CHAPTER

14

Instrumentation and Equipment

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It is the Age of Machinery, in every outward and inward sense of the word.
Thomas Carlyle *Critical and Miscellaneous Essays*

Optometry is a profession that requires the use of sophisticated (and often expensive) instrumentation and equipment. The use of this technology involves all aspects of care, from diagnostic evaluation of patients to fabrication of eyewear to billing for services. The purchase of instruments and equipment is an inevitable part of the practice of optometry and one of the most costly in terms of financial investment.

Purchasing decisions are an important step in the process of beginning and maintaining a practice. The selection of instrumentation and equipment is a major consideration in opening a new practice, which must be equipped completely. When purchasing a practice, existing instrumentation and equipment often needs to be replaced. The selection of equipment is a large, never-ending task; even well-established practitioners find it necessary to periodically replace or update clinical instruments, office furnishings, and business equipment. Choosing the right supplier is a crucial part of making this investment successful. As in selecting any professional advisor, referrals from trusted sources (such as fellow optometrists) are an excellent guide. The purchaser always should allow time to compare prices, features, benefits, and service among sellers. An excellent way to compare different brands of instruments and the dealers who sell and service them is by attending the exhibit hall at major eye care seminars and conventions. The purchase of equipment is an expensive investment, one with significant legal ramifications that should be understood before entering into a purchase agreement.

LEGAL CONSIDERATIONS WHEN PURCHASING INSTRUMENTS AND EQUIPMENT

There is a tendency on the part of new graduates to assume a rather cavalier attitude toward the agreements used for the purchase of equipment. This is due in part to the circumstances of the usual purchase: the buyer places an order, which the seller promises to deliver at a time that is often several weeks or months in the future; the buyer signs what is not much more than a list of agreed-on items; and no money actually changes hands. Although equipment purchase agreements would not seem to be in the same category as practice purchase agreements, which require lawyers, accountants, a bank loan, and usually a period of hard bargaining, this could not be further from the truth. As with agreements to purchase a practice, equipment purchase agreements are contracts that are formal, binding, and enforceable.

These agreements cannot be voided merely because of some unforeseen circumstance such as the disability of the buyer or the failure of the buyer to obtain an optometry license as expected. Under these circumstances, the buyer will either have to pay damages to the seller or try to sell the equipment to another buyer. The damages incurred by the seller may be relatively small if another buyer can be quickly found, or they may be rather consequential if the equipment must be warehoused, transported, and resold at a loss. In either event, the buyer's breach of the agreement creates liability for the expenses incurred.

The only way to void a purchase agreement is to place a clause in the agreement that specifies the contract will not be binding should a certain described event occur; an example circumstance would be failure to obtain an optometry license. Even though a clause stating that the purchase agreement would be void if the buyer failed to receive a license would be legal and enforceable, it is unlikely that the seller would agree to it. Contingency clauses are not in a seller's best interest, thus they are not included in equipment purchase agreements for that reason. There are important issues other than the contract that must be understood when purchasing instrumentation and equipment. Other primary considerations include budgeting for instrument purchases, financing, the use of l easing rather than buying, tax issues, and selecting the appropriate equipment.

BUDGETING FOR PURCHASES

A budget should be determined for the capital investment of a practice, since it is very easy to add excessively to the list of needed instruments. A rule of thumb for opening a new practice is to buy only what is needed to provide competent professional care, then add equipment as needed, especially pieces that will generate or increase revenue. When the practice is

economically sound, it is a wise strategy to reinvest income into the practice in the form of additional and more automated instrumentation. A rule of thumb is to allocate 2% to 5% of net income every year to this fund. Each practitioner should develop a list of instruments that identifies and prioritizes the items needed in the practice. As funds are available, the desired items can be purchased.

There is a market for good used equipment when it functions well and looks good. Buying directly from another practitioner or a reliable equipment dealer will allow substantial savings when compared with the cost of new equipment. An equipment vendor has the advantage of cleaning, servicing, and recalibrating instruments and possibly even applying a new paint finish. It is always wise to inquire about warranties, which may not be offered with some used equipment. Instruments with advanced electronics can be very difficult and expensive to service. Equipment maintenance should be performed on a regular basis according to the manufacturer's guidelines. This maintenance may simply involve regular cleaning, which is important for accurate operation. Staff members should be trained to clean instruments daily, since lenses and mirrors can be damaged if cleaned improperly and instruments can be broken if mishandled. Considering the sizable expense/investment of these instruments, they should be cared for properly, including using dust covers at night.

FINANCING THE PURCHASE

Buying new professional instruments often involves financing. There are several options available to the purchaser, but the usual choices made by optometrists are bank loans and financing through the equipment dealer. Another option is leasing rather than buying. In many cases, the time savings achieved by the use of the new instrumentation or the additional fees generated by use of the instrumentation may offset its cost. For example, an autoperimeter with threshold capability is an expensive device, costing several thousands of dollars. If an optometrist's practice requires the frequent use of autoperimetry for the management of patients with glaucoma, the income generated by the device could more than pay for the cost of its purchase. When contemplating the purchase of equipment, thought should be given to the capacity of the device to add to services and generate income. This consideration is particularly important for optometry school graduates seeking to start a new practice. For new practices, it is essential to keep overhead expenses (the fixed expenses that must be paid every month) as low as possible.

Therefore, it is wise to perform an analysis of the likely utilization of equipment or instrumentation to determine the period of time needed to recoup the cost of investment. The payback period method of analysis is a simple way to make this estimate; it uses the formula:

Payback Period = Initial Investment / Annual Income Derived from Use

The practitioner needs to determine the cost of the item, any maintenance or operating costs, the projected use of the item (i.e., for testing) and the reimbursement to be received based upon this utilization. If the purchase of the item is to be financed through a loan, the loan interest must be added. Because the cost of the item is reduced by tax deductions for depreciation, estimates of the depreciation must also be made. (See Figure 14-1 for a sample calculation.)

Another important issue related to equipment purchased with a loan is that the equipment serves as collateral for the loan. In such cases the creditor retains a security interest in

Ophthalmic equipment that costs $40,000 (plus $3,000 in sales tax) is purchased with a conventional loan at 7% interest. The equipment is depreciable over a 7-year period, with the first year's depreciation being $6,100 (14.3%). There is an estimated $1,000 in operating costs during the first year. Projected use of the item is 10 times per week, at $50 reimbursement per patient, or $2,000 a month and $24,000 annually.

First year revenue	$24,000
Less	
Cost of operation (estimated)	$1,000
Interest charges for loan	$2,800
First year depreciation	$6,100
Yields	
First year taxable income from use	$14,100
Less	
Federal and state income taxes (28%)	$3,900
Yields	
First year net income from use	$10,200

If this level of utilization continues, the payback period may be calculated using the formula:

Payback Period = Investment Cost/Income from Use

Using the figures above:

Payback period = $43,000/$10,200 = 4.2 years

FIGURE 14-1 Payback Period Investment Analysis

the equipment. In the event the borrower defaults on the loan (cannot pay the creditor), the security interest allows the creditor to take possession of the collateral and sell it in an attempt to minimize financial loss. If the collateral cannot be sold for the amount that is owed, the creditor may be able to have other assets of the borrower seized and sold in an attempt to collect the difference. Even worse, if the creditor becomes insolvent, those to whom the creditor is indebted may be able to seize and sell the equipment themselves. This unlikely event can occur if the security interest signed by the buyer is not actually with the seller but rather with a creditor of the seller.

To avoid misfortune, doctors should negotiate with dealers that have acquired a good reputation and not fall prey to impulses or succumb to the allure of cut-rate prices. Buyers always should obtain competent legal advice before entering into any contract that involves the expenditure of a considerable amount of money or requires years of obligation to repay.

LEASING OPHTHALMIC EQUIPMENT

When considering the acquisition of ophthalmic equipment, the buyer should consider whether it is more advantageous to lease the equipment than to buy it (Box 14-1). Although leasing is generally more expensive than financing through a bank (or purchasing equipment outright), the use of leasing can allow a practitioner to use savings for the purchase of another asset (such as a home). Although it is not technically the same as financing, there is a built-in interest rate in a lease (which usually does not fluctuate over the period of the lease). This financing cost is generally higher with leases than with bank loans. The main advantage of leasing is that a lease usually does not require a down payment or affect a line of credit that may be established at a bank. Leases from different companies should be examined and compared in detail. The term (length) of the lease is for a period of years and is very difficult to change after the lease has begun.

At the end of the lease term, the equipment may be returned to the leasing company or purchased for an agreed-on amount. The amount paid will depend on the lease agreement but is usually the used market value of the equipment or 10% to 15% of the equipment's fair market value. The purchase option will affect the amount of the monthly lease payment. There are several tax issues that must be understood before entering into a lease agreement. A certified public accountant (CPA) or tax attorney should be consulted to clarify individual provisions of lease agreements (Box 14-2).

Tax Considerations of Buying vs. Leasing

For tax purposes, an equipment lease must be managed differently than a bank loan used for the purchase of equipment. When money is borrowed from a bank, both principal and interest must be repaid. Only the interest, however, may be deducted. When an equipment lease is entered into, each monthly repayment is tax deductible. Therefore 100% of the lease amount may be deducted.

Some consideration must be given to whether the lease deduction is advantageous for a given practice. It is often not particularly advantageous for a beginning practice, but for an established practice a lease arrangement might offer some tax benefits. Again, professional advice should be solicited before entering into an agreement.

MAKING THE APPROPRIATE CHOICES

There are practice building and promotional aspects to having excellent instruments. Patients will judge the quality of the examination based on an impression of how up-to-date the instruments appear to be. Even if instruments are not new, they should look new. Automated and computerized

BOX 14-1

Leasing of Ophthalmic Instruments and Equipment

ADVANTAGES

- 100% financing of the equipment.
- No down payment.
- 100% of the lease cost may be deducted.
- After the term of the lease, the equipment does not have to be purchased; instead, a new lease for new equipment can be arranged.
- The financing charge for the lease period does not change, thus fluctuating interest rates do not affect the amount due.

DISADVANTAGES

- Most new practices do not earn enough income to justify the tax advantages of the full lease deduction.
- The cost of a lease is greater than the cost of purchasing the same equipment; at the end of the lease period a payment will have to be made (usually 10% to 15% of the equipment's fair market value) to obtain title to it.
- The depreciation deduction is claimed by the leasing company.
- The equipment must be kept for the full term of the lease. The only exceptions are if the equipment is upgraded or if equipment of greater value is obtained. If the equipment is returned because of a default in payments, it can be sold and any deficit in what is owed can be collected from the defaulting practitioner.
- The lease agreement will probably require the practitioner to pay for insurance on the equipment; the practitioner also may be required to pay for all repairs (although this will depend on the warranty received from the equipment seller or manufacturer).

BOX 14-2

Common Provisions of Equipment Lease Agreements

IDENTIFICATION OF THE PARTIES

If the lease is to be taken out by a professional association or corporation, limited liability company, S corporation, or partnership, the lease agreement should be signed accordingly.

DESCRIPTION OF THE LEASE PROPERTY

The practitioner will select the equipment that is to be purchased, and the leasing company will provide the funds to purchase it. The lease agreement needs to list the equipment with specificity so that there is no mistake or question about the items subject to the lease.

TERM OF THE LEASE

The lease period may vary from 1 to 7 years; some companies may permit even longer periods.

OPTION TO PURCHASE

At the conclusion of the lease period, the practitioner will have the right to purchase the equipment. The price can be set at the outset of the arrangement or may be expressed as a percentage that cannot be exceeded. If the practitioner does not wish to purchase the equipment, it is returned to the leasing company at the end of the lease term.

COST OF THE LEASE

The interest, although higher than that charged by a bank, will be stable throughout the lease term. (However, if interest rates should go up significantly during the lease term, the interest rate charged by the leasing company may actually fall below the rate charged by a bank.) A monthly payment is established for the term of the lease, which does not change from month to month. (Some leasing companies offer a graduated payment schedule, whereby the lease payments are lower in the first years and gradually escalate over the later years of the lease term.)

RESPONSIBILITY FOR REPAIRS

The leasing company does not provide repairs; the practitioner will have to find an equipment dealer to perform repairs and will have to pay for them. However, the equipment manufacturer will provide maintenance and repairs during the warranty period.

INSURANCE

The practitioner will probably be required to purchase insurance sufficient to indemnify the leasing company in the event the equipment is lost by fire or other casualty.

RIGHT OF EXCHANGE

The practitioner may wish to exchange certain equipment before the lease term is concluded to obtain a newer model or a different piece of equipment altogether. The lease may recognize the right to perform exchanges (with proper adjustments in the cost of the lease).

FAILURE TO MAKE TIMELY PAYMENT

The lease will provide certain remedies to the leasing company should the practitioner fail to make the lease payments as provided in the agreement. Among the remedies typically available to the leasing company are the acceleration of payments, increased charges for late payments, and seizure and sale of the equipment. The penalties for late payment should be clearly understood by the practitioner.

instruments provide accuracy of measurement, state-of-theart technology, public relations benefits, and savings of time because their use is delegated to support personnel. Informing patients about the special diagnostic instruments used in the practice is an excellent means of providing internal marketing, which can result in more word-of-mouth referrals. For that reason, new instrumentation is a great topic for newsletters, recall reminders, and office brochures and can even be promoted on check-in forms.

The determination of the appropriate instruments and equipment for a given practice is one of the most important tasks a practitioner faces. As has been described, it is particularly important for beginning practitioners to be selective and to purchase only essential equipment to start a practice, adding on as necessary as the patient base and income grow.

Boxes 14-3 to 14-6 provide a summary of the equipment to be considered for a practice, organized by the room in which each instrument is typically used. A large range of costs and features usually are found for each instrument; of course, some items are necessities, whereas others are luxuries.

BOX 14-3

Equipment Checklist: Data Collection Room

BASIC

- Telebinocular
- Color vision plates
- Stereopsis test
- Sphygmomanometer and stethoscope
- Visual field screener
- Lensometer
- Patient chair and examiner stool

ADVANCED (substitute or add to basic)

- Autorefractor
- Noncontact tonometer
- Autokeratometer/corneal topographer
- Autolensometer
- Autoperimeter
- Retinal camera
- Rotating instrument table

BOX 14-4

Equipment Checklist: Examination Room

BASIC
Refraction

- Examination chair
- Instrument stand
- Examiner's stool
- Phoropter
- Keratometer
- Chart projector and screen/chart display terminal
- Trial lens set and frame
- Retinoscope

Ocular Disease Management

- Slit lamp biomicroscope
- Handheld 60, 78, or 90 D lenses
- Goldmann tonometer
- Binocular indirect ophthalmoscope
- Direct ophthalmoscope
- Various handheld devices for emergency and primary care

Additional

- Corneal topography analyzer
- Electrodiagnostic instrumentation
- Pachymeter
- Slit lamp 35-mm camera
- Slit lamp video system
- Low-vision diagnostic aids
- Binocular vision testing and/or training equipment
- Scanning laser polarimeter or optical coherence tomographer for analysis of the retinal nerve fiber layer
- Aberometer

BOX 14-5

Equipment Checklist: Laboratory

OPTICAL

- Automatic diamond lens edger
- Hand edger
- Lensometer
- Layout marker and blocker
- Rimless grooving machine
- Edge polishing machine
- Lens tinting machine
- Chemical hardener
- Heat tempering oven
- Frame warmer
- Various dispensing tools

Contact Lens

- Contact lens modification unit and tools
- Radiuscope
- Shadowscope or dissecting microscope

BOX 14-6

Equipment Checklist: Business Office

- Telephone system
- Calculator
- Photocopier
- Answering machine
- File cabinets
- Postage meter
- Dictation equipment
- Computer system and printer
- Fax machine
- Light signal system (interoffice communication)

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