precludes the possibility of carrying therapeutics to treat every possible disease. However, a small panel of therapeutic agents can treat most diseases. Basic therapeutics should include:

- Several standard topical antibiotics
- Several topical steroids
- Several topical anti-glaucoma medications

- A topical anesthetic
- A dilation reversal agent
- Fluorescein
- Artificial tears
- Systemic CAI's and hyperosmotics (acute angle closure attacks)
- Several blank Rx forms for written prescriptions

Optional Equipment and Testing

A-scan and B-scan equipment are portable enough to take with you for posterior segment evaluation if necessary. These will provide you with information about posterior segment health when no other view is possible. "If you encounter a patient where even indirect ophthalmoscopy cannot provide good information, you'll have to use an internal exam instrument, such as an ultrasonic B-scan.

"Sound waves are not blocked by the opaque media of the eye. In fact, if you can't get a view of the internal eye from any other means, B-scan is necessary to rule out conditions such as retinal detachment and internal tumors."⁴

"Finally, it is a good idea to bring your color vision plates, stereo vision test, and Amsler grid. This equipment might be needed and takes up very little room in your bag. If you are very ambitious you can dust off and roll up your tangent screen!"³

A reference source for ocular conditions should accompany any portable optometric provider. There are several excellent references available that are both complete and compact. One is:

- Wills Eye Hospital - Office and Emergency Room Diagnosis and Treatment of Eye Diseases

It is also important to remember that no examination is complete until each patient understands any disease process that they have. Patient education materials can be given to the patient at that time or mailed directly to the patient following the examination.

Vision Therapy

Since portable optometry can be as comprehensive as any office, portable vision therapy is a good option for patients. There are some conditions that make vision therapy difficult: rescheduling patients for follow-up, limited space and limited equipment that you can bring to the site.

One of the difficulties may be rescheduling patients and retrieving visual therapy equipment. For this reason, using disposable equipment that is inexpensive enough to be given directly to the patient without intent of return is advisable. There are some options to provide simple and effective vision therapy to a patient that needs it. One idea is to develop a small collection of vision therapy exercises and activities that are simple enough to explain with written instructions and contain disposable equipment. The doctor could assemble small kits with inexpensive disposable equipment and give a custom selection of written instruction sets made specifically for each patient. Then the patient could try the exercises at their own pace and use the equipment as long as necessary for best results.

Some possible equipment to include:

- Brock string

- Pencil pushups
- Near/far rocks
- +/- flippers
- Loose prisms
- Marsden ball
- Lifesavor cards
- R/G glasses
- R/G anaglyphs
- Paper exercises

Consulting

Access into corporations, companies, and businesses in your area through portable optometry offers the unique opportunity to introduce optometric consulting services for visual needs to those businesses. Consulting in the optometric field allows an optometrist to become a specialist in environmental, occupational and recreational vision. As a resource to supervisors in all professions, you can offer state of the art information and application of sound visual principles to almost all areas of employment. Areas that you can emphasize include (but are not limited to...):

- Environmental Lighting
- Video Display Terminals - Computer Vision
- Motorists Vision
- Pilot's Vision
- School Consultation and Screening
- Sports and Recreation
- Visual Hygiene
- Visual Workplace Enhancement Evaluation

- Workman's Compensation Consultation

Nursing Home Care

A few doctors do eye exams only in nursing homes. We spent two days working with Jim Gurtisen O.D. as he did eye exams at various nursing homes around the Portland, Oregon area. He does not have an office, instead he has a completely portable optometric practice. The basic equipment that he carried, a rough outline of the procedures he used, and clinical pearls we learned from him are listed below.

EQUIPMENT

- Micropipet to instill drops--patient did not have to tilt head back--very useful
- Kowa hand held slit lamp--moderately good views
- Single letter acuity chart and single symbol acuity chart--used other chart to uncover letters--greatly decreased time spent taking acuities because of patients reduced response time
- a gym bag that carried all of the equipment that needed a power source--battery recharging wells and battery packs were kept inside with a single cord leading out so they could constantly be kept charging as he moved from room to room
- tonopen for pressures
- retinoscopy rack
- Burnell clip with occluder
- complete lens kit
- low vision reading cards and other various near point cards

- BIO with 20D lens
- ophthalmoscope
- file box to keep that patients files that were to be seen that day
- lens flipper
- hand held lensometer

PROCEDURES

- trial framed over patients habitual Rx with a Burnell clip and +/- 0.50 sphere--if improvement a new Rx could help
- performed retinoscopy when dilating drops have taken effect
- confrontational fields to access visual field
- Rx from retinoscopy, glasses over refraction, and previous Rx

CLINICAL PEARLS

- get on lots of insurance plans
- patients are slow to respond but do give good information
- set add for patients working distance and needs
- get medications and health history from record in nurses station

Dispensing

Dispensing eye wear in a portable environment can provide the same quality of service as a traditional dispensary. The essential constraint to portable dispensing is transporting an inventory of frames that is convenient enough to carry around, yet complete enough to satisfy the needs and wants of most patients who are selecting eye wear styles. The most important aspect of portable

dispensing is having an inventory complete enough to make selection of eye wear enjoyable for each of your patients.

The key to a complete inventory for patient satisfaction is knowing what your patient will want before you leave the office so you can take it with you. For example, if you are going to a factory and most patients will be using the company plan to select safety eye wear, there is not much need to take anything else with you, as a vast majority will want to remain within the confines of the plan and select safety wear. Perhaps a few upgrades would be appropriate to offer before they see the basic plan frames. Conversely, if you are going to a computer company where most patients will likely need computer glasses, a different selection of light weight fashion frames may be more appropriate and generate more response from patients.

Transporting equipment and frames to many different locations can be difficult. Bruce Muchnick, O.D. says "I went to a luggage store and bought a sample case which looks like an oversize briefcase for about \$120. I fit everything in this except for my trial frames."²

To transport all these trial frames around, look no further than the people who move frames around as a full-time profession, your local frame representatives. The cases they use are available at most luggage and sample case manufacturers. Often frame representatives can order or provide information about ordering these cases from the companies they represent. We recommend that you sort your frames in different drawers or shelves within the case so that you can take various styles of frames to the different locations that you visit and not have to take every frame you own

every time. This allows you the flexibility to carry one large frame case with rotating stock and still provide each patient with a selection that most meets their needs and lifestyle.

Most frame cases carry approximately 200 frames at a time, and allow easy manipulation of the drawers and stock. Ordering additional drawers to rotate stock is essential, and allows easy rotation of frame styles as your location varies.

Well-organized displays give visual and tangible information that educates patients about product benefits in no other way. Currently the industry is moving towards the idea of having in the dispensary a "lens bar", an area with a complete representation of every lens option available. This concept can be incorporated into portable optometry with organized thinking and precise planning. Selling options for frames and lenses is much easier with visual aids, and samples of various types of multifocals, tints, and coatings for lenses can be easily obtained and displayed during lens selection.

A. Phillip Aitsebaomo, O.D., Ph.D. reminds us that "When I go out to dispense a pair of glasses, I also take along such necessities as a frame warmer, dispensing tools, and a trial lens set with frames."⁵

Mark Kirstein, O.D. suggests "Sometimes I 'preadjust' the frame with a portable frame warmer and mail the completed pair of eyeglasses back to the patient. However, I usually prefer to dispense eyeglasses in person. I find this brief return visit important to reassure the patient of my findings. It also provides me an opportunity to review any new working distance instructions or other adaptations the patient is likely to need due to a new spectacle prescription."³

Contact Lenses

Contact lenses can easily be transported to any site for contact lens fitting and dispensing. The difficult part about portable contact lenses is not the contact lenses themselves, but the additional equipment necessary to care for them, assess them, dispense them, and modify them.

Contact lens inventory

It is appropriate to periodically assess the nature of your practice and analyze your daily contact lens dispensing choices. By using this information to analyze our most frequently prescribed lens modalities, it is easy to conclude which lenses would be the most appropriate to carry to an outside location. For example, select one or two major brands of disposable contact lenses and carry a sample trial lens in each parameter and a standard -3.00 D prescription. This would allow trial fitting and analysis of contact lens fit.

Caring for contact lenses

Select several contact lens care regimens that work most universally for your contact lens patients and carry sample sets with you when you expect to do portable contact lens care. Care regimens can be modified at later dates if complications arise; however, the majority of patients will succeed in contact lenses with the major brands of contact lens solutions.

Assessing contact lens fit

For the widest selection possible, it would be advisable to carry the following supplies to permit immediate contact lens assessment in outside locations.

- One or two disposable trial lens fitting sets.

- Two or three trial soft contact lenses of different parameters
- 1 toric soft contact lens fitting set
- 1 aspheric RGP fitting set
- Wratten filter for viewing RGP fits
- Fluorescein for assessing RGP fits
- Portable keratometer for assessing K readings before and after fits
- Portable slit lamp for assessing fit

Dispensing contact lenses

Many contact lens companies offer the option of sending contact lenses directly to the patient after you have assessed all aspects of the contact lens fit. If patients are prior contact lens wearers and are familiar with care and handling regimens, then shipping contact lens directly to patients offers an exciting convenience to patients by getting custom contact lens orders directly to them in the fastest possible time. Contact Ciba Vision for more information on these options.

Modifying contact lenses

A few small tools allow for the possibility to clean and modify contact lenses when necessary.

- Enzyme kit for soft contact lenses
- Polishing compound for RGP's
- Dispensing towels and cleaners

This equipment allows you to clean soft contact lenses and clean or add minus to an RGP by hand. Soft contact lenses in need of modification should be replaced with new lenses.

VI. Conclusion

On the basis of the data we have provided, we feel confident that portable optometry is a viable practice option that can extend and enhance the practice of optometry. Management of a portable optometric practice can be accomplished with use of the suggestions and ideas we have presented. Equipment for portable optometry has improved to a state that most products are easily portable and very reliable. Even special services such as vision therapy, consulting, dispensing, and contact lenses can be accomplished with an adequate outcome for the patient and the doctor.

Appendix 1

September 14, 1995

Attn: John Smith, Health Maintenance Supervisor
Acme Industrial Corporation
123 Success Avenue
Anytown, ST, 12345

Dear Mr. Smith:

As a Health Maintenance Supervisor, I am sure you are aware of the importance of preserving our most vital and important sense, the gift of vision. The ability to see allows us to gather information and increase performance in every aspect of our lives. The personnel you supervise deserve the ability to see and perceive comfortably and safely. Without this ability, the employees of Acme Industrial Corporation become less productive and sometimes require different job assignments.

As an independent doctor of optometry, I would like to offer you and your personnel the opportunity to receive a comprehensive vision evaluation every single year. You may wonder how you and all your employees will have time to leave work, hire a baby-sitter, fight traffic to my office, spend two hours in an exam, fight traffic back to work, and be unable to see for the rest of the day due to dilated pupils. My answer is in the most important aspect of my offer:

I will come to you!

Recent advances in optometric equipment allow me to bring a state of the art vision exam to your facility and perform every test usually available to you at my office. Each examination will include:

- Comprehensive case history
- Visual Acuity Testing
- Comprehensive Refraction
- Eye movements analysis
- Depth perception
- Color Vision testing
- Ocular health analysis

At the discretion of each of your personnel, I can also:

- Use eye drops to reduce the time of dilation
- Evaluate or order contact lenses
- Order glasses for distance, near, computer use, or progressive lenses
- Evaluate and order safety eye wear
- Evaluate employees with ocular diseases such as glaucoma, cataracts, diabetes, high blood pressure, and lazy eye
- Recommend visual exercises and therapy

As the Health Maintenance Supervisor, I can also help you by:

- Determining eye-hazardous job areas
- Establishing minimum visual skills for each job
- Developing a job recommendation guide for vision
- Determining types of eye protective equipment required
- Setting up a vision screening program
- Organizing a referral system
- Monitoring provision, fitting, and servicing of safety eye wear
- Establishing a vision conservation program
- Conducting periodic surveys and evaluations

All of these services are offered to you and your personnel without ever having to leave your facility. Less employee down time and fewer hours lost because of visual exams. And since all eye exams are done by me, billing is centralized and can be completed with one easy payment each month.

I'm eager to talk to you about finalizing the details of this exciting opportunity. I will contact you early next week for an appointment to visit you and demonstrate the eye care you can receive in your own office.

Sincerely,

I. C. Better, O.D.
 Go Vision, Inc.
 234 West 678 South
 Anytown, ST 12345

Appendix 2

Go Vision, Inc.

234 West 567 South Anytown,ST 12345 123-4567

Welcome to Go Vision! In order to serve you best, please answer all questions as completely as possible.

Name: _____ Date: _____

Date of Birth: _____ Age: _____

Address: _____

Home Telephone: _____

Employer: _____

Business Address: _____

Business Telephone: _____

Please list someone other than your household to contact in case of an emergency:

Name: _____

Telephone Number: _____

Insurance Information:

Insurance Company: _____

Group Number: _____

Policy Number: _____

Please tell us how you were referred to Go Vision:

Appendix 3

Go Vision, Inc.

234 West 567 South Anytown, ST 12345 123-4567

Welcome to Go Vision! In order to serve you best, please answer all questions as completely as possible.

Name: _____ Date: _____

Occupation: _____

Please circle the activities in which you participate:

- | | | | |
|---------|-------------|-----------|-----------------------|
| Reading | School work | Computers | Watching TV |
| Crafts | Office work | Sports | Activities in the sun |
| Hobbies | Shop work | Mechanics | Music |

Other activities: _____

When was your last eye exam? _____ Where? _____

Do you wear glasses? _____ Contact lenses? _____

When do you wear them? full-time driving reading

Please circle any problems you have with your eyes or vision:

- | | | | |
|---------------|------------------|-----------------------------|----------|
| Blur up close | Burning | Discharge | Pain |
| Blur far away | Itching | Redness | Floater |
| Double vision | Watering | Tired eyes | Dry eyes |
| Headaches | Flashes of Light | Sensitivity to bright light | |

Other: _____

Please circle if you or anyone in your family has a history of:

- | | | | |
|----------|---------------------|------------------|----------|
| Glaucoma | Cataracts | Blindness | Lazy eye |
| Diabetes | High Blood Pressure | Thyroid problems | |

Explain: _____

Please list any medications you are taking: _____

Please list any medications you are allergic to: _____

Please feel free to speak with the doctor about any other concerns you have.

Thank you for taking the time to fill out this form.

Your patience until the doctor can see you is appreciated.

Thank you!

Appendix 4

Go Vision, Inc.

234 West 567 South Anytown, ST 12345 123-4567

Name _____

Address _____

Phone _____

History: _____

(see Pre-history form for further history follow-up)

O NKA Allergies: _____

Ophthalmic History: _____

Ophthalmic Meds: _____

Visual Acuity: aided unaided pinhole

OD 20/ _____ OS 20/ _____

Slit Lamp Exam:

Lids/Adnexa: _____

Cornea: _____ clear

Conjunctiva: _____ clear

Sclera: _____ clear



Iris: _____ clear

Anterior Chamber: _____ clear

Angles: OD OS

Intraocular Pressure: Tonopen Goldman NCT

OD: _____ mm/hg OS: _____ mm/hg

Lenses: OD  OS 

Nuclear Sclerosis	Nuclear Sclerosis
Cortical Spoking	Cortical Spoking
Posterior Subcapsular	Posterior Subcap
IOL	IOL

Pupils:

OD	_____ mm	rnd/irreg	reactive	brisk	sluggish
OS	_____ mm	rnd/irreg	reactive	brisk	sluggish
APD	+/-	Consensual	+/-		

Eye Movements: Convergence/Divergence/versions normal
 OD pursuits / saccades / fixation normal
 OS pursuits / saccades / fixation normal

Head tilt Nystagmus Tropia Cranial nerve 3 / 4 / 6 dysfunction

Confrontation Fields:



DPA's:

.5% proparacaine 1% tropicamide 2.5% phenylephrine

Vitreous: Floaters Clear Condensates PVD _____

Optic Nerve Evaluation: white yellow pink round oval distinct blurry deep mod shallow crescent atrophy drusen

C/D Ratio: OD _____ / _____ OS _____ / _____

Retinal Vessels:

H 0 A/V 2/3 or >	Normal	A 0	Art. lt. Reflex 1/4 or <
H 1	Narrowing, tortuos	A 1	Sheathing, tortuos
H 2	Focal Constrictions	A 2	Tapering
H 3	Hemorrhages, soft exudates	A 3	Banking
H 4	Papilledema, hard exudates	A 4	Silver wire, X changes

Macula: clear ()FLR drusen hole serous detachment ARMD mild mod severe wet dry CNVM mottled RPE

Peripheral Fundus: clear dot-blot hem neo exudates pavingstone lattice degeneration _____

Current Spectacles

OD	_____	-	X	add
OS	_____	-	X	add

Retinoscopy or Auto-refraction

OD	_____	-	X	add
OS	_____	-	X	add

Refraction

OD	_____	-	X	add
OS	_____	-	X	add

Assessment: _____

Plan: _____

Reevaluation on: _____

Signature: _____

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