

Primary Health Care Centres

Simple Places and Great Opportunity

Primarily health care centres are simple places of great opportunity. Unlike hospitals, they are facilities that may or may not be designed by an architect. In fact, the facility may not even be a building.

When a primary health care centre is designed however, the opportunities lie in many areas. One is creating an appealing image of a small but important community building while arranging the few rooms or functional areas in a logical relationship. Another opportunity lies in accommodating not only the delivery of primary health care services but in responding to the socio-cultural mores or beliefs specific to a particular village. Yet another opportunity lies in enabling local people to maintain and repair the primary health care centre. Still another is the opportunity to design with the local climate and making the most of natural light and ventilation.

Primary Health Care Services

These people have something in common:

- a "well" child or baby
- a teenager with an earache
- a Haitian with malaria
- a woman seeking birth control
- a child with a cut bleeding knee
- a dehydrated baby
- an Alaskan with frostbite
- a family with sore throats and sniffles
- a pregnant woman
- an Egyptian with schistosomiasis
- an elderly man with a rash
- a grandmother with a headache

Whether urban or rural, young or old, rich or poor, they all need primary health care. Some of their needs are mainly curative, like treatment of a common illness, of minor trauma or of a chronic disease. Others are mainly preventive needs, like a "well" child or baby check-up and family planning. Some are integrated needs, both curative and preventive, like treatment of a dehydrated baby (rehydration) and education of the mother to avoid recurrence of dehydration. Just as a mainly curative problem offers the opportunity for education, the mainly preventive interaction allows identification of an existing problem that may need treatment. It is this integrative nature of primary care that makes it different from specialised medicine, which tends to cure symptoms through drugs and surgery but does not typically focus on the preventive, promotional aspects of

health care. Simply stated, primary health care (PHC) means basic care or services — the kind most people anywhere need most of the time. Primary health care deals with common but not always simple health care needs of an individual, a family and a community.

Magnitude

Today, public and private expenditures for health and medical care among the world's 4.6 billion population (1983) may exceed \$626 billion annually. But in 1981, the governments of 159 developing countries or territories spent approximately \$26 billion. Private expenditures in those countries exceeded that total by a factor of four. Three-quarters of the world's people live in these developing areas. The remaining one-quarter live in 27 industrial or Eastern European countries and in 1981 spent a combined public and private total on the order of \$500 billion for health and medical care.

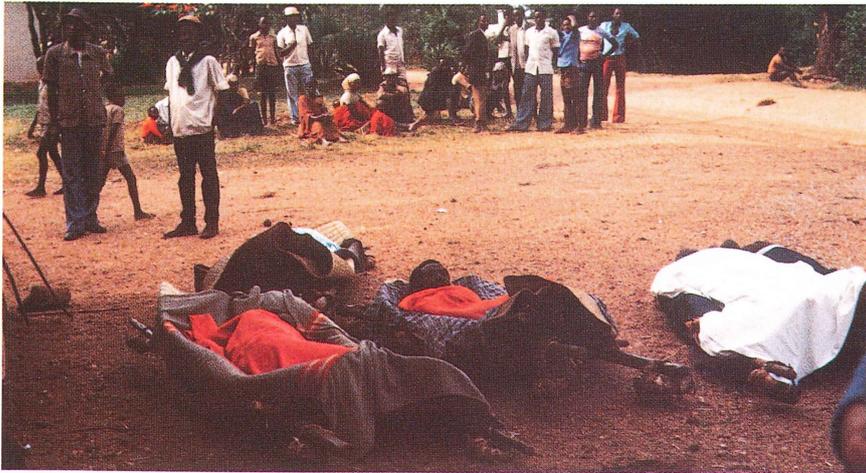
In short, the poorest three-quarters of the earth absorb about one-quarter of total resources for health. The more developed one-quarter of the earth's people consume three-quarters of all financial support in the health sector. Resources are scarce.

While access to primary health care (PHC) is a concern of all nations, most people who do not have access to adequate water, food, shelter, and education, also do not have access health care and live in developing countries. Today, more than half of these people live in rural areas but by 2000, the estimated 6.2 billion men, women and children will be split about evenly between urban and rural settings. The year 2000 is now a critical date. In 1978, at the International Conference on Primary Health Care held at Alma-Ata, USSR, approximately 150 member nations of the World Health Assembly came together. They reached a remarkable consensus in formally declaring that primary health care is the key to attaining health for all by the year 2000. Between now and then, an increase in the design and construction of primary health care resources should be expected. Assuming there are PHC workers to staff PHC centres, these centres represent the least costly way to reach the most people world-wide whose health care problems are the type people have most of the time.

Limited Resources

Developing countries and rural areas — in particular — typically are areas

*Text by Susan Shaw.
Photographs courtesy of the
author unless otherwise
indicated.*



where health care resources in varying degrees are scarce. To make the most of them, limited resources must be stretched imaginatively and allocated judiciously. This is particularly true for PHC resources: human resources (nurses, auxiliaries, aids, health workers, midwives, physicians); physical resources (buildings, vehicles, equipment, medical supplies, pharmaceuticals, construction materials); managerial resources; and financial resources (capital expenditures and operating costs). The scarcer the resources the greater the need for realistic and responsive solutions. This requires that planners rethink rather routine problems in order to arrive at an appropriate strategy for solving PHC problems in the developing world. However, this is no simple task because of the great variation in culture, climate, disease patterns and existing resources. Not only do conditions vary widely between countries, but to a surprising degree, between regions within a given country. For example, Peru has three different climatic zones; some rural Tunisians seem to require less privacy for women than the urban poor; in parts of

Top: Access to emergency health care in rural Rwanda is frequently not by vehicle but by "ambulance" cot carried on 4 people's shoulders. A PHC then either holds the patient for treatment or refers him elsewhere.

Above: Critical points for primary health care intervention are often located quite simply where members of a community gather regularly, such as a local water source. Photograph: Chodak/Senegal.

Malaysia it may be bad luck to have two views (windows) in the same room. Preconceived programmatic and architectural solutions — particularly those that may work well enough in more developed areas need to be discarded. According to Dr Maurice King: "Patients should be treated as close to their homes as possible in the smallest, cheapest, most humbly staffed and most simply equipped unit that is capable of looking after them adequately." How simple might this primary health care centre be? It might be as simple as no building at all.

PHC Centre Increments

Architecturally then a primary health care centre may be viewed by an incremental

series of adding physical elements:

No building.

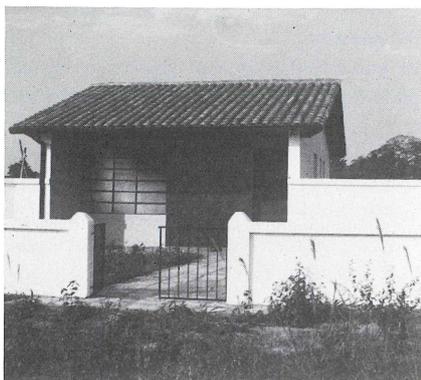
A community knows that at a certain place, say under a tree-at-a-crossroad and at a certain time, a PHC worker will be there. This may be the minimal increment where patients go to the PHC provider. Potable water would be needed as would portable, cool, drug storage and a way to handle and dispose of sanitary and other waste. A tree-at-a-crossroad offers no privacy although a simple drape may provide a visual screen. A baby scale may be hung from a tree for well-baby check-ups. Also, we may find a PHC worker providing simple first-aid, dispensing some medication, immunizing, giving advice, and offering simple family planning services. No equipment is needed beyond some basics typically found in a doctor's "black bag".

Roof.

A first fixed element may be a roof which provides more permanent shelter than a tree. The roof begins to "define" the place. No real privacy has been achieved yet. Services would likely be similar to the first scenario, i.e. simple, basic prevention and treatment. In a moderate climate, most functions may nicely be accommodated with only a roof overhead.

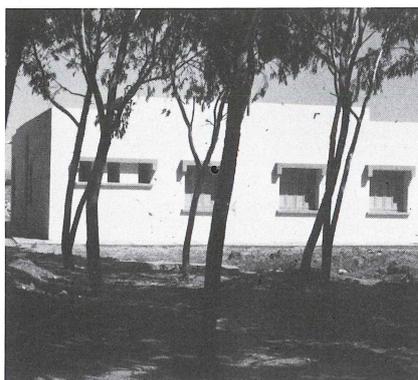
Roof plus walls and floor.

A next increment may be adding some enclosing walls and perhaps a floor under that roof. An open shelter now may serve as a waiting/education/demonstration area. This small PHC centre may be a health hut or post, as illustrated by the Paraguay photo. Visual and acoustic privacy are now possible, and if appropriate, separate waiting areas for men and women are too. Guiding or controlling patient flow is likely to be made easier (or more difficult) by the fixed elements. Protection from wind, sun and rain is achievable, but the requirements for natural light and ventilation must now be considered. Security for drugs is gained. Issues related to water supply, sanitary waste, maintenance and repair must now be addressed. Sensitivity to local cultural mores, superstitions or beliefs regarding building is crucial; the "image" of the health centre becomes important. Real capital and associated operating costs are facts. One of the two or three rooms may be the provider's residence. An observation bed or two may be included. Unless the PHC provider is under the tree-at-the-crossroads, or visiting homes or schools or work places,



Above: Health post in Ijhovoy, Paraguay. Eighty-one of these PHCs have been built so far, financed by the Inter-American Development Bank and the Ministry of Public Health. It covers 71 square metres and is constructed of local materials; the design allows for future expansion. Its modest scale and style appeal to its users. Photograph: Dr. Drobny.

Right: Achievement of a small rural clinic in Tunisia by architect Wassim Ben Mahmoud for the Ministry of Public Health, sponsored by US aid.



While a PHC centre is a visible, physical structure and usually stimulates a fair amount of interest, its design and placement can only be arrived at after consideration of the programmatic components. These include: the inventory of health services needed, a socio-cultural-demographic profile, a referral system plan, the relationship with other community resources, a staffing plan, an operations plan, a community participation and education plan, a financial plan and the facility development plan.

When this data base is established, factors that affect facility planning and design of a PHC centre of any size and location can be ascertained. These include:

Functional space programme.

Initial and future activities (curative, preventive, administrative, out-reach); workloads (how many patients/day); staffing (types and numbers available); estimate of net area of space required for each function.

Patient flow and circulation.

Do all patients enter and exit through same or through different doors? Do all patients get sorted (triaged) into urgent, less, or non-urgent categories? Where are possible congestion areas? Where does the staff do its work? For example, does same person triage, register and dispense medications?

In rural Rwanda a stall of three provide primary care services at a small health centre where a pharmacy aid dispenses medication at one end a porch, another aid triages the patients at the other, and the third nurse aid sees the most urgent first, least urgent last in an examination/treatment room.

Site selection and planning.

Selecting the cross-roads, village or the town and selecting an existing building to reuse or the parcel of land to build on are crucial locational issues. Consider size, shape of the site, the availability of water,

electricity, sanitary waste and storm drainage; location of a pit latrine and water source; circulation of pedestrians, bicycles and vehicles onto and within site illustrate some aspects that make a difference. Sometimes it is more expensive to renovate an existing building than to construct a new PHC centre.

Local climate.

Hot-dry? Hot-humid? Temperate? Cool? Simple provision for heat during winter months in desert? Natural ventilation? Control and/or collect rainfall. Ground water? Prevailing wind and location of pit latrine. Insects? Dust storms? Responding to and designing with the climate should be considered mandatory.

Local traditions and culture.

Perceptions of privacy (men and women enter through same or separate doors? Wait together or separately?); the role of the family in health care (some may cook or do laundry if PHC centre has a few beds); and superstitions regarding buildings are three of many examples of socio-cultural impacts on PHC centre design. Looking at indigeneous buildings and talking to local people are key to accommodating these crucial characteristics.

Local materials and construction methods.

Imported materials are costly, often result in an image of a building that is alien to rural people, are difficult to construct with local skills, impossible to repair, maintain and expand easily. Mostly local or intermediate construction technology, such as that being transferred by ADAUA under the Rural Health Development project in Mali, uses little imported materials is most often appropriate. Totally local materials may not be durable enough for some projects. For others, however, all local materials and labour even donated and built by the community may be acceptable. For example, a U.S. AID assisted primary health care project in Senegal involves each community constructing its own "health-nut" out of totally local materials. These round, mud-and-wattle huts with thatched roof are similar to the familiar indigeneous dwellings. Local materials and local climatic conditions inter-relate as illustrate by the three types of construction methods (bamboo, wood and masonry) used in the Barangay Health Station project in the Philippines.

Standardize design.

Increasingly, these seem to have appeal to donor agencies and local Ministries of Health. Replicating the same design in many areas across a country saves design

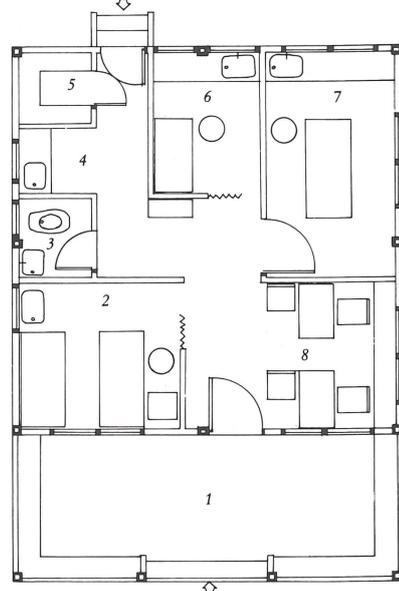
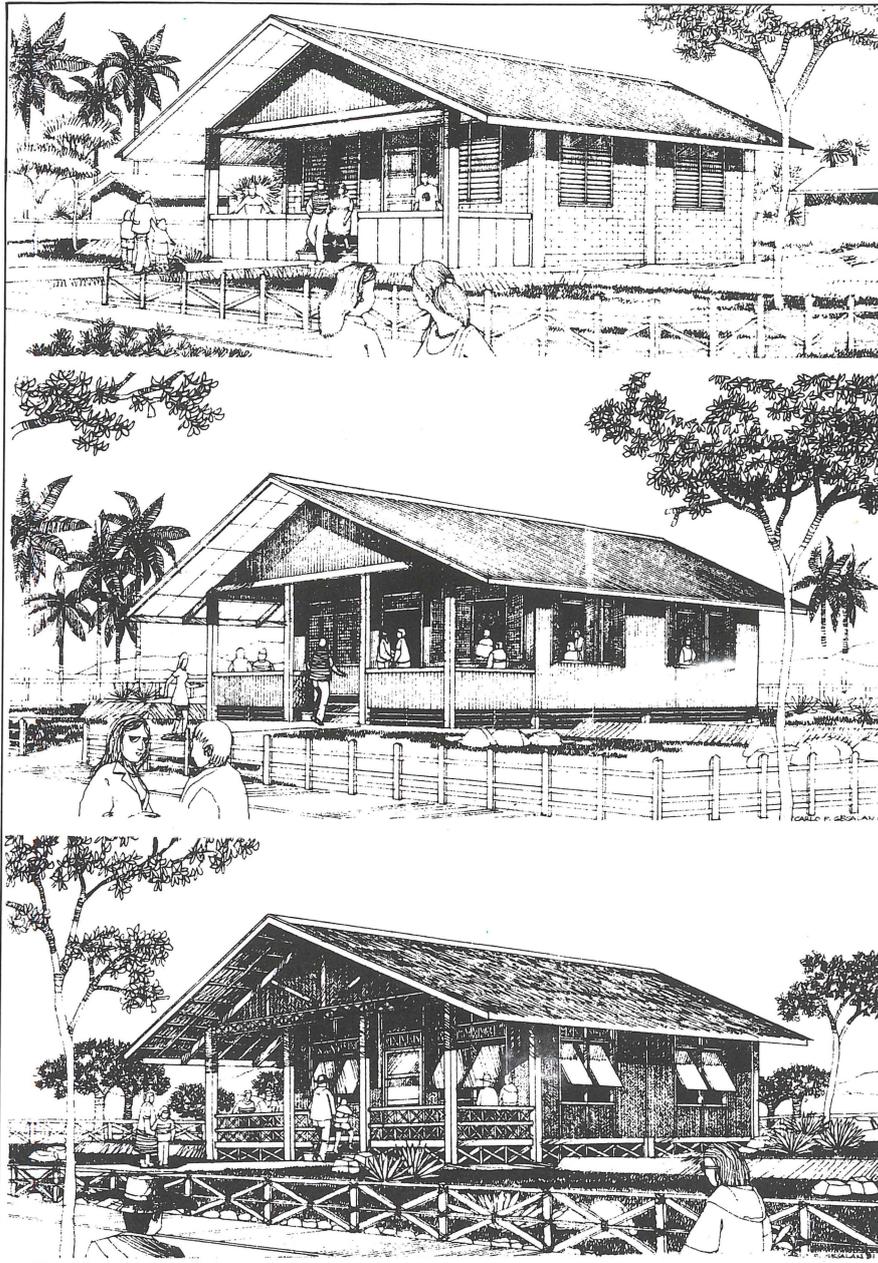
24-hour access is theoretically available to a community. Locating the PHC centre near a market, a school, a community well or wherever people already assemble is key to making access easier. Opportunities for community involvement in construction are now possible.

Mobile health centre.

Like its fixed counterpart, this increment must also deal with factors that affect planning and design decision-making as well as the added problems of vehicle maintenance, repair and replacement.

Factors Affecting PHC Centre Development

Although these facilities should be simple, modest buildings, the architecture of primary health care centres presents challenges and opportunities to facility planners-designers. Several inter-related factors that directly or subtly affect planning and design decisions need to be considered. Not being responsive to these factors results in a multitude of problems: over- or under-sized buildings, a "foreign" image rather than a familiar one, a flush toilet that no one knows how to use and parts don't exist for repair, no water year-round, maintenance parts and skills not locally available, no place to care for a baby while waiting a few hours, location not in mainstream of daily activities, crowding or congestion, illogical layout of rooms. Even for small centres the list of potential pitfalls is long. There is little margin for error when stretching limited resources.



Floor plan

- | | |
|-------------------------|-----------------------------|
| Key | 5. Storage |
| 1. Waiting area | 6. Infants examining room |
| 2. Minor treatment room | 7. Pre-natal examining room |
| 3. Toilet | 8. Receiving area |
| 4. Kitchen | |

The Ministry of Health in the Philippines has sponsored this prototype structure for construction in Barangay, using three different kinds of locally available materials — wood, brick or bamboo. Architect Jose Vibar, Jr. designed the units to be adaptable to various regions, their climate and prevalent building materials. Local officials purchase the latter and contractors provide only the necessary labour. Some 900 units are funded as part of a World Bank project.

work. It is increasingly common now to find the same design planned for two or three climate zones and constructed with two or three different local (mostly) materials. But, is same floor plan responsive to the varying functional requirements and to the cultural diversity? The smaller the facility, the easier it seems to be to replicate standard designs that are appropriate. Example include World Bank assisted projects in Bangladesh, in the Philippines, in Peru, in Tunisia; US AID assisted projects in Tunisia; the Interamerican Development Bank assisted project in Paraguay.

Expansion and flexibility.
Should the PHC need to expand physically (assuming the schedule has already

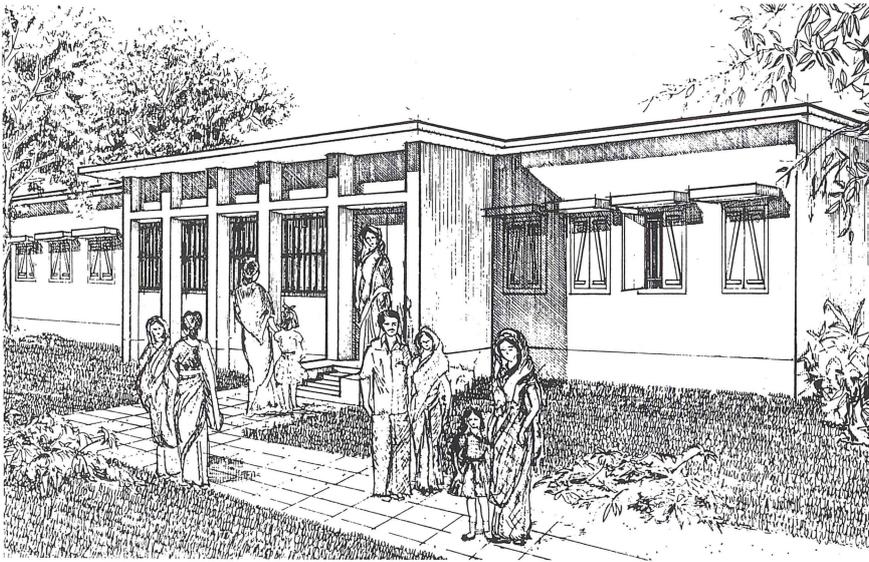
been extended), where is the logical point-of-departure for each type of function? Were these planned for in the design? How are changing services accommodated? Is there sufficient flexibility to accommodate a visiting doctor in the future one morning a week? Can the waiting area support the larger group for health and nutrition educational services? Frequently, the standardized designs begin with a basic PHC centre and expand in a modular fashion.

Guidelines, standards and codes.
While these may have less impact for smaller buildings, they are, nevertheless, important considerations. What if the guideline being used suggests an examination room can be 80 square feet but

the facility is being designed is for a village where the patient is accompanied by several family members, not just one. What if the rule-of-thumb used to determine the number of waiting spaces required also assumed few rather than several people accompany the patient.

Maintain cold chain and security for drugs.
Once the drugs reach the PHC, the architect needs to consider how they will be stored particularly if there is no electricity. Natural ventilation may be used to create a cool, not a cold, storage area.

Community participation strategy.
The community may be encouraged to participate in the PHC centre development process. For example, they may donate land, labour and/or building



Union Family Welfare Centres are small clinics funded by the World Bank in Bangladesh. It is a good example of community participation in that building manuals have been prepared to show people how to assemble the simple structures. Three hundred of these health centres are to be constructed per year during 5 years.

materials. Not only does participation provide the opportunity for increased self-reliance it enables real education to occur regarding PHC services. Furthermore, it stimulates the local economy and frequently involves a transfer of technology and skills.

Maintenance and repair strategy.

If operating costs are to be minimized, it often is assumed that more durable, expensive items are used in the building. This may be a mistake in remote areas in developing countries. Availability of materials, parts and labour of other than local items is rare. This strategy needs to consider trade-offs between protecting the investment money in a project and what is operationally realistic.

Opinions and perceptions of development team.

These frequently subjective and subtle forces can indeed alter the course of project development. Previous experience influences the thinking of planners and designers. Casting aside preconceived solutions and looking afresh at the design problem is essential.

Budget.

The goal is to minimize construction costs and operating costs. With limited financial resources initially and in the future, realistic cost projections in life cycle terms are useful.

Summary

Architects are increasingly exploring how the PHC facility can positively support the process of preventing and treating the basic health care problems of the individual, the family and the community. In serving as the first point of contact within the health care system, how can the PHC

centre encourage the desired contact? What can the PHC centre do to facilitate the delivery of basic, integrated services in an efficient, acceptable way? What are the links in the referral system for a higher, more specialized level of care? What role does the PHC centre play in enabling the staff to maintain a continuity of relationship with each member of the community it serves? If primary health care seeks to help people assume greater responsibility for their own health, how can the PHC centres encourage self-reliance and community participation? Since primary health care does not rely on expensive, high-technology diagnostic and treatment modalities, what is the minimum type of facility required?

While primary health care can be delivered anywhere at anytime, the practicalities of resource investment demand that the physical place, the PHC centre, should be accessible, appropriate, available, accommodating, adaptable, and affordable. If not, the real architectural opportunities and challenges will be missed and scarce resources misused. However, developing a PHC centre involves the architect as a member of a multidisciplinary team and therein lies the ultimate responsibility.

To extend health care for all by 2000, primary health care centres of varying sizes, designs and locations will continue to be developed under enormously diverse conditions with exceedingly scarce resources. Regardless of whether the PHC centre is a tree-at-a-crossroad or at fixed building or a mobile van, a properly conceived and executed programme can make a vital difference in helping people in the undeserved regions of the globe.

Ms. Susan Shaw is an architect specialising in the planning, programming and design of health facilities. She has been a consultant for projects in Egypt, India, Rwanda, Mali and Tunisia and has written extensively on primary health care and teaches a course in health facility planning at the School of Public Health, Boston University. Ms Shaw is presently based in Washington DC.