Chapter 18

ESTABLISHING A FIXED MISSION DENTAL CLINIC OR LABORATORY

It is really a challenge to set up a fixed dental clinic or laboratory in a foreign country. Some of the difficulties are government red tape, electric, water, transportation of equipment to the site, and staffing once completed. It is necessary to know the dimensions of the building space where the clinic or lab will be installed. If the clinic building is under construction, then you must know what type of equipment you will install for placement of plumbing and electrical stub outs. Also, a floor plan is helpful to space the equipment and preplan every detail of what is needed, so that you have adequate workspace.

The first step in developing a fixed clinic or laboratory is to start a checklist of the resources that you have at the new clinic site. Such as:

1. Size of clinic or rooms, construction of the walls and floor
2. Electric 110v, 220v, D.C. Is it stable? Amperage? Cycles?
3. Is the water safe? Water pressure or gravity feed?
4. Do you have pressurized gas, propane, butane, or alcohol torch?
5. Can the cabinets be made locally?
6. Can you obtain an air compressor in the country?
7. Do you have ventilation and temperature control (air conditioning)?
8. Do you have people resources (assistants and laboratory technicians)?

1. Determine the size of the clinic or rooms that will be made available for the operatory or laboratory. You must have adequate space to install all of the dental and laboratory equipment necessary and have a little extra for future expansion. Do not forget to have adequate storage for supplies, especially if you will receive bulk shipments once or twice per year. The construction material used in the floors and walls may or may not be a factor in regard to the installation of your equipment. But ask these questions. Can the floors support the weight of a dental chair? Can the walls support the swing weight and leverage of an x-ray unit? Can the ceiling support a track light or pole mount light? Will the doors and windows be secure enough to prevent theft? Will the wiring carry the amp load of a burnout oven and compressor?

2. Electricity is vital to any clinic or dental laboratory. Determine if the clinic will have 110v, 220v or solar power sources of electricity. Then find out what kind of reliability they have from the source. Does the current vacillate (fluctuate) or go up and down during the day? Does it have plenty of amperage? Is it available the hours you work in the clinic, or do

they turn it off at a certain time each day? Is it 50 or 60 cycle? These are very important questions for you to answer before transporting your equipment to another country for installation.

3. Water is a very valuable commodity everywhere in the world. Many countries where I have been, it is not safe to drink out of the tap. People of that country may have adjusted to the bacteria present in the water lines, but it could contain Giardia or other microorganisms that would be harmful to us. Be sure to check the quality of the water that you will be using and if it is necessary to install filters or even your own water tank and chlorination system. Dental equipment normally needs water pressure of 18-24 PSI for handpieces, Cavitrons, and the air water syringe. Gravity feed systems, such as tanks on the roof, may not have enough pressure to operate your equipment adequately. But it is easy to set up a pressurized system for dental equipment.

4. Natural gas, propane, butane, pressurized fuel, or even burning alcohol are resources that you will need for the clinic or dental laboratory. Much of your need for gas will depend upon the parameters of service that you intend to provide in the clinic. A basic clinic just doing extractions may not have need of pressurized fuel, but a dental laboratory fabricating dentures, casting crowns, and routine lab services would need a constant supply of pressurized gas.

5. Cabinets for the dental practitioner or laboratory technician may seem like a small matter to the layperson, but is a major convenience to the dental health care professional. Special cabinetry is custom built for dental offices and dental laboratories. If the design can be adequately duplicated in the country of service, then it may be cheaper to have them built or purchased in that country. But if convenience or quality is compromised, then the operator must decide whether to bring the cabinets from the US or use a custom fabricator near the facility. Special attention should be paid to obtaining durable surfaces for counter tops, which can be easily kept clean and wiped down for disinfection.

6. An air compressor is one of your most important pieces of equipment. You must have sufficient, stable electricity to run it efficiently. Many times we recommend that a clinic try to purchase a compressor in the country where they are located, so they will have warranty and parts from a local supplier. Be sure that you match the compressor with the 110v or 220v current requirements of the country. Some compressors can run on both 220v and 110v. You can use a step down transformer to drop 220v current for use with 110v equipment. Also, most of your larger electric generations will have both 110v and 220v plugs to handle the compressor and your other electrical needs. Just be sure you have enough wattage (or amps)

from the generator to run the compressor and other equipment at the same time.

7. Ventilation and temperature control are two other items, which should be mentioned. Extreme hot or cold climates can be debilitating, uncomfortable and reduce your productivity. We had air conditioners installed in the walls of our clinic in Mexico to beat the heat during the summer months. Otherwise it would have been too hot to work during mid afternoon.

   We would occasionally open the windows and doors of the dental office to ventilate it of odors unique to the dental office and laboratory. Formocreosol, Eugenol, gas sterilizer exhaust, acrylics, and many other dental products can give the dental office a strange, unique smell. We dental health care workers sometimes do not notice. But to patients, it is very strange and can increase their dental apprehension, especially in another culture not accustomed to the dental profession. Also, in some clinic settings, we have used ventilation to help remove body odor or cigarette smoke from the office.

8. People resources can be the weak link in establishing a fixed clinic in another country. There are probably two-dozen dental clinics in Haiti with some basic equipment in them, but no dental healthcare personnel to staff them. Can you develop an ongoing budget to staff and supply a facility once the equipment has been installed? Will teams from the US rotate through the clinic like clock work to keep the facility operating year round? Probably the most critical resource will be trained dental healthcare professionals to keep the clinic running smoothly and efficiently. Trained laboratory technicians are even harder to find in order to staff the laboratory. A training program for young dental laboratory technicians can be a great asset to the clinic. It takes time, effort and lots of one-on-one training to develop the laboratory training program. But it is a wonderful addition to any dental clinic.

   The second step in this process is to decide the parameters of service that the clinic will provide to the population that it serves. Will you provide extractions, cleanings, fillings (alloy or composite), root canals, pedo, ortho, or laboratory services, etc? Based upon the resources that you have available, what can you initially provide and what can you grow into?

   Once you answer these questions, then you can start another checklist for the specific equipment you will need for the dental healthcare workers in the dental clinic or laboratory. You may want to make an initial decision to have full sized chairs with portable dental units. That is how we set up our

permanent clinic in Mexico. At any time, we could unhook our portable Star Wars units, go to another location and set up in an orphanage, church, or Bible school. That gave us tremendous flexibility to go anywhere and do anything with the portable dental equipment and still have a fixed clinic with full sized chairs and x-ray equipment.

This checklist of equipment will vary according to your parameters of service and own style of doing dentistry. Omit and add freely to this list because it is just a work sheet to begin the process of listing your equipment needs for the new fixed clinic.

DENTAL EQUIPMENT	LAB EQUIPMENT
Dental chair	Bunsen burner
X-ray unit	Plaster bin (wall mount)
Operator light	Lab vibrator
Operator stool	Model trimmer
Assistant stool	Dental lathe
Dental drill unit	Splash pans with vacuum
Air water syringe	Goose-necked lights
High-speed handpiece	Burnout oven
Low-speed handpiece	Whip mix investor
Contra angle	Vacuum forming machine
Cavitron	Plaster trap for under counter
Amalgamator	Good COE type cabinets
Light cure unit	Denture flasks
Eye protection shield	Denture Press
Bead sterilizer	Denture boil out oven
Autoclave	Denture processor
Ultrasonic T14	Ultrasonic cleaner
Developing tanks	Casting torch
Compressor and filter	Casting machine
Suction	Casting rings
Clean water supply	Tongs for rings
X-ray view box	Sand blaster
Impression trays	Articulators
Autoclave	Surveyor (Ney)
Lead apron	Rubber bowls
	Spatulas
	Measuring beakers
	Hanau alcohol torch
	Waxing instruments
	Plaster nippers
	Denture flask separator
	Plaster knives
	Plaster saw
	Good bench lights

The third step in this process, after looking at your resources and determining your equipment needs, is to decide how you will assemble all of this equipment and supplies into one location and make arrangements for shipping. Does the clinic site have a non-tax or duty free permit to import the shipment? Are they registered with that country's federal government as a NGO (Non-Governmental Organization) provider? Can you ship this container to them without import duty or taxation? Import tax can be expensive, so avoid it if at all possible. These are questions to ask before assembling your equipment and supplies. Chapter Nine has more information about shipping your equipment and supplies. Save yourself grief by having all of the preliminaries done well before shipment! **Know before you ship**.

Once you have assurances that you can ship your supplies duty free to the clinic, then assemble your equipment and supplies. It is best to bring all of the equipment and supplies together in one place, so that each item can be inventoried and packed into the shipping container. Many times you will not know what size of container or crate you will need until all of the supplies and equipment are in one location. Standard sized steel containers are usually 20 or 40 feet long and look like a semi-trailer. Steel containers are best, because they can be locked for shipment.

If you intend to build your own crate for overseas shipment rather than rent a steel container, then it is necessary to have all the equipment and supplies gathered in one place. You will need to figure the dimensions for your crate, so that everything fits nicely. We normally take a 4'x4' or 4'x6' wooden skid and figure how tall the sides must be for all of the equipment and supplies to fit inside. We use a skid as the base so it can be handled by a forklift after the crate is loaded, screwed together, and steel banded for shipment.

International shipping regulations require that you have a box-by-box inventory of everything included in the shipment container, i.e. Box 1 with its itemized inventory, Box 2 with its inventory, Box 3 with its inventory, etc. It is a very tedious and time-consuming process. It normally takes several of us a few days to inventory and load a crate. We put the chair bases in first and screw them to the floor of the crate, so they will not shift or move during shipment. Then supplies and equipment are diligently packed so there is no wasted space in the crate all the way to the top. It takes time and patience.

If you are on a limited budget for obtaining dental equipment, consider obtaining donated equipment from your local dental supply dealers who have good, used equipment in their warehouses. For instance, if you are loading a container out of Miami, New Orleans or LA, contact dental supply dealers in those cities and check on the availability of good used equipment that can be donated in exchange for a tax-deductible donation receipt. The dental supplier can check each piece of equipment to be sure that it is in good working order and then deliver it to the container for you. This is a good way to get it free, get

good equipment, and not have to touch it. The donor-dentist, the supply company and you win because the dentist gets a tax receipt for his equipment, the dental supply does not have to dispose of it (like take it to a landfill), and you get the equipment free.

Laboratory equipment is sometimes available in the same manner, but not as available as dentist chairs, X-rays and drill units. It may take several months for you to assemble everything necessary for a new clinic, or laboratory. It takes a lot of time and work to coordinate everything. Be careful to accept only good functional equipment to send overseas for the new clinic. Be careful to check each piece of equipment and be sure that it is in good working order. You will have many offers of donated dental equipment, but the equipment may not work, be unrepairable and ready for the landfill. Again, be aware of the electrical requirements for the equipment being shipped for overseas use.

In regard to dental supplies, they depend on your judgment and parameters of services that will be available through the new clinic. We could make a general list, but there are well over 2,000 dental products, so the dentist and laboratory technician must decide which dental supplies they wish to pack to the new clinic. I have another basic list in Chapter Twelve, which will provide a start on the master list of supplies needed for a fixed dental clinic.

I cannot over emphasize the need for an accurate packing list for the entire contents of the container. It is necessary for the shipper, the insurer of your shipment, and custom's officials both here and abroad.

We normally use a stateside professional shipping company to handle the container once it is loaded, sealed and ready for shipment. One such company is Missionary Expeditors in New Orleans. They have been doing shipments for us for over 25 years. There will be freight charges to get your container to port, insurance fees, dock worker's fees, port fees, paperwork fees, etc., but it will all be done properly and expertly. You will have a bill of lading with tracking numbers, the specific cargo ship that it is on, and an estimated time of arrival.

I hope this information is helpful to you before you get started packing a full sized dental clinic or dental laboratory overseas. It goes without saying, that you need someone at the other end of your shipment in that country to oversee the proper installation of all the utilities, cabinets and equipment. Have fun!