Turning Your Dream Office into A Successful Reality

By Mark Tholen, DDS, MBA

The title of this article represents the height of presumption and sophistry; it would be impossible to describe, in these few pages, all the elements required to create the office that will successfully support your practice. However, based on the thousands of office design and construction projects that I have observed, there are some important guiding principles that, if heeded, can save tens or hundreds of thousands of dollars in rank errors that many of our colleagues have committed.

Pull up a chair. Let's talk. About you.

The Right Place for Your Practice

Where should you locate your practice? Should you lease space or buy a condominium? Or buy land and build a free-standing office? But what about remodeling your current office? Would that not be less expensive? Will you lose patients by moving your office?

These are all questions that you could be asking…or should be! This project will be the single biggest investment for 99.9% of all doctors; if you don't "get it right", you will pay for your mistakes in lost productivity as well as physical and emotional stress for the life of the office.

A daunting thought.

So, where do you locate your practice? This is a question that anyone who has been in the practice of dentistry has faced…occasionally, multiple times during his or her practice life.

Locating a site for a dental practice does not require an "optimal" location…you are not selling an impulse item such as fast food! You do not need to be on the corner of the busiest intersection in town. If you have been in general practice and have a patient base, what is the source of the vast majority of your referrals? If you are like almost all of your colleagues, your referrals come from your existing patient base. The specialist referral base is a mix of general practitioners and patients but, for both the specialist and general practitioner, impressing the existing patients with a facility that makes a statement of highest quality is the largest marketing tool you will ever use. (Fig. 1) In almost all situations, there will be at least two locations that will meet your facility needs… which are: (1) adequate space to meet your facility's design needs (floor plan size, windows orientation, adequate parking, etc.) for support of the practice, (2) a compatible neighborhood or business district character, and (3) to be within your budget of absolute cost and acceptable cash flow.

FIGURE 1

So, how do you go about confirming the above items that are absolutely critical to the success of your building project?

First, define the number of operatories needed, the scope of radiological equipment, the role of technology in the practice, the presence or absence of a laboratory, and the necessity of other specialty diagnostic or treatment rooms. In other words, define the practice in terms of the facility characteristics. This can be accomplished with an experienced equipment specialist or dental office designer.

Based on this information, the projected size of the facility can be determined.

Second, request that an architectural consultation be performed on the two or three sites that interest you most. The architectural consultation will determine and confirm the 'designability' of the proposed site or space, i.e., whether the physical needs of your facility can be accommodated in the confines of the site or space.

Third, determine the cost of the project and the impact the cost of the project will have on your practice's cash flow. This calculation may be able to be performed by an accountant familiar with real estate and construction costs (for dental practices) or an experienced equipment specialist.

Fourth, and last, there will be a single best site or space choice based on the architectural consultation result and financial calculation; choose the site that offers the most optimal 'designability' and that is within your financial capability.

Perhaps by now you have realized that this multi-step analysis of site selection has taken a very, very subjective process and converted it into an objective, disciplined analysis; this methodology should offer a great deal of comfort to you. Now you have the capability of selecting a site or space that truly meets your architectural and financial practice needs…without being confused with many extraneous issues that serve only to confuse you.

Can You Afford Your Dream?

Nothing, and I mean nothing, could be more risky than beginning your building or remodeling project without adequate funding. Running out of money before the project is finished can be the kiss of death because lenders are loath to repeatedly fund a project. And many doctors have been kissed.

Repeated project funding is a mark of extremely poor planning. You don't know what you are doing, and this makes lenders very nervous. Your multiple requests for funding may exceed your ability to repay the loan and therefore make the project "undoable"…but a third, half, or three-quarters of the 'undoable' project has been constructed. Now what???

In order to avoid this nightmare scenario, it is critical to have an accurate estimate of the project costs. While an entire course could be taught on construction cost accounting, a short but comprehensive list of costs are assembled below to serve as a guide in assessing the cost of the project:

- Land or Condominium Purchase Price
- Site Improvements. This can be as simple as landscaping or as complex as leveling the side of a mountain and running utilities to the site. For more complex projects, cost estimates should be solicited from a construction architect or civil engineer.
- Capital Cost. The cost of the actual building (without dental or business equipment) or build-out completion of the interior space.
- All Service Fees. Architectural, legal, (structural, civil, electrical, mechanical, soils) engineering, and accounting fees may be encountered depending on the scope of the project.
- Margin of Error Factor. This factor, which is a function of the capital costs, is usually dictated by the lending institution and can range from 5% to 20%. If it is not required by the lending institution, this figure should be included in your calculation to the degree of confidence you have in the validity of the capital cost.
- Other Expenses. Interest on the interim or construction financing, double rent, and additional maintenance fees are examples of additional expenses.
- Dental equipment costs
- Office Furnishings. This figure will include all the items to yield a finished look to the office. If carpet and wall coverings are not included in the Capital Cost calculation, be certain to include those expenses in this calculation.

The sum of all of the above items will yield a relatively accurate assessment of the project cost. Of course, this calculation does not offer any cash flow analysis, but your accountant can determine the impact of the project cost on your monthly cash flow. Discuss the results with your accountant to determine your financial options and tolerances.

FIGURE 2

FIGURE 3

Keys to the Successful Office

Reception and Waiting Areas

The reception or greeting desk/ area should be within 5 feet of the entrance and very obvious to the new patient. The reception area should be open and inviting to the patient using flooring, lighting, and architecture to draw the patient to the reception area and greeting desk (Fig. 2). Do not use the extremely threatening sliding window (stained glass is even worse!) configuration at the greeting desk! This design shouts to the patient, "Don't bother us!" and "Scary things happen back here with terrible noises!" What is the point of intimidating new or existing patients with this (almost) insulting insulation from the patient? If management of noise or sound is a concern, speak with an architect or design professional about the use of ceiling design to trap sound waves and carpet to absorb noise.

The number of seats in the waiting area has a definite relationship to the number of operatories in the practice. In a general dental practice, there should be approximately 1.5 seats in the waiting area for every operatory/ treatment room. For pediatric dental practices and orthodontic practices, there should be approximately 2.5 seats per operatory or dental chair

"Wow Factor" Considerations in the Reception and Waiting Areas

Frequently there is a desire to place an object of interest or design in the reception or waiting area such as an aquarium, waterfall, fireplace, or other appointment. These are all a matter of personal choice, but the doctor should be aware that these options will require significant maintenance and/ or additional non functional space. Indeed, the average fireplace will require an additional 60 to 80 square feet of office space. If the objective is to create an inviting environment, consider working with an architect or interior designer to use lighting, ceiling design, furniture, and finishes such as art, wall coverings, and flooring to make the patient comfortable…and make a statement about the practice's quality of care (Fig. 3). The reception and waiting areas will speak to your patients and make a statement about the practice. If the practice focus is cosmetic dentistry, a statement of elegance and attention to detail would be desirable. And, since most patients have not attended dental school, the only manner in which they can initially determine the quality of care in the practice is through assessment of their surroundings. Therefore, be certain that your office environment is congruent with, and expresses, the level of clinical care delivered in your practice to your patients.

Front Desk and Business Areas

This area must be appropriately sized for the practice because it is the control center of the office and the main intersection of patient flow. If it is too small for the number of business staff, their efficiency will be compromised but more importantly, the patient flow will be disrupted. This will result in diminished production because patients who have questions or concerns about payment or a payment schedule will not voice their concerns when other patients are near and can overhear their conversation with the business staff.

Sizing the Business Staff Area

As a general guideline, there should be approximately 8 lineal counter feet for every business staff person. For example, with two business staff there would be approximately 16 lineal counter feet for the business area. Of this 16 lineal feet, about one-third or 5 feet would be dedicated to the front desk or greeting area and the balance of the counter feet would be used for the appointment and payment desk.

The shape of the counter which creates the perimeter of the greeting and appointment areas, both of which circumscribe the business area, has taken many forms over the years, but the most efficient shape for the patient flow through the practice is the "shepherd's hook" design (Fig. 4). Although the reception and appointment desks are essentially one piece of cabinetry, their separation is

FIGURE 4

FIGURE 5

FIGURE 6

created by a wall that creates division between these desks as well as the waiting area and the entrance to the trunk corridor leading to the treatment area. This passageway may or may not have a door, but the door is not necessary for 'crowd control'. Patients realize that they must be invited through the doorway and into the treatment area of the practice. If you are concerned about sound or noise management, the use of only the door will not prevent sound from traveling into the waiting area if an open design of the reception area is utilized. Manage sound through the use of a ceiling design employing soffits and floating beams to trap sound and install carpet throughout the office to absorb sound (Fig. 5). The curved 'hook' portion of the desk serves as the reception desk and the straight 'business' portion of the shepherd's hook counter design serves as the appointment and semi-private financial arrangement area for the business staff.

One final admonition must be articulated before leaving the reception, appointment, and waiting areas. The tenor of the design style that is being advanced in this article is one of 'open-ness'…a style that promotes a sense of trust among the patients and minimizes any element of fear.

Consultation Area

The consultation room is critical to patient understanding and acceptance of the proposed care. The consultation room should be placed along the trunk corridor separating the waiting room from the treatment area as patients will usually be directed from the operatory to the consultation room. Also, the placement of the consultation room serves as a transitional space between the front desk and operatory area. The consultation room should be elegant but not opulent; its design coordination and balance should convey competency, order, and control to the patient. Remember, the patient is trying to trust the doctor at this decision point of their care; make it easier for them to do this with an atmosphere of confidence and competence (Fig.6). The consultation room should be no smaller than 9 feet by 9 feet and, if at all possible, a minimum ceiling height of 9 feet should be employed. A pendant light fixture is desirable as it draws people to the center of the room and it adds interest and elegance to the space. Etched glass walls are recommended to maintain the open style of the office; blinds may be employed if desired, but most patients appreciate the ambiance provided through the use of glass.

While a minimal amount of cabinetry is recommended, employ confidence– building technology such as computers, flat screen monitors, and cutting edge software to educate and inform the patient.

Lighting…Elegance for Pennies

How is effective, accentuating, elegant lighting created in certain restaurants, art galleries, churches, and even dental or medical facilities? Are certain projects lucky enough to have an architect or interior designer on the job site? Do you 'fortunately' find a talented electrical contractor who has great taste? How does it happen that you would meticulously consider the floor plan, carefully select all the furniture, finishes (wall coverings and flooring), and artwork for the office, but the completed facility results in an ambiance that is 'o.k'? What is the difference between a 'nice' office and a beautiful office?

Lighting

Light invites people into a space. It gives them permission to enter. It draws people to itself. Light has powerful subliminal messages of invitation, trust, and competence that can be effectively communicated, throughout the office, to the patients.

Think about the possibilities: light spilling from the clinical treatment rooms or operatories into the clinical treatment corridor (Fig.7), elegant pendant lighting in the consultation room, or light accentuating technology such as radiographic units. In other words, use lighting to create an effect that has a purpose.

FIGURE 7

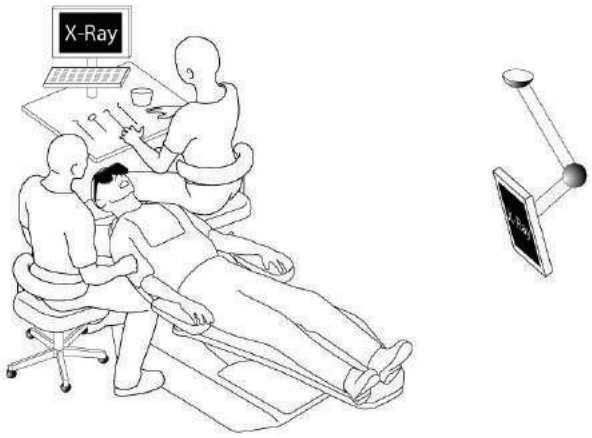

FIGURE 8

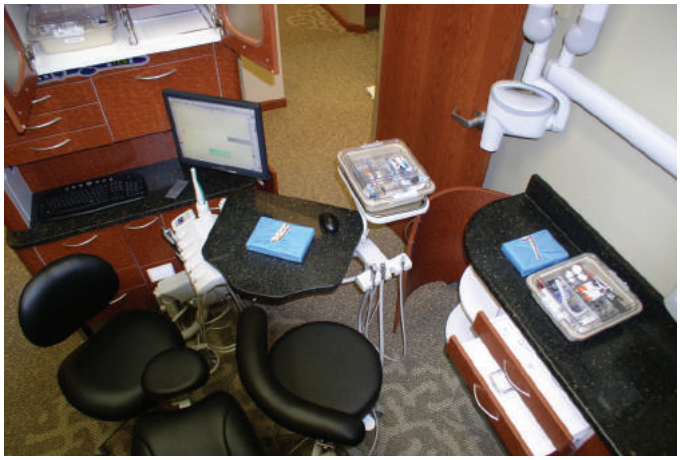

FIGURE 9

And all of this can be obtained for approximately two to four dollars per square foot. There is no other component of the office that can make such a dramatic statement to your patients for such a small expenditure; lighting is the greatest interior design value of the office!

Like the rest of the office, great lighting does not just happen. The general contractor or the electrician should not (hopefully) 'make it up' as the building is constructed (actually, this happens with regularity and it is the reason that many offices have a very mediocre appearance). Office lighting that has a purposeful effect on the patients is created with a lighting plan. The lighting plan is a separate component/ page of the architectural plans that include a drawing with a legend indicating the location of each light. Hopefully, you have the message by now: nowhere in the office will you receive such a return on your investment as you will in the creation of an effective lighting plan with a purpose.

Operatory Ergonomics and Design

In order to achieve a non physically damaging work environment, i.e. an ergonomically favorable environment, the dental operatory must be designed with doctor, patient, and assistant in the seated position. That is, the patient is reclined, the doctor is seated at the nine to twelve o'clock position relative to the head of the patient, and the assistant is situated so that her left hip is adjacent to the patient's left shoulder and her eye level is eight inches higher than that of the doctor (Fig.8). With this positioning the assistant can visualize the operating field and efficiently pass all instrumentation to the doctor.

With the assistant managing and passing all instruments and materials, the operatory should necessarily be designed around physical dimensions and functional movements of the assistant. The objective is to achieve a doctor's range of motion that goes no further than class III movement and an assistant's range of motion goes no further than class IV during eighty percent of the procedure time (Fig. 9).

The primary workspace is the area encompassed by the two semi-circles in front of the assistant (Fig.10-green area). Instrument transfer as well as static and dynamic storage of instruments occurs in this area because instruments are easily retrievable and replaceable. The secondary workspace (yellow area) is intended for mixing and temporary storage of backup tubs or additional procedure trays if more than two procedures will be performed with the same patient. Once the assistant rotates her stool, the secondary workspace functions just as the primary space. Tertiary areas (red area) should never be used because access requires a severe class five movement to retrieve anything in this area.

Central Sterilization That Is Properly Sized Is Critical

The sterilization area is the heart of the dental practice; it must be proportionately sized to the number of existing operatories to facilitate the flow of instrumentation through the debridement, cleaning, and sterilization process. Too often, a doctor will observe a full waiting room and surmise that the room is not of sufficient size to accommodate the patients when, in reality, the problem is an undersized sterilization area impeding the "turn-over" or preparation of the clinical treatment room for the

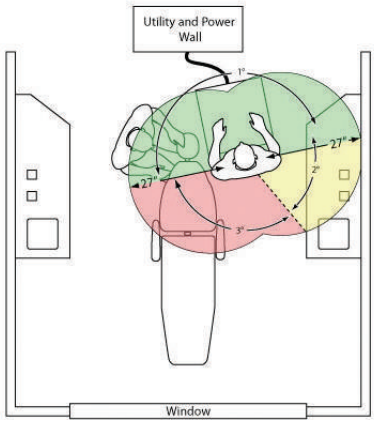

FIGURE 10

FIGURE 11

waiting patients. If the central sterilization area is congested, patient throughput and production will decrease.

In order to promote efficiencies and patient flow, the sterilization area should be sized to facilitate the flow of instrumentation; for a five operatory/ treatment room office, there should be approximately 16 linear feet of counter space. While more treatment rooms/ operatories will require more sterilization area counterspace, 7 to 8 operatories will require approximately 22 to 23 linear feet of counter space which is the maximum for almost any sized office. Utilization of cassettes, such as the Instrument Management System by Hu-Friedy, for procedural instrument set-ups can significantly reduce the amount of counter space and storage area needed in central sterilization; for the five operatory office, approximately 11.5 linear feet of counter space would be required (Fig. 11).

What Central Sterilization Shape is Best for Your Practice?

Ideally, a galley style sterilization area or simple straight line/run configuration should be considered if there is adequate space in the office "footprint", i.e. the shape and size of the office space (Fig.12). If a galley style sterilization area is not feasible, then a shallow U-shaped design can be employed or an L-shaped sterilization area with two entrances/exits.

In general, employ the L-shaped sterilization area when an L-shaped configuration of operatories is encountered (Fig. 13). With this configuration, there is access to the sterilization area from each row or arm of the operatories. This design consideration is important because it dramatically enhances staff flow, efficiency, and turnover of operatories.

The shallow U-shaped style of the sterilization area is employed when there is insufficient width in the office footprint (shape and square footage size of the office). Generally, an office with four to six treatment rooms should have a "footprint" or total floor space width of approximately 40 to 45 feet to create optimal patient and staff flow. With this dimension, a galley or L shaped sterilization area can be utilized; when the width of the entire facility drops below 40 feet, the shallow U-shaped sterilization area should be considered.

The effective use of these configurations will allow the placement of the sterilization area to be centrally located in relation to the operatories. Ideally, every operatory doorway should be within 30 feet of the sterilization area ingress/egress to maximize staff flow, efficiency, andtreatment room turnover.

Conserving Space: The Cassette Equipped Compact Sterilization Area

Ideally, following the space and design guidelines will provide the most efficient and stress free function in central sterilization. However, many practices face space constraints, especially in urban leasehold environments. So, how do you develop the efficiencies and instrument flow in a smaller sterilization space?

Cassettes

Cassettes will decrease the amount of linear counter space required to process instruments and will require less storage space in the upper cabinets. Even if tubs of disposables are needed, they can be distributed for storage throughout the side cabinets in the operatories.

How much space can be saved? Lots.

A quick calculation of the needed counter space for a five operatory office using cassettes in the central sterilization area reveals that 1.5 to 2 linear feet of counter space is saved in each of the contaminated, clean, and sterile/ storage areas. Because individual instruments are not being sorted, packaged, or placed on trays, much less room is needed at each workstation. Also, cassettes will require approximately only two-thirds of the upper cabinet storage needed for an identical number and mix of trays (Fig.14).

FIGURE 12

FIGURE 13

Consequently, using cassettes in a tight space can result in downsizing the sterilization area by one-third and still maintaining the efficiency and flow of the larger central sterilization area (Fig.15). Efficiency and flow means increased through-put of instrumentation without sacrificing cleanliness and sterility, so consider a cassette system that has been designed for such a purpose, i.e. the Hu-Friedy Instrument Management System (IMS). It is a system because there are cassette applications for all instrument set-up configurations, so your office can universally employ cassettes to speed all instrument processing. The employment of an all encompassing instrument system prevents any delays in processing due to a disruption in the standardized process.

Technology should make the day easier

Integrating this diagnostic and therapeutic hardware and software into a coherent design that will facilitate the practice of dentistry is the goal; productivity must be enhanced and not impeded. The objective of technology planning is to design the integration of all desired technologies to create a seamless utilization of the technologies in the operatory and throughout the office.

It is strongly recommended that a dental or medical (computer) technology expert be engaged or hired to: direct the hardware and software selection process, develop the "technology blueprints" (yes, just like the architectural blueprints created to construct the facility), manage the installation of the hardware and software, and oversee the technology implementation and staff training.

Identifying the information system for your practice

Beginning the development of the information system should include defining the function/s of the system. For example, will radiography be used in the practice and, if so, will digital radiography be employed or will a film based system be used? If a digital system is used, should it be sensor based or phosphor plate based? What type of clinical diagnostic "tools" or functions should the radiographic software employ?

You get the idea.

Answering a carefully crafted set of questions for each function of the information system will yield a single best software and hardware solution for each function. Then, all 'function' solutions can be considered in creating a compatible information system to serve the entire office.

Creating the technology or information system "blueprints" should be accomplished after all functional solutions have been identified and before any item is purchased or any cable installed. For example, based on the identified need for gray scale and /or color, what is the required resolution (clarity and detail of picture) of the computer monitor? What is the optimal dot pitch for the monitor? What is the maximum viewing angle of the monitor? These may be highly detailed questions, but as the information system for the office is assembled and constructed, the function and efficiency of the system is dependent on the cumulative hardware and software choices. *The average practice will occupy a facility for 20 years, so the designed information system must be expandable and adaptable as technology races forward.* Think of all of the changes in technology over the past twenty years and you will realize the challenge of crafting an information system that will absorb advances without requiring major upheaval…such as tearing cable, incapable of efficiently transferring information generated by new technology, from the walls or ceiling! Planning is key to the successful information system.

Planning is key to the successful information system

Therefore, seven steps can be identified in creating and utilizing an information / technology system that will meet your clinical and practice management needs. These steps include:

- Establishing clinical and practice management technology goals and objectives
- Developing an initial budget

FIGURE 14

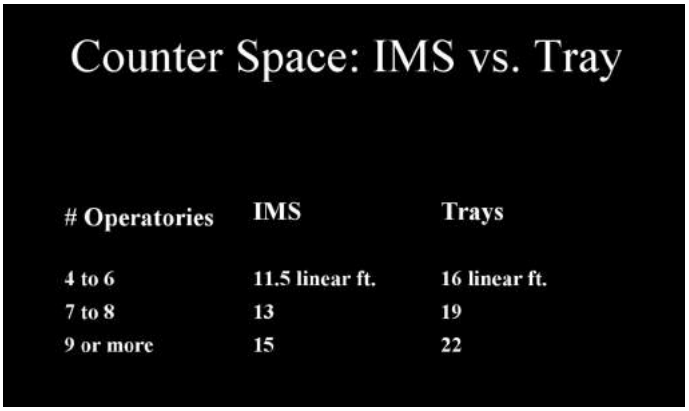

FIGURE 15

- Identifying various options for each clinical and practice management objective use and selecting the best option for each objective
- Identifying the optimal components for each chosen objective and designing the information system while reconciling the design with the budget
- Purchasing the identified components and equipment
- Installing the information system
- Implementing each clinical and practice management component of the information system with training of the staff
- Intentionally completing each one of the above steps, with the informed leadership of a proven technology consultant, will yield an information system that will facilitate the function of your practice. It sounds simple, and it is simple, but few people exhibit the discipline of proceeding in an orderly fashion through the above steps.

In designing and building a new office, the ultimate mark of success is revealed a year after completion with the owner's comment that they would not change any element of the design. When you stand in your new office and make this statement, you will have the office of your dreams.

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