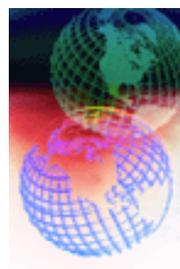


PASCAS HEALTH

SANCTUARY HOSPITAL & CLINICS



“Peace And Spirit Creating Alternative Solutions”

**PASCAS HEALTH Pty Ltd
Pascas Health Sanctuary & Pascas Health Clinic**

Queensland Australia

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MEDICAL CENTRE OVERVIEW:

A corporate run medical centre can take on a series of configurations, progressing in scale, as the size and style of its market is increased.

As the PASCAS HEALTH SANCTUARY project is focused towards the cancer and cardiac diagnostic, prevention and treatment services, their proposed centres will tend to be targeted towards the major medical centre facilities.

CATCHMENT POPULATION	20,000	=	SMALL MEDICAL CENTRE
CATCHMENT POPULATION	40,000	=	MEDIUM MEDICAL CENTRE with SPECIALISTS and X-RAY FACILITIES and OPERATING THEATRE
CATCHMENT POPULATION	100,000	=	MAJOR MEDICAL CENTRE with Advanced Medical Technology, X-Ray Facilities plus CT and MRI and Operating Theatre
CATCHMENT POPULATION	200,000	=	MAJOR MEDICAL CENTRE with Advanced Medical Technology, X-Ray Facilities plus CT and MRI plus MRI Spectroscopy Full Laser instrumentation Operating Theatre
CATCHMENT POPULATION	250,000+ =		the ULTIMATE in MEDICAL CENTRES with full ALTERNATIVE THERAPY.

Preferred location of centre is in conjunction with hospitals, public or private, either adjacent or part of the hospital.

Exposure to the public is important. Major shopping centres next to schools and caravan parks create the elements for successful regional medical centres being of the small to medium size.

In assessing any location, a return of 25% on investment is the primary object though larger facilities will take several years to build up to the target level. The larger units will be relatively free from competition due to their massive investment in sophisticated equipment AND professional teams.

The concept is to develop MAJOR MEDICAL CENTRES though SMALL to MEDIUM centres are to be set up to support hospitals.

Supporting Medical Centres are Dental practices extending to Periodontic as well as Orthodontic as well as Optometry.

SMALL to MEDIUM MEDICAL CENTRES:

These will start in size with five consulting rooms and progress to about fifteen consulting rooms.

The medium size centre will provide specialist services and a small X-ray facility with an operating theatre. The X-ray unit for the multi-purpose room may be a Toshiba MAX 1000A.

A detailed report is enclosed on MEDICAL CENTRES and the X-RAY UNIT report details the operating results of a comprehensive but unsophisticated radiology unit.

The cost of acquisition of a site and building a small medical centre and fitting same out would require an investment of \$1,500,000 (no X-ray and no operating theatre). The operating profit of this corporate styled centre would be above 25% return per annum.

Expanding the complex to accommodate specialists would require a further \$300,000 investment, this expansion would increase the annual internal rate of return on investment overall.

A low cost X-Ray comprehensive second hand unit can be obtained and installed for around \$1,200,000. Under corporate administration, such a unit would have a satisfactory return.

Accordingly a substantial medical centre with 15 consulting rooms would require an investment of \$3,000,000 and yield a corporate profit of 25% per annum. This style of medical centre would require a catchment population of 40,000. The success of such a complex would be enhanced if established next to a regional public hospital.

The attached reports deal primarily with these types of medical centres however the principals of setup and operations would remain the same for the not so much larger centres but much more expensive centres with high technology equipment need separate assessment.

MAJOR MEDICAL CENTRES:

These centres will stand out above all others due to their very sophisticated equipment.

Each site will require to have its demand usage determined prior to the installation of such equipment.

A summary of the profit contribution of certain equipment has been attached:

Magnetic Resonance Imaging - MRI
 Computerised Tomography - CT
 Angiography Unit
 Dual Head Gamma Camera
 Fluoroscopy Room
 General Ultrasound
 etc.

There is currently no Medicare refunds for MRI images.

CT fluoroscopy marries helical scanning technology with an improved array processor to provide almost instantaneous reconstruction of CT images. Equipment controls and a video monitor in the same room allow the system to operate like conventional fluoro. With a delay time of 0.17 seconds, it can produce six images every second. Interventional radiologists and neurosurgeons are interest in having real-time image guidance and the result is substantial time reductions with great accuracy being achieved in a variety of procedures. An operating room of the future will have a hybrid combination of electron beam therapy / CT, digital subtraction angiography, endoscopy and other systems for imaging and therapy.

When real-time diagnosis of histological or cytological pathology is available, the tumour treatment may be performed directly after the biopsy through the same guidance cannula. This shortens the therapy time for the patient. Tomographic imaging methods allow instruments or drugs like ethanol, chemotherapeutics, or (in the future) bioengineered products for cancer therapy to be placed precisely in the body.

The next step in therapeutic concepts will be for interdisciplinary teams to combine image-guided interventional radiology and operative, endoscopic approaches used in surgery. Image-guided access techniques have great potential for interventional procedures and endoscopic operations, which may eventually be conducted by radiological surgeons and / or by surgical radiologists in the field of tomographic microtherapy. The magic of new technology.

PROPOSED MEDICAL CENTRES

Each proposed medical centre will under go a thorough cost and return analysis.

COST OF A MAJOR MEDICAL CENTRE:

The projected cost of establishing a Major Southern Cross Diagnostic Medical Centre could be:

Site Costs	\$1,000,000 (all costings to be reviewed)
Building Costs	3,000,000
Medical Centre Fitout - General Practitioners	300,000
Medical Centre Fitout - Specialist Rooms	300,000
X-Ray System	3,000,000
Computerised Tomography - CT	1,000,000
Magnetic Resonance Imaging - MRI	2,200,000
Laser small CO2	50,000
Laser large CO2	250,000
Operating Theatre	500,000
Special Systems	500,000
Working Capital	400,000
Contingency	500,000

Total Full Scale Unit	\$13,000,000
	=====

The return on funds invested into such a sophisticated Free Standing Ambulatory Surgical Centre (FASC) is anticipated to be around 25% per annum from the third year of trading.

RADIOLOGY UNIT

This service needs a market population of one million and needs to be annexed to a major hospital. The cost of extending a major medical centre to provide radiotherapy services could be:

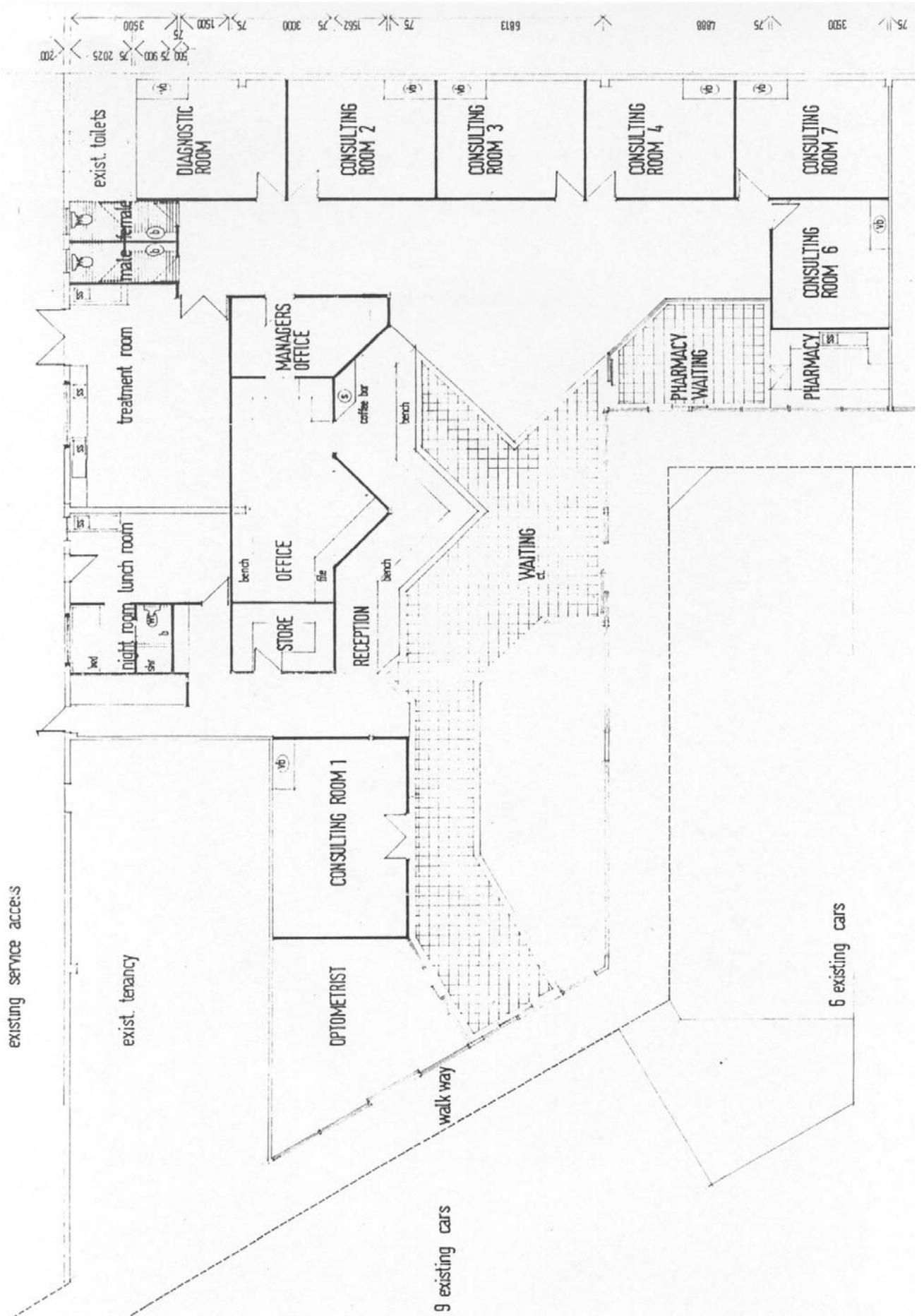
Linear Accelerator	
Varian (10MEV)	\$1,000,000
Varian (6MEV)	900,000
Simulator and support	200,000
Auxiliary equipment	300,000
Installation and commissioning	300,000
Building & Facilities	2,500,000

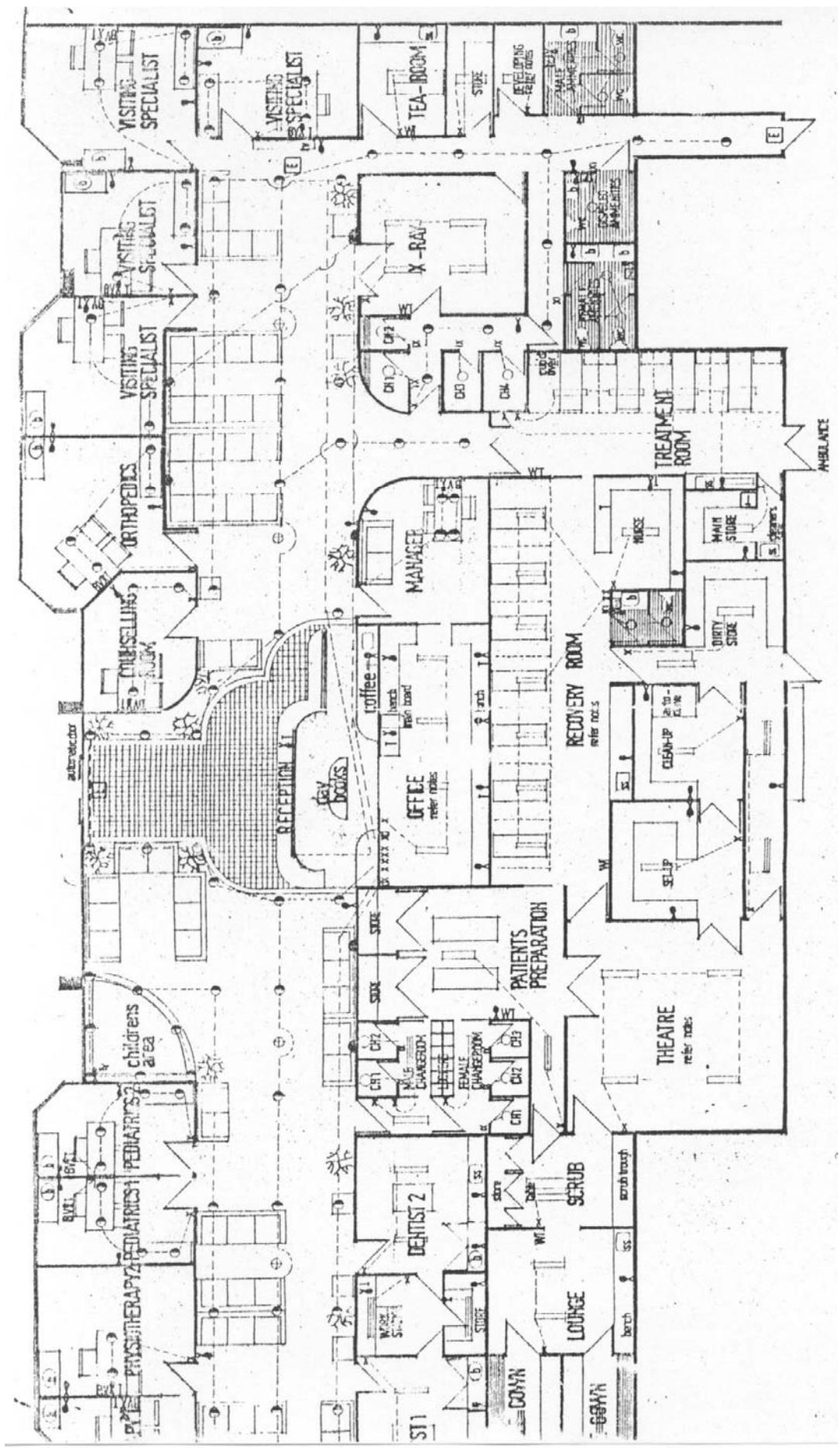
Total Cost of Unit	\$5,200,000
	=====

PATHOLOGY LABORATORIES

Depending on the available services will determine the scale of units in each medical centre however it is anticipated that major facilities will be available and only small management units will be installed in each medical centre.

Cost of Management Laboratory	\$500,000
	=====





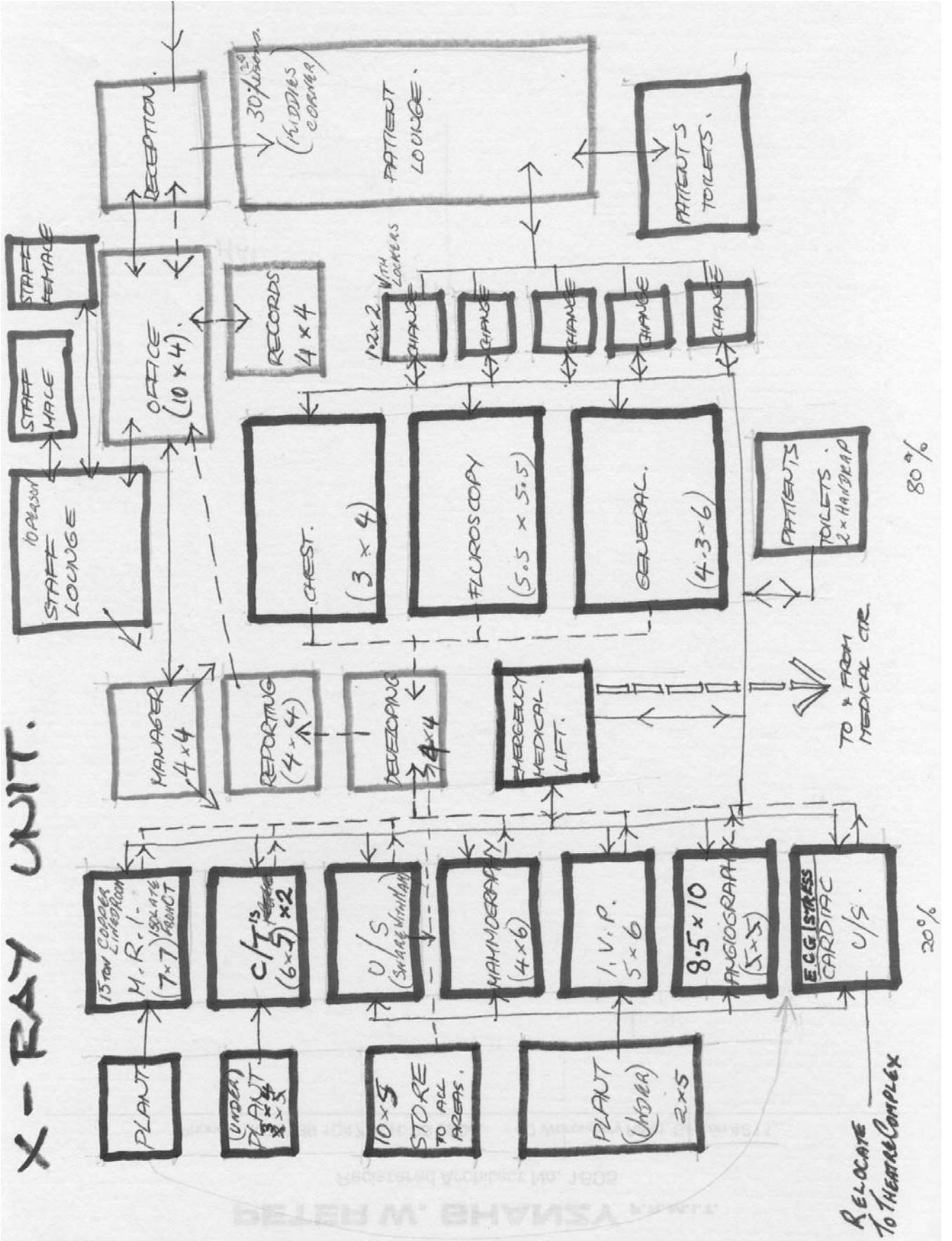
PATHOLOGY LABORATORY

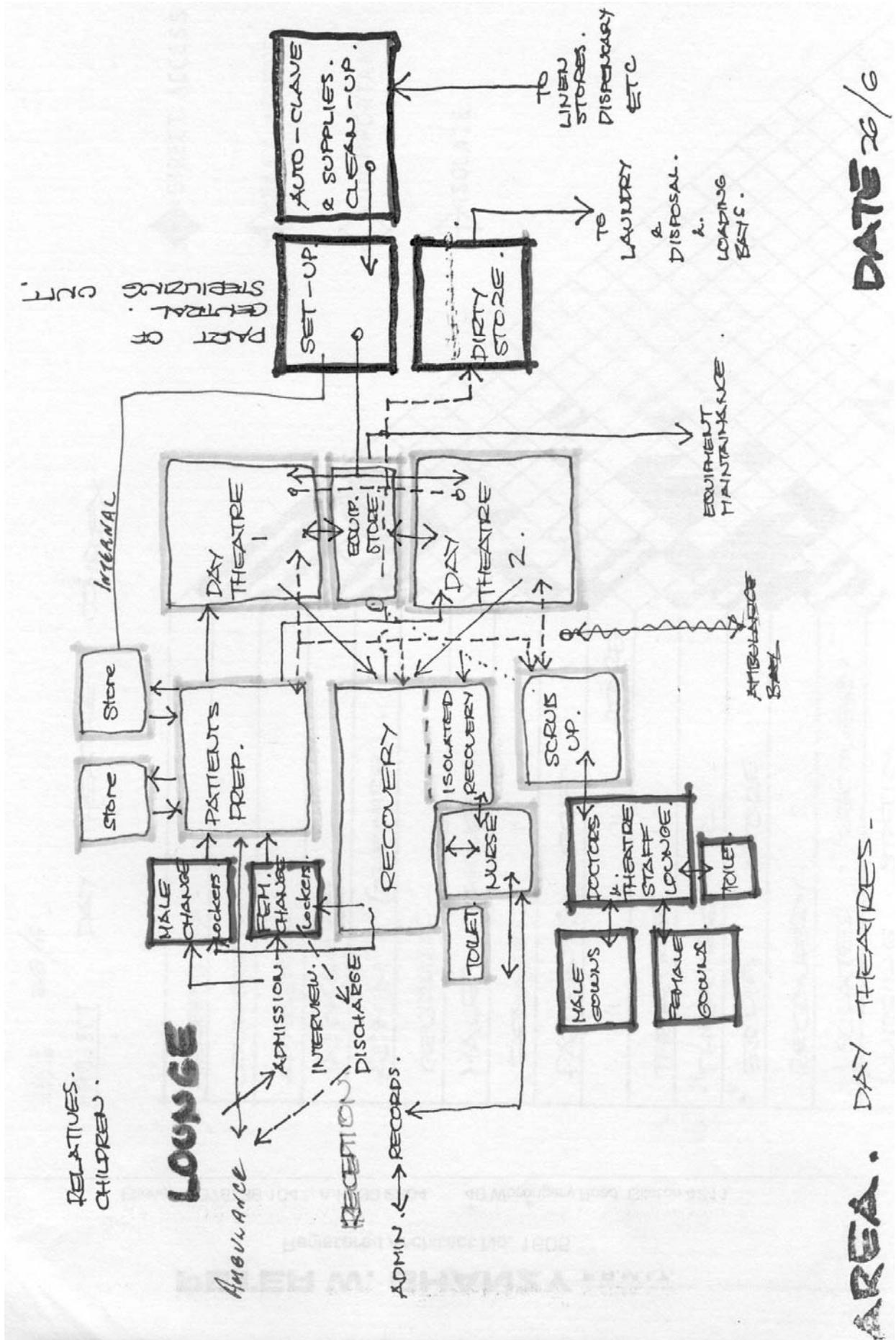
Reception & Administration	Biochemistry & Serology	Immunology	Stores & Staff Rooms
	Specimen Reception & Collection		Microscope & Office
	Autologous Blood Bank	Haematology & Coagulation	Histopathology
		Microbiology	Fume Hoods

Department Areas:

Reception	50m ² Microbiology	30m ²
Offices - Pathologist etc	50m ² Histopathology	70m ²
Collection Rooms	30m ² Biochemistry	60m ²
Autologous Blood Bank	30m ² Haematology	60m ²
Stores & Staff Rooms	40m ² Immunology	30m ²
	350m ² to 450m ²	

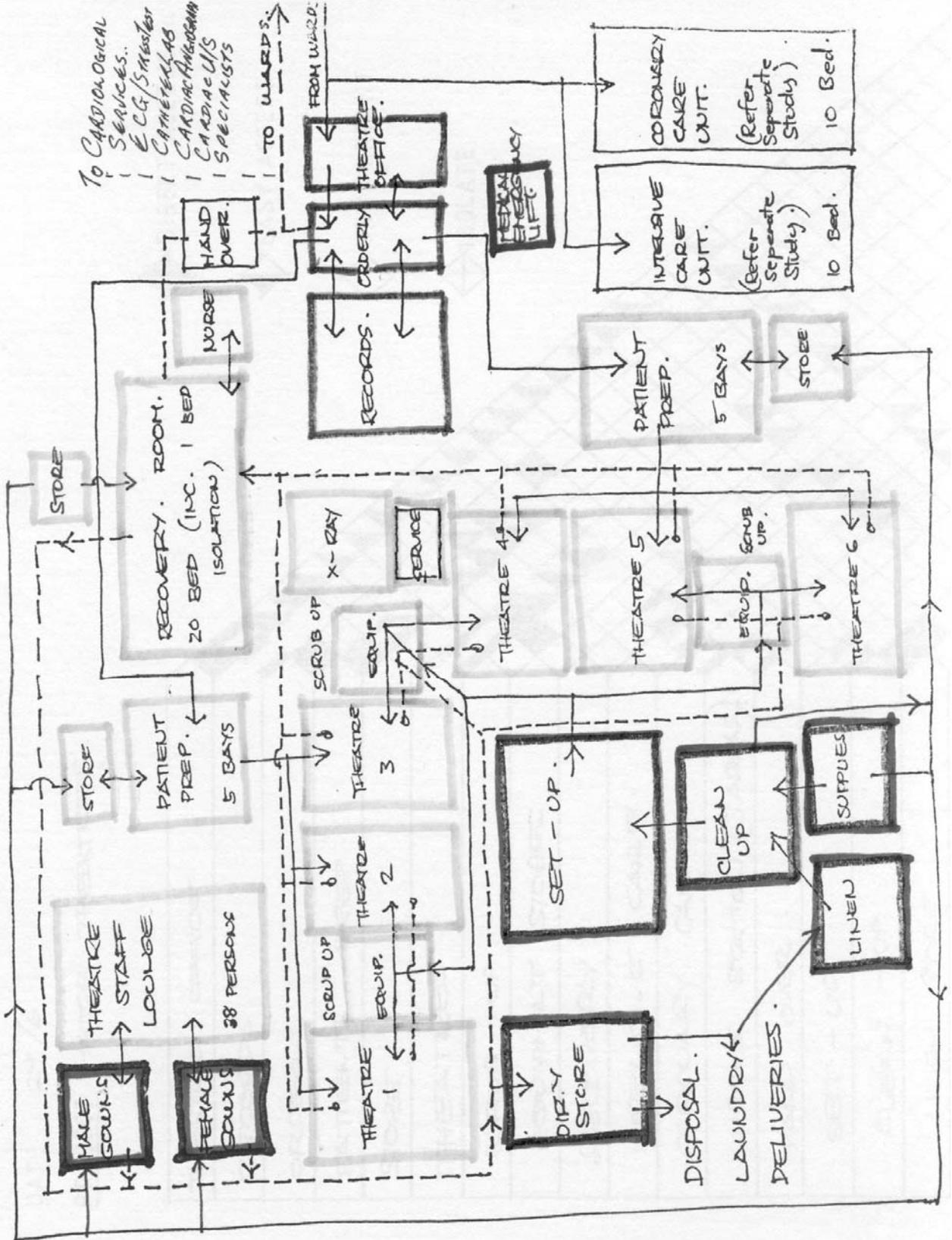
X-RAY UNIT.

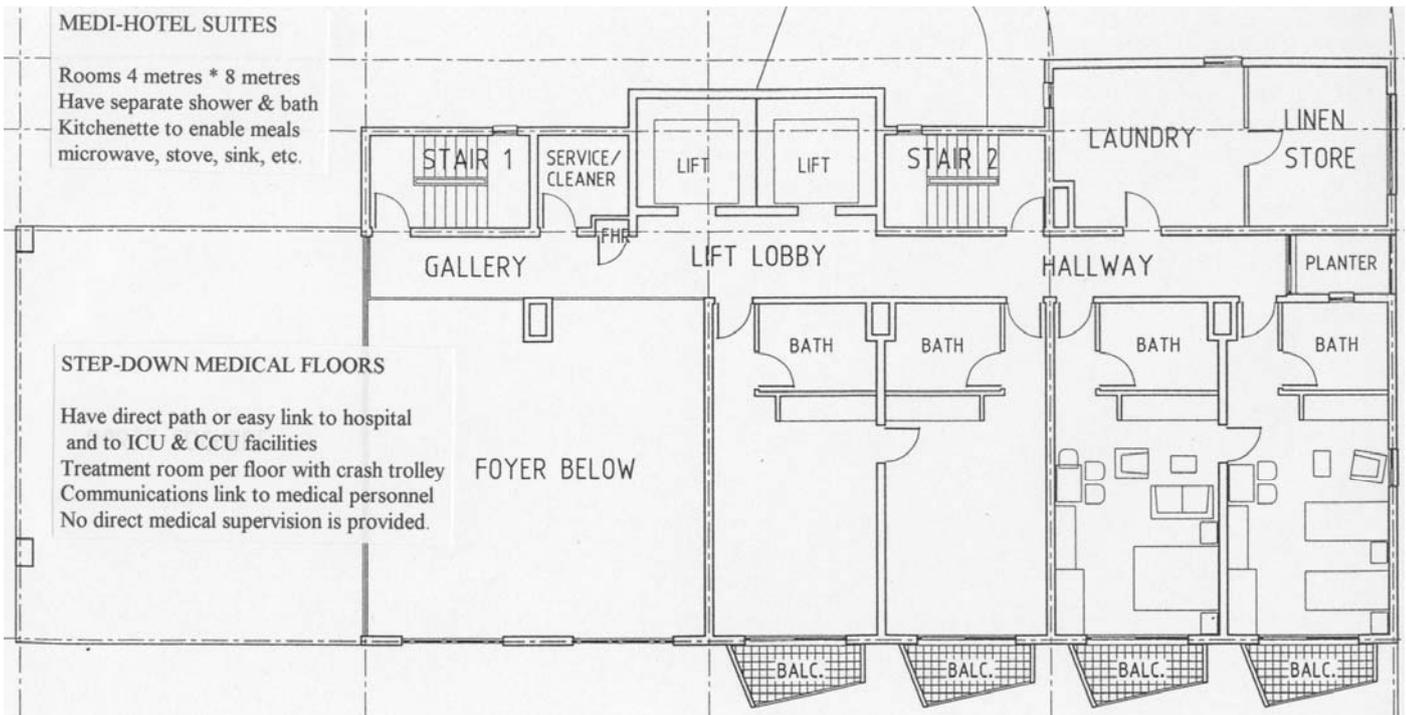




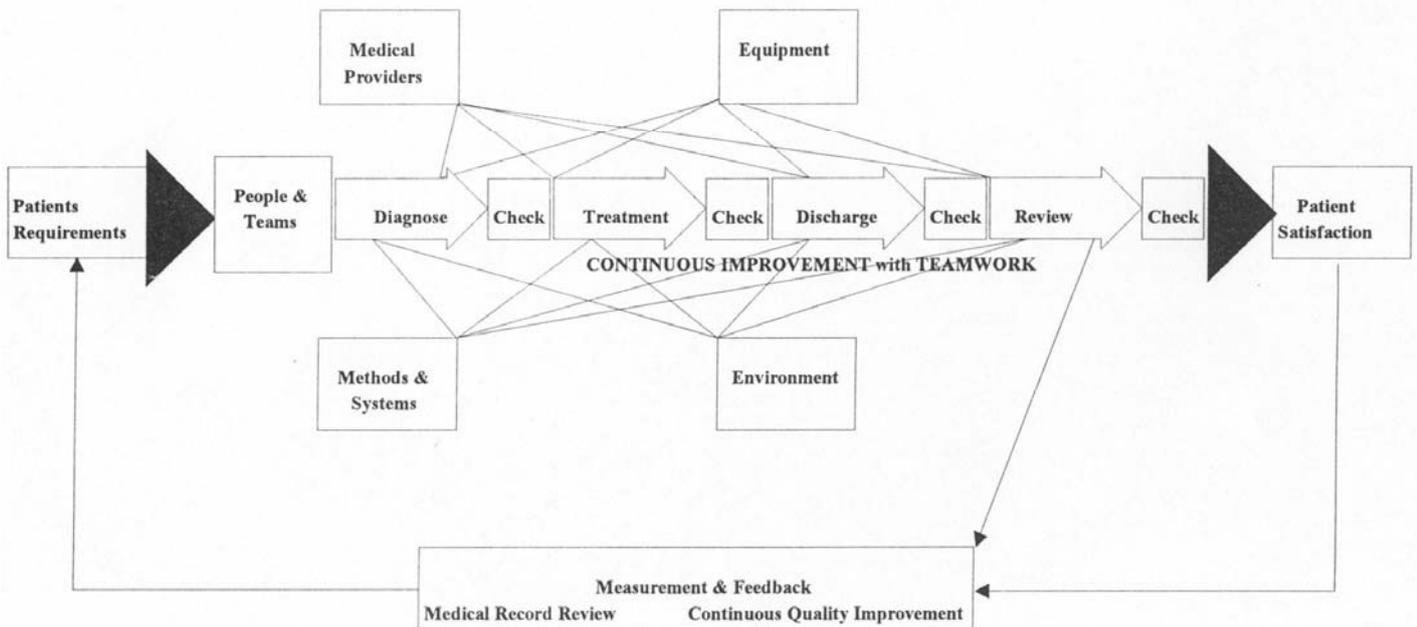
MAJOR THEATRES.

1/7/





Quality Network for Medical Providers, Suppliers, and Process Units



Pascas Care Centre



Pascas Care Centre provides an exciting and innovative facility for the delivery of primary health care; incorporating the values of traditional general practice with multidisciplinary, team based care and an academic research unit in general practice; whilst responding to changing community expectations and the pressing need to train the next generation of primary health care providers for all regions of Earth.

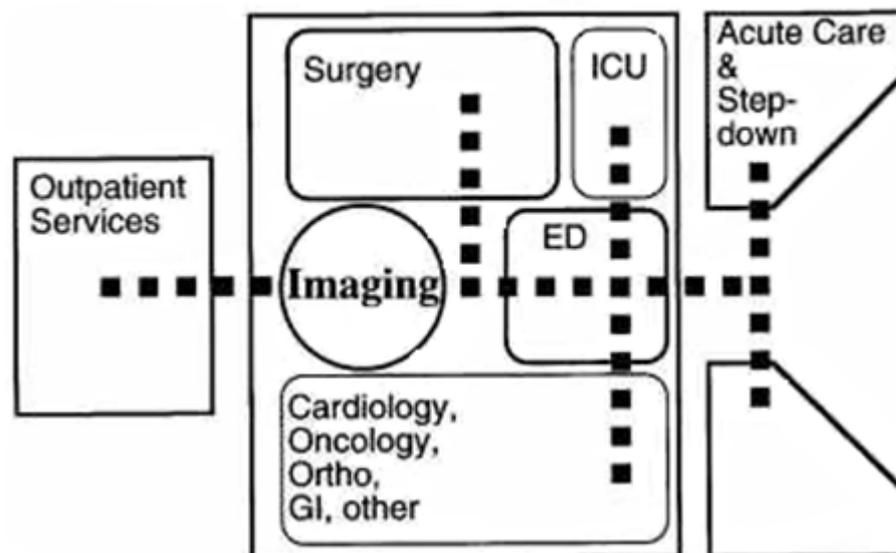
Pascas Care Centre embraces Ayurveda, Acupuncture, Homeopathy and various long standing health care systems.

Essential to Pascas Care is the understanding of the root cause of health issues and the introduction of the revelations as to begin to mitigate all that ails us. This introduction is provided freely and to all. Understanding how the our spirit body is the template for our physical body and the ramifications of emotional injuries and erroneous beliefs that we are infused with impact upon our physical body and quality of life is the basis for our evolutionary growth.

All of the health industry contribution to our betterment of life has its foundations on our childhood forming years and this includes nutrition – enter Pascas Café.

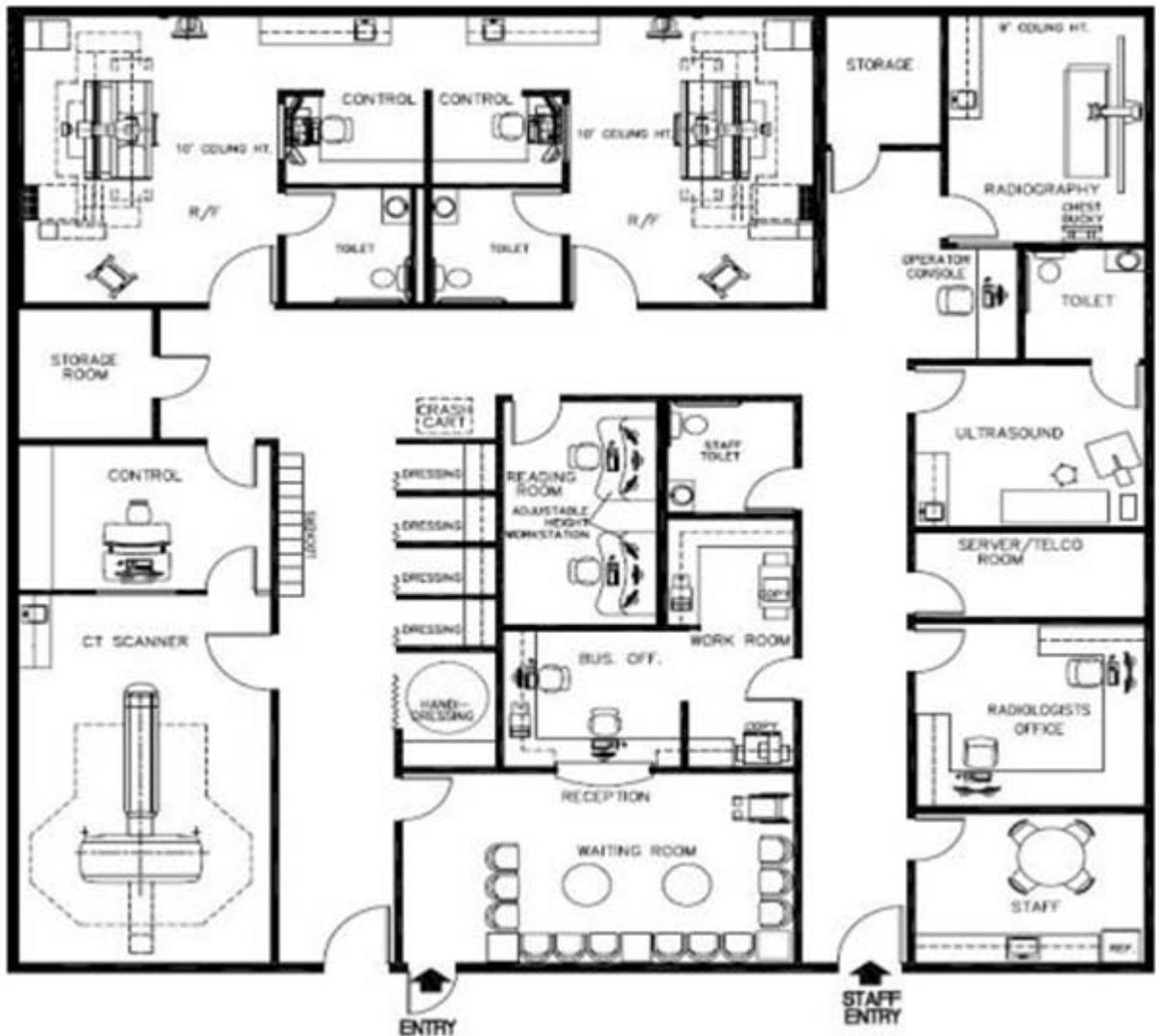
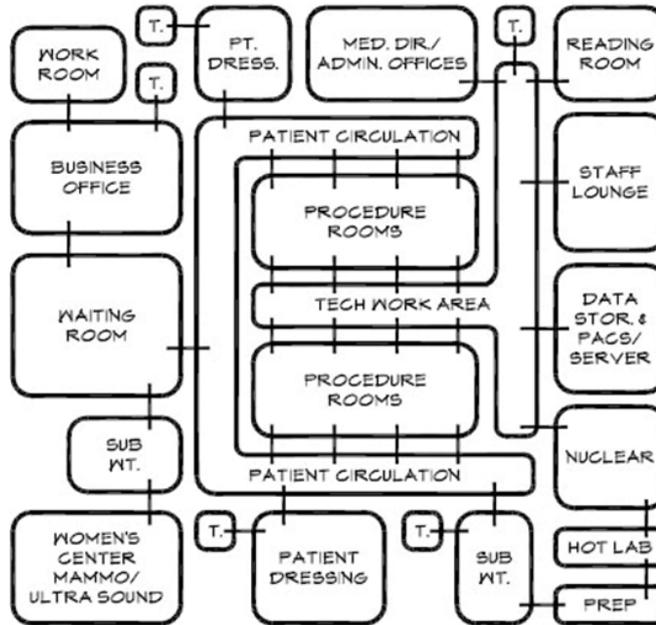


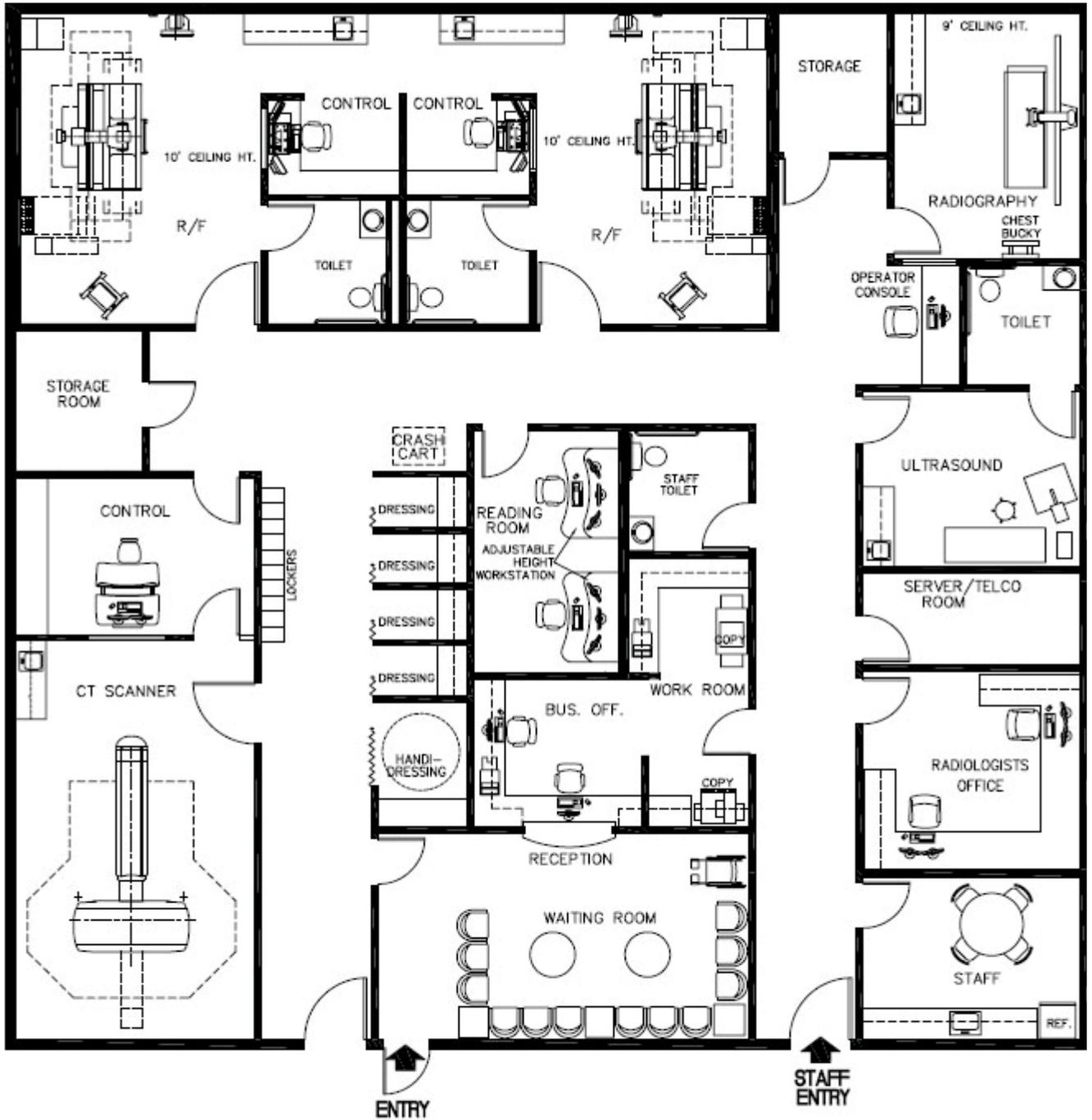
Centralized Imaging Services





RADIOLOGY

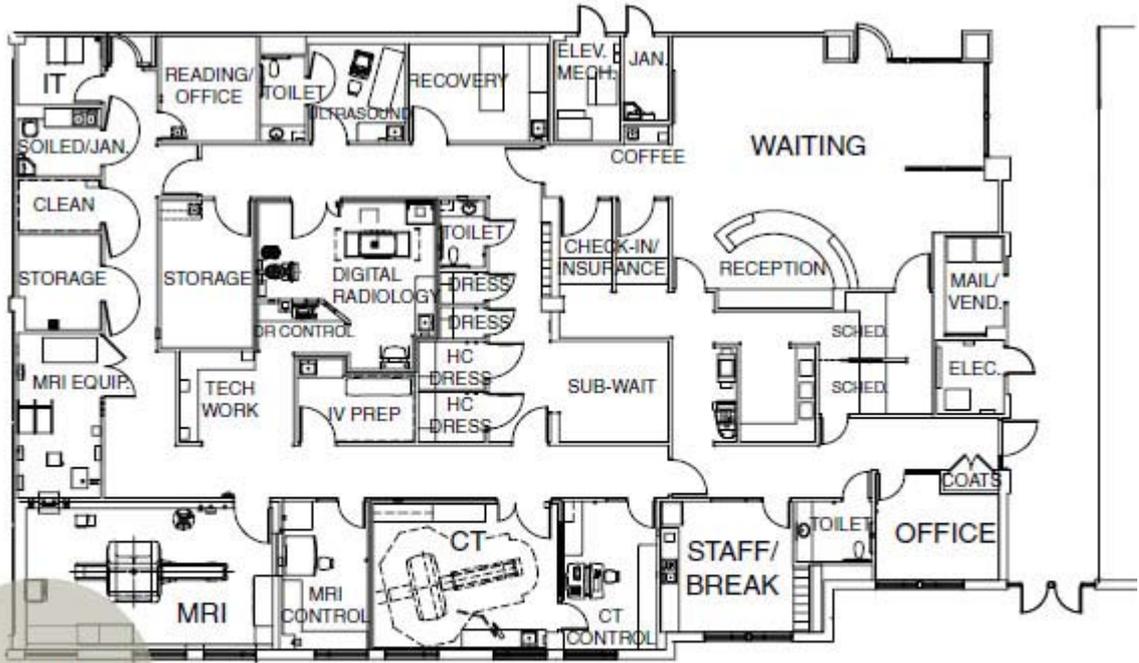
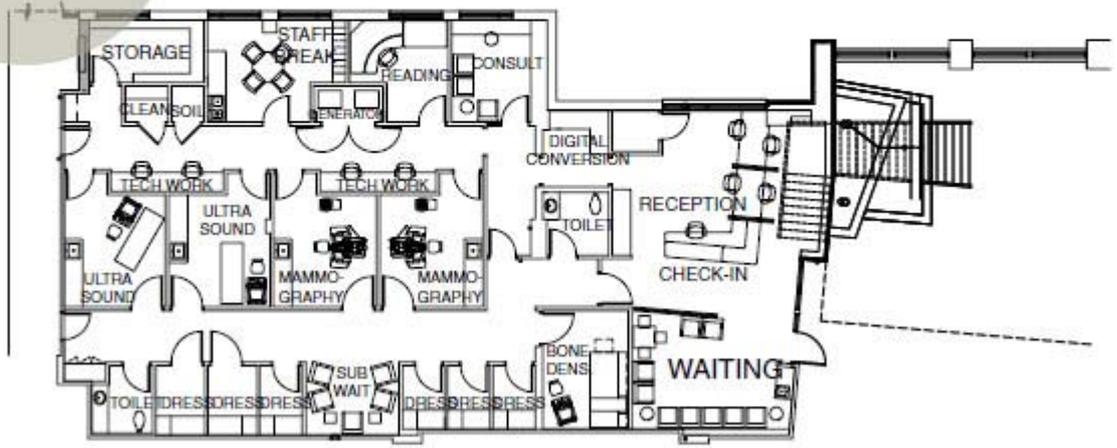




RADIOLOGY

4422 SF

Medical Imaging



Imaging

PASCAS HEALTH SANCTUARY – MEDICAL CENTRES:

OPERATIONAL PHILOSOPHY

To develop a comprehensive, high standard family medical practice to serve the local community and visitors on a 24 hour basis.

(a) PROFESSIONALISM

(i) DOCTORS

To be made aware that they are self employed, that it is their practice. This should develop a more positive attitude.

Doctors, prior to joining, to be checked in regards to their previous background and qualifications.

(ii) STAFF

To be trained and motivated by management on an ongoing basis, so as to develop self-esteem which will ultimately show in the performance of their duties.

(b) SERVICE

To be one of care and efficiency and to be as comprehensive as possible, integrating both social and medical parameters.

MEDICAL ACCREDITATION COMMITTEE

Usually the function of the Medical Director and the manager. They define the minimum standards by which the doctors and paramedical professionals must have and maintain.

CONTROLS ON OVER SERVICING

By being involved on a day to day basis, the manager can check the appointment book and the patient history cards, and very quickly ascertain if over servicing is taking place.

Meetings with doctors covering the philosophy of the practice, encompasses the topic of over servicing and confirms managements strong position on the topic.

SUPPORTING COMPLEMENTARY MEDICINE & SEVICES

Supporting services being from professional practitioners, namely:- kinesiologists, herbalists, nutritionalists, homeopathy, beauty therapists, massage therapists, aromatherapists.

These will be traditionally graduates from the Australian Colleges of Natural Medicine or similar.

LOCATIONS

POPULATION PER MEDICAL CENTRE

The ideal location is one near a shopping centre, schools and caravan parks. This then covers local residents being able to complete shopping and see the doctor and only park once. Emergency services for schools, caravan parks and motels can form an important community service by the medical centre. The growth of the shopping centre guarantees the growth of the medical centre.

TRAFFIC EXPOSURE

This is important so visitors can locate the medical centre. Locals usually know what is within their area.

PARKING

Ratio of six car spaces per doctor is the requirement by most councils.

NUMBER OF CONSULTING ROOMS

The permanent and floating population is the consideration in regards to the size of the medical centre. Although, due to limited good sites suiting our needs, this point has to be taken into consideration.

Existing facilities do not pose a threat, unless a similar style centre is operating.

The strength of the centre is the comprehensive range of medical services that is provided and the availability of that service of up to 24 hours a day.

A minimum of 5 consulting rooms plus pharmacy, optometry and physiotherapy should be available. Additional consulting rooms and specialists rooms would be provided in larger centres.

PROMOTIONAL PROCEDURES

(a) DECOR

To move away from the style of gold and glitter to a more elegant decor so as to appeal to a broader base of people. By establishing a wider income group clientele, the medical centre will be more readily able to cope with governmental changes to the health care system.

(b) ROSTERS

Same time same doctor.

Fixed rosters during the day and afternoon shifts with rotational roster for the night shift or, if possible, a permanent night doctor. Rosters for receptionists also to be fixed, so as to develop better patient recognition.

(c) SPECIALISTS

To invite visiting specialists to the centre so as to develop the comprehensive attitude of the

practice.

Specialists to look for are:

- a. Obstetrics & Gynaecology
- b. Orthopaedics
- c. Dermatology.

CONTRACTUAL ARRANGEMENTS WITH PROFESSIONALS

The various legislation governing the activities of professionals must be observed and contractual arrangements must be reviewed in the light of any legislation.

Basically the arrangement could be a percentage of fees being paid by the professional to the medical centre or the medical centre can charge the professional overheads plus a percentage mark up.

All doctors are to be on a percentage basis. They issue the bills and retain the following percentage when the payments are received:

40% for all medicare claims and veterans affairs fees are retained by the Doctors.

50% for cash consultations, reports and workers compensation.

Pharmacy - 50% of the gross profit is paid to the centre. An approximation is 15% of gross turnover equals 50% of gross profit.

Optometrist - 50% of fees.

Physiotherapists - 50% of fees after deduction of outgoings for equipment.

Specialists - 50% of fees received are paid to the centre.

WHY A COMPREHENSIVE MEDICAL CENTRE IS MORE APPEALING AND SUCCESSFUL THAN THE TRADITIONAL SYSTEM

The major attraction of the established medical system is the personal relationship between doctor and patient. This can be developed within a "new look" medical centre by promoting appointment times with specific doctors, and explaining to patients that they may see the same doctor as well as giving to the patients the permanent times of their doctor.

The printing of a practice brochure also helps to explain the concept of the medical centre.

People are looking for a greater level of comfort and service as waiting times are inevitable.

The so called "traditional system" has fallen over a period of years. The home visit no longer occurs. The standard of most receptions is appalling. The fragmentation of services is most confusing and time wasting. The Medical Centre concept goes a long way to remedy criticisms of the traditional system.

WHY THE EDELSTEN STYLE OF MEDICINE IS DEEMED NOT TO BE "GOOD MEDICINE"

1. The high profile of Dr Edelsten antagonised the Government and his fellow doctors.
2. The misinformed patients and lack of staff training in the development of the personalised doctor, in regards to promoting appointments.
3. The lack of checks in regards to over servicing and the example set by Dr Edelsten.

MANAGEMENT

Management is divided into two groups:

- (a) medical
- (b) administration

The medical director for the centre is responsible for the recruitment of the doctors and the roster system they work within.

The medical director is responsible for the promotion of the understanding of the centre to community groups, schools etc.

The centre administrator is responsible for the overall day to day running of the centre which includes the financial control in regards to bookkeeping and the rostering of administrative and nursing staff.

The manager is responsible for the reconciliation of accounts payable as well as the percentage paid to medical staff and the administrative staff salaries.

OPERATING INCOME

The following figures depict the first six weeks of two Medical Centres. They show actual patient numbers and dollar amounts claimed from Medicare. It is important to note that there is a time delay of two to three weeks for the first cheque to be received from Medicare, but this is quickly reduced to approximately eight days.

PRACTICE 1. (1989)

Week	Patients	\$ Total	\$ Average
1	742	14,675.05	19.78
2	1,053	20,993.75	19.94
3	1,350	28,290.50	20.96
5	1,556	31,191.00	20.05
6	1,708	33,466.20	19.60

PRACTICE 2. (1989)

1	846	14,200.00	17.00
2	1,322	23,000.00	17.40

3	1,375	24,000.00	17.46
4	1,597	28,000.00	17.54
5	1,690	30,500.00	18.05
6	1,791	32,100.00	17.93

It should be noted that in June 95, the rebates as advised by the Health Insurance Commission which services Medicare, Medibank, Medibank Private etc were:

		Recommended	Fee	Rebate
Item 23	General Consultation Doctor		\$24.30	\$20.70 85%
Item 104	Specialist - Opening consultation		unlimited	\$52.50 maximum
Item 105	Specialist - Subsequent consultation		unlimited	\$26.30 maximum
Physiotherapist	Opening consultation		private fund	\$21.00
Physiotherapist	Subsequent consultation		private fund	\$18.00
Item 173	Acupuncture			\$18.45

The first example is a five room general practice, with a two bed treatment room. Problems in this small sized practice, in a heavily populated and tourist area such as on the Gold Coast, is one of patients waiting time in peak periods. This practice experienced up to one and a half hours waiting time.

By having more consultation rooms available, and a flexible staffing plan instigated, patient loss is reduced and a more stable practice evolves.

The second example is a clinic with fifteen available consulting rooms and a three bed treatment room. However, the clinic is in a satellite area, with a population of 23,000 people and a total draw area of 41,000 people. The size of this second practice, did (although obviously too large) allow for visiting specialists to attend the practice, whereas this was not possible with the first practice.

Not included in the preceding figures are amounts claimed for the following areas:

1. Cash consultations
2. Workers' compensation
3. Veteran Affairs
4. Medical Reports
5. Treatment room charges, e.g., bandages.

From the prior tables, the result is average patient fee of \$19.00 (1989) whereas in 1995 it would be \$30.00.

A major cash input is generated from the Diet Clinic. The minimum amount of patients per centre would be 200 per week. This then represents the following turnover:

Diet food sales per week to 200 patients at \$30.00 per patient	\$6,000
Cost of diet food @ 90c per sachet and 14 sachets per week per patient	\$2,520
Net profit per week	\$3,480

Another key area is X-ray. No figures are currently available at this time.

Two further profit centres exist with the resident pharmacy and optometrist. The agreement is on a

50/50 basis with both areas. The profit share with the pharmacy equates to 15% of gross turnover. It is estimated that the minimum received per week by the medical centres is \$1,500 from the pharmacy and \$1,050 from the optometrist.

To summarise a typical medical centre, it should see between 2,000 and 2,400 patients per week, charge an average fee of \$30.00 and with the profit contributions of the pharmacy and optometrist yield a net profit per patient of \$6.00. The profit is enhanced by the sale of diet food by an average of \$1.50 per patient.

Attached are the actual results of a medical centre for eight months extended out to twelve months.

EXPENSES

The expenditure of a Medical Centre is as follows:

1. Rent. The figure can only be given per centre as the size of the centre dictates the cost of fitout and rental.

Rent is \$200 to \$250 per square metre including outgoings. Only in exceptional circumstances is this amount more and only when the site is perfect for the concept.

2. Payment of Doctors. The contract fee paid to doctors is 40% of received Government claims. They are not paid until the monies have been received by the clinic, therefore any necessary adjustments can be made. This includes Medicare and Veteran Affairs. They are also paid 50% of cash consultations, workers compensation and medical reports.

The doctors bill the patients in their own name and the clinic administers the collection of the fees and retains 60% of medicare fees on receipt.

The Medical Director is paid 1% of the gross fees received for his duties.

3. Staff Wages. This amount is governed by the following method. A minimum of 20% of gross turnover. The example of the five consultation room medical centre on the Coast has a staffing level of 17% compared with the fifteen consultation room having 24%. The main reason for the higher percentage was the duplication of staff, due to the centre being on two floors and a management fee placed on the clinic.

4. Office Setup Costs. The following is a breakup of equipment and prices:

Adding Machine	\$200
Typewriter (Brother)	600
Typist Chairs	600
Cash Register	500
Photocopier	1,800
Filing Cabinets	480
Fax Machine	3,100

Total	\$7,280
	=====

Printing costs for a Medical Centre including letterheads, envelopes, appointment cards, practice brochures, business cards, and referral pads would amount to approximately \$3,500. The balance of

stationery required would be in the vicinity of \$2,500.

The patient records is the main expense. The "Safeguard" system is widely recognised and an opening order would be approximately \$12,000 for 10,000 files including "Colour Sentry" labels. This amounts to around \$1.20 per patient. However there are a number of other options, including computerisation, which needs to be looked into extensively.

5. Uniforms. Each staff member, including nursing staff, is issued two uniforms which would require replacing yearly. The average cost per centre annually would be \$4,500 for 30 staff members. Additional belts are required at an annual cost of \$270.

6. Patient Amenities. This includes a staff room and costs such as coffee and tea, coffee machines, fridges, crockery and cutlery. Costs is approximately \$1,000.

7. Telephones. A Commander system would be used in each centre and this equipment is leased. A system with six lines in and sixteen extensions would cost \$7,300 including installation, a twelve line system with twenty four extensions would cost \$12,000.

8. Treatment Room. The set up of a treatment room would not vary greatly according to the number of beds other than the costs of couches and curtain partitioning. At this stage, the treatment couches are \$1,800 each and curtain partitioning is approximately \$600.

All items, other than the medical supplies, can be leased as capital equipment.

Capital equipment required for a treatment room is as follows:

Plaster Saw	\$1,050
Laryngoscope	450
Examination Lights	600
Fridge	600
Air Viva	210
Oxy Viva	2,100
Spirometer	3,900
E.C.G.	3,750
Steriliser	2,700
Defibrillator	12,300
Audiometer	340
Assorted Instruments	4,500
Assorted Medical Supplies	4,500

Total	\$37,000
	=====

9. Doctors Consulting Rooms. This area consists of the following equipment and furniture:

Desk	\$550
Bookcase	350
Doctors Chair	450
Patients Chairs	500
Examination Couch	1,800

Examination Light	200
Accessories	200

Total	\$4,050
	=====

10. Waiting Area. The number of couches and chairs naturally depends on the size of the clinic. Taking an average five consulting room clinic, the cost would be \$15,000. Televisions, video, music system, trees, planter tubs and coffee tables would total \$15,000.

11. Running Expenses. This area includes the cleaning and rubbish removal as the main expenses. Approximate weekly cost is \$600. The balance includes electricity, maintenance, carpet cleaning, telephone charges, insurance, medical supplies, advertising, couriers etc.

Using the example of an eight consulting room practice with a four bed treatment room, the following costs apply:

Rental per annum	\$75,000
Office Costs	28,000
Telephones	28,000
Treatment Room	34,000
Doctors Rooms	30,000
Waiting Area	30,000

SETTING UP & WORKING CAPITAL

Working Capital is required to administer the pre-opening fitout, the promotional opening and the operation of the centre on a continual basis.

Time to negotiate the lease of the premises, organise the fitout and supervise the fitout whilst obtaining necessary Council permits and Health Department approvals would generally entail four months. An expense allowance of \$45,000 is required.

The promotional opening would require \$5,000.

Working capital being the funds necessary to pay expenses until Medicare payments come on stream. Sufficient funds for two weeks administrative wages and expenses is required together with bonds that have to be paid to Energex electricity utility. An allowance of \$100,000 should be made.

Accordingly a working capital funding of \$150,000 should be anticipated.

The cost of fitting out of premises will vary. An allowance of \$300,000 will cover most suitable premises.

Treatment Room	\$37,000
Treatment Room furniture	8,000
Doctors Rooms (\$4,050 * 5)	20,250
Waiting Area	15,000
Sound System	15,000
Telephones	7,300
Signage	25,000

Uniforms	4,500
Office Setup	10,500
Stationery	6,000
Patient Card System	12,000
Patient Amenities	1,000

Sub Total	161,550
Building Alteration allowance	138,450

Fitout & Alterations	\$300,000
	=====

BUILDING ALTERATION COSTS

An example of the costs to alter modern office space to a five consulting room medical centre is as follows:

Carpet	\$15,000
Marble	20,000
Wall Coverings	7,000
Vertical Blinds	2,450
Lights	6,000
Electrical	3,000
Airconditioning	11,000
Joinery	37,000
Plumbing	3,000
Partitions	10,000
Remote Doors	8,000
Landscaping	4,000
Store Shelving	1,000
Treatment Room Tiles	1,000
On site costs	5,000
Builders Overhead and Profit	5,000

Total	\$138,450
	=====

SITE COSTS

Rental of \$200 to \$250 per square metre, should the site is perfect for our needs then a higher rental would be justified.

Rental can be divided into two areas:

1. If the Centre pays for the fitout.
2. If the owner of the building pays for the fitout.

A typical centre is 500 square metres thus a rental range of \$100,000 to \$125,000 per annum can be anticipated.

FREEHOLD OWNERSHIP

If possible, ownership of the freehold should be considered. This would strengthen the future position of the company in regards to borrowing by the centre by using the improved value as collateral.

A freehold site costing \$1,000,000 would attract Queensland stamp duty of \$24,725 and negotiated legal fees of \$5,000.

CENTRE ENHANCEMENTS

CLINICS

Additional clinics can be established in a centre either on a part time availability or permanent. Such Clinics can be in the direction of mothers clinic, allergy, diet, skin etc.

These are developed by numerous methods:

- (a) practice brochure
- (b) video
- (c) notice board
- (d) doctor discussion with patients
- (e) medical director speaking to community groups.

OTHER SERVICES

A small Xray unit can be installed, dental suites, specialists rooms, optometrist and a free standing day theatre suite.

CONCLUSION

Medical Centres developed under this concept recognise the esteem of the patient by providing a convenient and comprehensive medical service whilst maintaining the traditions and quality of medicine expected.

PASCAS HEALTH SANCTUARY – COMPLEMENTARY THERAPY CLINIC:

THE TIME FOR CHANGE - A TIME FOR HARMONY

WESTERN SOCIETY SCENARIO

Empirical data would assert the urgent need for lifestyle changes, not only in third world countries, but in the affluent societies in the western world. Incumbent in western societies are the strains of maladjusted lifestyles, emanating most frequently in western society, culminating in diverse forms of impactful health conditions, such as cardio vascular disease, obesity, lethargy, lack of self respect and awareness and lifestyle balance. Additional stressors both in the workforce and the domestic arena add to this neurosis.

It is this positive outcome of the quality of a balanced life of well-being, that millions are so desperately searching to achieve, but are too benign to realize the source of such assistance. Help is at hand, but only limited to short term bandaid solutions from general practitioners offering patient management. **What is required most definitely and assuredly is a conscious, deliberate, and professional holistic life management solution via the health and healing sanctuaries as outlined in this document.**

The key markets that would most readily benefit –

- corporate
- any business

The workforce in these markets are suffering from suffocating workplace constraints, additional work hours, lack of family life, additional pressures through work contracts, lack of exercise and a general lack of purpose, and an erosion of ethical workplace management practice.

The end result of this oppressive environment is premature death culminating from lack of self-honour, self-respect and being seen as an expendable asset. Other precursors are strongly indicated, such as lack of job security, lack of any individual family goal. Anxiety of the future. All of this is based through fear of loss, judgement plus not honouring the Godself within. This causes disease.

The cost to society is overwhelming and exponentially cannot be maintained, particularly as societies' infrastructures can no longer cope, such as health system, unemployment system, crime, divorce and so on.

THIS MUST CHANGE.

THIRD WORLD SCENARIO

It is the impression from the author, that the most populous and poorest of nations receive less from those who are capable, from those who are capable of greatest assistance.

Unfortunately this ostracism occurs as a double-edged sword. From a commercially viable viewpoint, the distribution of wealth and health care solutions, life management solutions are not seen as tenable. From an internal cultural viewpoint, third world culture implodes upon itself repeatedly. More specifically, references are made to lack of government stability, education, health education, corruption, and abuse of natural resources. Consequently the return on investment, be this financial, emotional, spiritual, cultural is not seen as being worthy of effort.

The solution is available in terms of:

- Real education.
- Real government assistance packages (housing, food, emergency shelter, clean water, natural energies).
- Subsidised health.
- Spiritual migration in terms of working through deeply seated doctrinal customs.
- Self awareness.
- Availability of use of technology.
- Accessibility to Universal Library (via the Internet).

It is the belief, the holistic health sanctuary can be developed as the panacea of cure in all areas, but not to be seen as a hospital for the sick. **It is to be seen as a place of empowerment, education and to provide the organic food of life, both in a spiritual and physical sense.**

This is by no means a quick fix – it is however a platform of change and a slow migration of hope. Due to the populations, it would be envisaged for the practitioners to undertake workshop courses to train the trainer, thereby having a greater impact on the critical mass for all concerned.

In order to engender an awareness of products and services offered, through the Sanctuary, it is critical to ensure correct promotional advertising objectives and strategies are put in place.

As the **HEALTH & HEALING SANCTUARY** to be established on the Queensland Gold Coast will be the first of its kind in the world, it is recommended, local advertising that local advertising and promotion take place to attract any demographic profile, including individuals and groups to the Sanctuary. Complimenting this strategy is further recommended to develop an augmented Website with several search engines including multi media and photographs. The same process can be expanded on a wide basis on the world wide stage, highlighting the Sanctuary's products and deliverables.

In addition it is recommended Yellow Page entries, under Resort / Health heading be included across Australia, reaching a national 1800 number, website bookings and packages.

Due the spiritual focus of the Sanctuary it is envisaged complimenting advertisements appear in the following magazines:

- Sphere
- Insight
- Elohim

As this is also to be seen as a resort / hotel, it is also recommended, promotional material appear with Qantas inflight videos and Virgin inflight magazines.

To further compliment the above activities and strategies, it is recommended Radio advertising using run of station, that will produce most best mass general appeal to the Gold Coast audience, whilst ensuring adequate reach and frequency of the message.

In terms of promotion, promotional programs when put in place, will effectively educate the mass public on the unique offerings of the Sanctuary. It is recommended that these will include the following:

- Advertorial in the Gold Coast Bulletin.
- Opening Function for all business partners, politician, key business people and other key guests.
- Appearance on local and State Government websites.
- Networking with local tour / bus companies.
- Networking with Gold Coast International airport.
- Networking with Brisbane International airport.
- Networking with community groups.
- Publication of brochures.

Installation of PABX, computer system, telemarketing software for database.

It is central to the promotion and advertising strategies that my influence permeates the formation and deliverance of messages. Complimenting the spiritual focuses outlined in this document, we also possess the corporate experience and tertiary qualifications to augment this procedure.

CRITICAL SUCCESS FACTORS

Being unique, the Sanctuary will rely upon general acceptance, and this paradigm shift in marketing is the means by which community acceptance will be gained through their own contributions to the life skills development of our children and other defined market segments.

Professional management selection and practice is a central component.

The diversity of the Sanctuary's therapy offerings will be key to the successes derived.

More specifically this will include:

-services from a pool of professional practitioners: - kinesiologists; herbalists; nutritionalists; acupuncturists; homeopathy; beauty therapists; massage therapists; aromatherapists.

These will be traditionally graduates from the **Australian Colleges of Natural Medicine.**

-Spiritual Healers- Reiki and other modalities.

Of general appeal supplementary practices will be provided as required.

The Streamer / CEO of the division will run the centre as a spiritual retreat with a major emphasis upon the well-being and life development skills of its guests and clients.

The marketing of the above services coupled with the normal retreat product offerings will add to its acceptance. An augmented web-site and other media vehicles will play a central role and will be seen as attracting both local and international guests. Accessibility is central to the marketing role.

The suite of 'packages' to be offered will include:

Accommodation / sport / practitioner / spiritual / workshop components, and will derive most profitability.

Some criticism from religious sectors is anticipated, but is not seen as being detrimental to the long-term effectiveness of the retreat.

The Sanctuary's critical success factors also include:

- Win, win, win for all guests; children, families, any individual, corporate bodies, community bodies, investors and participating staff who will derive first hand benefit at the client interface.
- Unique marketing presently unmatched by other holistic centres. Thus providing an excellent window of opportunity that can be easily translated anywhere, (domestic / overseas).
- Full range of services- traditional retreat services, holistic and spiritual.
- Community interaction.
- Speed to market.
- International appeal.
- Ability to introduce new programs and services.
- Ability to remain price competitive to select lower socio-economic groups.
- Continuous repeat business.
- Ethical and professional business practices.

BUSINESS OPERATIONS

It is understood this development is part of the parent company whereby the Streamer (CEO of Clinic) will report to the overall group administration and Board.

A current core management team will be the hub of the centre. The key personnel (refer Management Structure) will be selected by the Streamer on the basis of being able to deliver prescribed services to guests quickly. These product offerings must be able to exhibit wherever possible their acceptance, profitability, and ease of translation from guest to completion and satisfaction.

Client feedback is essential.

HEALTH CLINIC

As part of the migration of the progress towards the **PASCAS HEALTH SANCTUARY**, the initial concept should undertake the form of a comparatively small clinic.

The objectives of which are to:

- * Establish a professional reputation of the services provided.
- * Create an awareness of the spiritual healing / focus that will be enhanced in the Sanctuary in approximately 18-24 months.
- * Create an environment of positive healing and support as part of overall well-being of each client.

Staff Selection

Of critical success is the calibre of health practitioners who will be working at the clinic.

In order for this business to successfully operate, management needs to attract and retain these quality people, both financially, and with the smooth operation and quantifiable client appointments. This will occur through cost effective promotion and advertising, and the application of sound Human Resources practices.

The number of staff will be dependent upon the physical layout of the premises. Ideally, an initial number of about 8 plus reception and manager with a capacity to accommodate up to 14 would appear appropriate.

At this juncture it is envisaged the following type of staff will be selected:

- Naturopath

This position will also encompass the modalities of:

Herbal treatment

Iridology

Nutrition

- Homeopathy
- Remedial massage
- Chiropractor
- Bowen healing
- Spiritual healing / Angelic healing
- Reiki Healing
- Competent Practitioners in complementary fields
- Pilates / Yoga

Plus receptionist / manager

CONSULTATION FEE BASIS

Empirical research into other Gold Coast based natural healing ~centres~ has revealed:

- 1 There is a plethora of these centres currently operating on the Gold Coast offering similar solutions – refer Yellow Pages.
- 2 The Clinic will be established and evolve in this competitive market.
- 3 It has been determined there is no industry standard with regard to hourly rate payments, and commissions payable, with respect to various healing practitioners. For example prices for naturopathic consultations vary for an initial visit of \$55.00 for 30 minutes to \$65.00 for one hour and 15 mins. Client pricing for a remedial massage therapist vary from \$55.00 to \$75.00 per hour and the commissions paid directly to the therapist from 25% to 50% of these amounts. Therefore, there is no common benchmark. It is felt that any pricing other than what is recommended i.e. \$75.00 that is currently being offered to the market, will not be accepted by the public at this stage.
- 4 There is considerable fluctuation in the pricing offered from other centres, and as a result of this we need to collate a pricing schedule that reflects both the professionalism and quality of the practitioners required for this clinic.

PRICING SCHEDULE FOR PRACTITIONERS

In order to maintain viable profit margins, and given the fluctuation in the market place, it is recommended e.g. a initial consultation with a naturopath at the clinic would attract a fee of \$75.00, of which \$30.00 is payable to the naturopath. This is a 60/40 split, and is seen as equitable for the following reasons:

- 1 This will ensure a quality naturopath is on premises.
- 2 The naturopath would need to supply a Provider Number, their own diagnostic equipment.
- 3 Whilst the profit margin may not be seen as attractive to the business at this juncture, it is believed the volume of business can only increase so as the amounts will be deemed viable from this one person. E.g., say, 4 visits per day, giving a gross profit of \$180.00 or \$900.00 per week to the business, should be viable.
- 4 It is to be noted there may be resistance to the low rate per consultation being offered. Nevertheless the business is supplying the premises, in situ support equipment, reception services, phone system and promotion advertising, in order to engender a clientele. This will not be borne out by the practitioner, and whilst the initial costs would need to be borne by the business, break even on this should occur within 3 to 6 months in this one area.

PRACTITIONER CONSULTATION

PRACTITIONER	(all costings to be reviewed)	
	RATE p/hr CLIENT PAYS	CONTRACT TECHNICIAN PAID
• Homeopathy	\$70.00	\$30.00
• Remedial massage	\$70.00	\$30.00
• Spiritual healing	\$70.00	\$30.00

• Reiki level 1 Healing	\$200.00	\$90.00
• Reiki level 2 Healing	\$300.00	\$135.00
• Complementary Practitioners	\$44.00 /30 mins.	\$28.00
• Yoga (min.10 people)	\$10.00 per person	\$40.00
• Meditation Group (Minimum 10 people) up to 2 hrs	\$10.00 per person	\$40.00

WORKSHOPS

It is anticipated that practitioners will be running various workshop courses on a number of modalities, during the course of the year. It will be a matter of supply and demand, however, in order to maintain consistency with a minimum of 10 people in each course, to maintain profit margins.

EXAMPLE:

TAROT COURSE: Can take up to 10 weeks, with half a day each week being used. Reiki 1 healing is one day only. Introduction to Psychic development could be one day only. Self Nurturing courses can be one half day.

OUR RESEARCH SHOWS: The Tarot course costs \$490.00 each. We suggest a 30% markup on this figure will bring the amount to \$637.00 per participant – with a minimum of 10 participants. This equates to \$1,470.00 profit for this particular course, and will vary significantly with different modalities and requirements. Again we need to be sensitive to pricing in this very competitive area, and what the market will accept as reasonable value for money.

Display Stock

Other revenue streams can be incorporated with the use of a diverse range of retail products. The selection of these product items will compliment the spiritual / healing objectives and healing modalities / workshops of the clinic.

It is therefore recommended, the following products be made available:

- New Age books such as psychic development; meditation; health; nutrition; angels; spirit guides; self-development etc.
- Compact discs- meditation; relaxation; nature etc.
- Range of crystals and ornaments.
- New Age magazines.

CLINIC DEVELOPMENT AGENDA

Alternative Medicine and/or Alternative Therapies, being Complementary Medicine, incorporate:

Acupuncture
Anthroposophically Extended Medicine
Ayurveda

Community-Based Health Care Practices
 Environmental Medicine
 Homeopathic Medicine
 Latin American Rural Practices
 Native American Practices
 Natural Products
 Naturopathic Medicine
 Past Life Therapy
 Shamanism
 Tibetan Medicine
 Traditional Oriental Medicine

Bioelectromagnetic Applications

Blue Light Treatment & Artificial Lighting
 Electroacupuncture
 Electromagnetic Fields
 Electrostimulation & Neuromagnetic Stimulation Devices
 Magnetoresonance Spectroscopy

Diet, Nutrition, Lifestyle Changes

Changes in Lifestyle
 Diet
 Gerson Therapy
 Macrobiotics
 Megavitamins
 Nutritional Supplements

Herbal Medicine

Echinacea (purple coneflower)
 Ginger Rhizome
Ginkgo Biloba Extract
 Ginseng Root
 Wild Chrysanthemum Flower
 Witch Hazel
 Yellowdock

Manual Healing

Acupressure
 Alexander Technique
 Biofield Therapeutics
 Chiropractic Medicine
 Feldenkrais Method
 Massage Therapy
 Osteopathy
 Reflexology
 Rolfing
 Therapeutic Touch

Trager Method
Zone Therapy

Mind / Body Control

Art Therapy
Biofeedback
Counselling
Dance Therapy
Guided Imagery
Humour Therapy
Hypnotherapy
Meditation
Music Therapy
Prayer Therapy
Psychotherapy
Relaxation Techniques
Support Groups
Yoga

Pharmacological & Biological Treatments

Anti-oxidizing Agents
Cell Treatment
Chelation Therapy
Metabolic Therapy
Oxidizing Agents (Ozone, Hydrogen Peroxide)

As such, the core practice will be progressively expanded to incorporate all such modalities that can be delivered in such a way that assists clients to protect their health as well as improve their health. The objective is to treat the cause much more so than treat the symptoms.

CONCLUSION

Given the unique approaches on all levels being offered, and with the same translation of reforming lives out of chaos, and into the light of living globally, surely, then, the PASCAS HEALTH SANCTUARIES, ultimately Worldwide, will be pivotal in the transformation of the human consciousness into a realm of total well being.

The ramifications of these approaches must surely impact upon humanity and human endeavour, into a peaceful, more humane, global village of love.

PASCAS HEALTH SANCTUARY - KINESIOLOGY CLINIC:

<http://www.kinesiologistsunited.com/>

Because the field of kinesiology is so diverse, the more specific we get, the less accurate we can be about the profession as a whole.

Here's why: As of today (Friday, 1/2/04), The Database Of Kinesiology contains information on:

88 different kinesiologies (systems of kinesiology),

and

92 different kinesiology organizations,

all of whom represent (at least slightly) **different ideas** about what the word "kinesiology" should actually mean.

So, we will keep this introduction as general as possible, and then introduce you to the resources that will help you learn as much **specific information about kinesiology** as you like, from the people who actually do it.

Kinesiology is the practice of using manual muscle testing to communicate directly with the body.

The original practice of informational muscle testing was called "Applied Kinesiology" or "AK", by it's developer, Dr. George Goodheart. Today, there are many approaches to manual muscle testing that differ widely from Applied Kinesiology. Despite this fact, many people, including practitioners, continue to call all forms of muscle testing, "AK". To add to the confusion caused by this, there is also an academic field of study called, "Applied Kinesiology", that deals primarily with muscle physiology and movement.

In an attempt to help clarify what people are actually talking about, we have introduced the term, "**informational kinesiology**" to describe ALL forms of manual muscle testing used to obtain information from the body, including AK proper.

The Mechanics of Muscle Testing: How It's Done

The basic idea is that the brain monitors and controls the entire body through the rest of the nervous system. Because the nervous system also controls the state of the muscular system, a kinesiologist is able to tell something about the body by measuring how the muscles are working from moment to moment.

This is usually done through a simple manual muscle test, in which the subject attempts to resist a force applied against the action of a muscle or group of muscles.

Typically, the subject extends an arm or a leg and tries to hold it up, while the kinesiologist tries to push it down. There are also more specific tests to isolate individual muscles for evaluation.

During the test, the kinesiologist feels for changes in the amount or character of the force that must be applied to overcome the resistance of the subject.

Anything that has an immediate effect on the body can produce a change in the state of the muscles, through the nervous system.

The kinesiologist is generally looking for what will produce such a change. Various body positions,

reflex points, hand modes, or nutrients are among the things a kinesiologist might test in this way.

This method of directly testing the body's responses to different stimuli is noninvasive, and can allow a kinesiologist to determine what treatment, if any, will have a favorable impact on the health of the subject.

The Discovery of Kinesiology: Where It Came From

Muscle testing has long been used to check for problems in the muscles or nerves, along with other orthopedic and neurological tests in regular physical examinations.

George Goodheart, a Michigan Chiropractor, found another reason to do muscle testing.

Dr. Goodheart discovered that muscle testing could be used to find out what the nervous system knows, because the results of a muscle test can change with the state of the nervous system, and the nervous system is the communication network for the entire body.

Using this initial discovery, Dr. Goodheart, and the doctors that came to study with him, went on to discover many more things about the body that had not been known before.

They found, for instance, that each specific muscle they could test was related to a specific organ, a specific nutrient, a specific level of the spine, and specific reflex points. Even more remarkably, they found that if they could change the strength of the muscle using this information, they could change the function of the corresponding organ.

Dr. Goodheart called his new field of study, "Applied Kinesiology", or "AK" for short.

The Diversity of Kinesiologies: Why So Many?

AK attracted a lot of attention from the very beginning. Doctors of all types came to learn from Dr. Goodheart and to help contribute to the work he was doing. They formed the first kinesiology organization, the "International College of Applied Kinesiology", or "ICAK".

With the new doctors came new ideas. More uses for muscle testing were discovered. The ICAK could not be all things to all people. Some people stayed, but some left, forming their own organizations and adding their own discoveries. Some of these new organizations began teaching muscle testing to lay people, people who were not doctors. Some began teaching the "hand modes" and "bio-computer" concepts that were not approved by the ICAK.

Many of these new organizations also began to fragment as the field continued to grow, each organization giving rise to new organizations with new or recycled ideas. Some began to limit their use of muscle testing to a particular area of interest.

There are now so many isolated organizations using similar terms to describe different techniques or different terms to describe the same technique that it is difficult to keep them all straight.

Some people still use the term, "AK" to describe all kinds of muscle testing. "Specialized Kinesiology" once meant any type of kinesiology that was taught to lay people, but now it's often used to mean any kinesiology that is not AK proper. "Clinical Kinesiology", or "CK" once meant a very specific system, but today is sometimes used to describe any use of hand modes.



Kinesiologists centres provides Physician, Physiotherapist and Kinesiologist diagnostics and recommendations to insurance providers and instructs rehabilitative techniques to the individual insured. Teams consists of a Physician, Physiotherapist, Psychologist and four Kinesiologists all with extensive experience and knowledge in their respective disciplines. The educational approach to rehabilitation delivers the knowledge and techniques clients require to reduce pain and restore standard of living by increasing joint range of motion and functional strength. A flexible and adaptable problem based approach takes into consideration the needs of both the client and the insurance provider and is in turn both efficient and cost effective.

PASCAS HEALTH SANCTUARY – PAIN CLINIC:

Reducing pain is the first and most important need for any sufferer, especially a cancer sufferer. It is a patient's right to have pain relief. You may be in excruciating pain, and on morphine because no other painkiller "touches it". Or you may be stoically "putting up" with it, not sleeping, barely able to get up from your chair to get to the bathroom. Pain is the true master of us all. It even takes away our initiative to get well. If a cancer sufferer has decided to give up the battle, this wish should be understood and respected. But removing pain can change all that! And initiative and determination to conquer this disease can return.

A Pain Clinic is a multi disciplinary centre dedicated to the diagnosis, management, treatment and rehabilitation of chronic pain syndromes.

A Pain Clinic involves the grouping of well established medical procedures and managing those facilities in a manner to maximise the usage of medical skills, medical therapies, both Western and traditional, and services to create a highly viable and professional unit.

INDEPENDENT UNIT

The Pain Clinic to be outlined here is an independent unit that would be annexed to any private hospital or major medical facility. A freestanding pain clinic would be restricted in its services, however, it would still function successfully.

A Pain Clinic by not having access to operating theatres and twenty four hour hospital care would not be able to carry out the following:

A. Without operating theatres:

Operating theatres are required for many procedures involving neurosurgery, epidural techniques, orthopaedic rehabilitation operations, dorsal column stimulator implantations, sympathectomies, etc.

B. Without 24 hour medical care:

Manage withdrawal of opiates and other drugs, inpatient beds are required for post surgical cases, cancer pain relief frequently requires inpatient accommodation, the centre would be only able to manage ambulant cases.

Should the Pain Clinic be annexed to a major private hospital that carries out Cancer and Cardiac services then the pain clinic would be incorporated as a sub-clinic in the Cancer Clinic (Oncology Haematology Pathology Clinic) in the following way:

Most patients with cancer require pain relief as well as sophisticated rehabilitation facilities; e.g., hydrotherapy, gym and relaxation techniques such as biofeedback. Additionally they may require procedures such as dorsal column stimulators, morphine-epidural reservoir etc. As well as ongoing pharmacological management.

A Pain Clinic annexed to a Cancer Clinic would place more emphasis on the following services: Anaesthetist, Neurosurgen, Rehabilitation and Relaxation, Pharmacologist (being a general physician).

A Pain Clinic would be annexed to a Cardiac Clinic in the following way:

Provide a full range of analgesic techniques, aids for rehabilitation and stress management. Post operative cardiac patients require substantial pain relief, usually pharmacologically. Additional hydrotherapy could speed post-op recovery rate. Furthermore, relaxation training including biofeedback and psychological rehabilitation would be valuable from the points of both:

Preventative – stress management helps avoid re-occurrence, etc.

Rehabilitative – helps avoid post surgical neurosis and depression.

A Pain Clinic annexed to a cardiac clinic would place more emphasis on the following services:

Psychologist, physiotherapy, pharmacology (usually the surgeon undertakes the role of pharmacologist).

MARKET

Nineteen percent of individuals report that they “are currently experiencing pain or are regularly troubled with pain”. The individual pain prevalence rate for two weeks preceding the survey was 16%. Over 35% of households included one or more persons who “where currently experiencing pain or regularly troubled with pain”. The household pain prevalence rate for the two weeks preceding the survey was 32%. Females had higher pain prevalence rates than males, and pain prevalence rated increased with age.

The survey was undertaken by Dr Simon Strauss and his associates.

If only 10% of those needing treatment used the clinic for one series of treatment a year then a unit within a population of 400,000 would need four (4) pain technicians.

Treatment usually requires ten sessions or visits. One technician can treat five patients per hour using five treatment rooms. Each patient would occupy a treatment room for one hour. Each patient would visit the pain technician an average of ten times. The number of additional visits for occupational therapy (2-3), physio and hydrotherapy (10-20) would add another 10 visits on average.

Given a primary catchment area population of 400,000 persons and that 16% of the population require the services and then further discounting that number down to one tenth, then the number of consultations required for just 10% of the potential market would be:

$$400,000 * 16\% * 10\% * 10 = 64,000$$

One pain technician can treat five patients per hour for five days per week thus providing the following number of consultations per annum:

$$1 * 5 * 8 * 5 * 50 = 10,000$$

It is proposed that the facility be structured to treat around 160 to 200 patients per day by providing treatment rooms for four to five pain technicians. This unit would provide the following annual consultations and service 78% of the above discounted primary market:

$$200 * 5 * 50 = 50,000$$

The secondary catchment area increases the population to be treated to about one million generally. The Gold Coast population is 500,000 and expanding south and also north into southern Brisbane provides a much larger service population.

In view of the specialised nature of cancer and cardiac clinic services and their very high demand for pain management, a pain clinic of the nature now being outlined and attached to such a facility would require planning with the view to expansion.

A specific market exists by selling programs to the Social Services Department and the Workers Compensation Department. These programs involve assessment, treatment, rehabilitation, re-education and then a final assessment to be reported back to the respective Department.

EXPANSION

It is generally felt that the greatest pressure for expansion would arise in the treatment room facilities. Most other elements could manage increase usage without the need for physical expansion.

One pain technician would increase the number of his patients by about 1,000 per annum. An average patient has 3.9 complaints over 5 years. Of all patients, 15% show no improvement after treatment, 50% - 60% are cured and the residual require continual treatment.

TREATMENT AREAS

- HYDRO TREATMENT

A heated pool of 25 metres by 8 metres would have to be dedicated exclusively for this facility. The temperature of the pool has to be maintained at 30°C and the air flow above the pool has to be at a minimum and warm to avoid spasms and chills. Observation via a glass wall in the pool would be an advantage.

A dedicated spa is also required.

The equipment available for hydro treatment would need to be:

Ramps for entrance and exit, floatation devices, showers, footbath, changing stalls, seating, seating in the pool, guide rails, non slip surfaces and mechanical lifters.

- RE-EDUCATION

A gym equipped with Nautilus would be designed to service:

Backs	60%
Necks	30%
Other	10%

Additionally pulley setups, climbing frames, floor mats, limited number of mirrors would be required. The gym could be used for commercial uses at night as well as for aerobics.

Ergonomics requires physiotherapy and occupational therapy. Ergonomic training requires a skilled

occupation therapist.

A video laboratory would require a four room unit set up as an office, kitchen, bedroom and workbench as the highest requirements come from people who are:

Office workers
Housewives
Light Industry workers

The question of requirements of heavy industry requires further consideration.

- AFFERENT STIMULATION

This is the highest usage area and run by the Pain Technicians. One Technician requires a nurse assistant and five consulting rooms as he will treat five persons per hour and each person will occupy a consulting room for one hour at a time and usually will attend for ten sessions. Additional rooms will be used by patients requiring additional treatment, e.g., physio, counselling, relaxation training.

Each room should be 3 metres by 3 metres and have windows though high windows into corridors are fine.

Treatment will involve:

ACUPUNCTURE – Given the ‘nod’ by the National Health & Management Research Council. Usually effective in 60% - 80% of suitable cases. Is practised increasingly by the medical professionals and is in high demand from patients.

TNS – Transcutaneous Nerve Stimulation. Application of electrodes to skin and selected defined sites. Not as effective as Acupuncture but “respectable”. (Marketing of home use devices is high in this treatment.)

TRIGGER POINT INJECTIONS and other manoeuvres such as spray and stretch, followed by stretching and rehabilitation of muscles, effective for myofascial problems (very common).

- RELAXATION TRAINING

A lecture theatre capable of accommodating thirty patients in reclining chairs would require a room 10 metres by 10 metres. Should include projection and sound facilities. Biofeedback equipment, e.g., Temperature Monitors, EMG, GSR would be innovative and give a Beyond 2000 appearance.

Individual rooms would be required by psychologists for individual counselling. Probably could use some of the pain technique treatment rooms. (Would allow close interrogation.) Also would require formal assessment room. Specialist rooms should be positioned above the Pain Clinic complex.

- ISOLATION TANKS, only a small proportion of patients would required them. However very effective for relaxation training. Three or four units required.

- PROCEDURAL COMPLEX, doesn’t need to be dedicated. Pain Clinic would require access to:

Day Theatres for nerve blocks, epidurals and joint injections.

Major Theatres for laminectomies, sympathectomies, etc.

REFERRALS REQUIRED

Pain patients would be represented in three groups:

Musculoskeletal	90%
Neurological	5%
Malignant	5%

The Pain Clinic's core personnel would include Psychologist, Occupational Therapist, Physiotherapist and Pain Technicians with further referrals having to be made to the following specialists by groups:

- MUSCULOSKELETAL patients would require the referral services of:
 - Rheumatologist
 - Orthopaedic Surgeon
 - Neurosurgeon
 - Neurologist
 - Anaesthetist
 - Pharmacologist
 - Psychiatrist
- NEUROLOGICAL patients would require the services of:
 - Anaesthetist
 - Pharmacologist
 - Neurosurgeon
 - Psychiatrist
- MALIGNANT patients would require the services of:
 - Pharmacologist
 - Neurosurgeon
 - Psychiatrist
 - Psychologist
 - Anaesthetist

PATIENT MANAGEMENT

1. Patient presents to pain clinic.
2. Initial consultation is with the STREAMER
3. Patient is then directed to:
 - Either referral personnel, e.g., Rheumatologist, Neurologist, Neurosurgeon, etc., for an opinion and then to either or both of the next two units.
 - or
 - Psychologist, Psychiatrist, Occupational Therapist for assessment.
 - or
 - Direct to Pain Technician for treatment.
4. Pain Technician can enlist the aid of physiotherapist, occupational therapist, anaesthetist, etc.

5. After assessment and opinion, the Streamer should re-see the patient unless patient is directly referred to pain technician, occupational therapist, etc. for treatment.
6. All patients should be reassessed and further redirected by the Streamer after each treatment management course.

CORE PERSONNEL

A Director of the Pain Clinic would not be available for consultation by patients. The Director would oversee the activities of the Clinic.

The STREAMER's function would be to assess what services and to whom a patient should be referred to and ensure that the required services will be available and when. His duty is to ensure a high standard of usage as well as a high standard of medical service is provided. He should initially assess the patient and reassess after treatment course.

The Pain Technicians represent the critical element of the Clinic. There is probably no more than twenty specialist pain technicians in Australia. They must provide the following services:

Acupuncture.

Trigger point treatment and have an understanding of the need for relaxation treatment, rehabilitation, etc., place of nerve blocks, etc.

And have the following standard of qualification and experience:

Medical Practitioner

Therapy

China trained in Acupuncture

Years of soft tissue work.

Thus the core personnel would consist of:

Director and Streamer

Pain Technicians

(4)

Physiotherapist

Occupational Therapist

Psychologist

Physiotherapist would provide the following services:

Re-education, posture, muscle GPS strengthening, etc., mobilising and use the facilities of the gymnasium, hydro pool and spa.

Occupation Therapist would provide the following services:

Re-education of office work, housewife work, light industry methods and heavy industry methods. This is ergonomic retraining requiring simulated environments and video re-education.

Psychologist services would be:

Assessment

Biofeedback
 Counselling
 Stress seminars
 Relaxation training

A research assistant is required to monitor, evaluate and report on the program.

REFERRAL PERSONNEL

Grouped in descending order of probable demand:

Rheumatologist
 Psychiatrist
 Anaesthetist
 Neurosurgeon
 Orthopod
 Neurologist

The first two carry out assessment, the last three require CT facilities and the Neurologist requires NMRI facilities.

COSTS

The areas required are as follows:

24 treatment rooms 3 * 3 metres for pain technicians
 Gymnasium 15 * 20 metres
 Pool being 25 * 8 metres plus showers, toilets, change rooms, store room and surrounds
 Re-education room and video lab 15 * 15 metres
 Streamer office
 Occupation therapist office
 Physiotherapist office
 Office for five pain technicians
 Psychologist office
 Lecture theatre 10 * 10 metres
 Reception
 General administration
 Records
 Staff rooms
 Store rooms
 Toilets

Approximately 1,700 square metres

The equipment required is as follows:

Gym – Nautilus back, climbing frames, parallel bars, walk bars, exercise bikes, treadmill, wrist curly, biceps and triceps exercise units by Nautilus, mats, etc.

O.T.'s – Simulated work environment, e.g., office with VDU, desk, chair, filing cabinet, housework, bed, carpet, vacuum cleaner, sink, table, chair.

Pain Technicians – Freestanding bed of waist height, good light, a chair for clothing, a bench trolley for acupuncture supplies including needles, cotton swabs, iodine, alcohol, electrical stimulator, point detector and a timing device.

Psychologist – Biofeedback equipment including EMG, GSR, Thermocouple, 3 sets of each.

INCOME

The scale of fees per service are generally as follows:

	(all costings to be reviewed)
Streamer (GP) consultations would be	\$65±
Pain Technician visit	\$50+
O.T.	\$50
Physio	\$50
Psychologist	\$55

Abnormal costs associated with a pain clinic are as follows:

Servicing of equipment, disposables, e.g., syringe needles, local anaesthetics, electrodes, cleaning of pool, batteries.

A general assessment of the level of income to be generated from the complex once it is established in the market place is as follows:

Fees:	Streamer Fees	80 * 50 * \$65	\$260,000
	Pain Technician	50,000 * \$50	2,500,000
	Other Consultations		<u>2,500,000</u>
			5,260,000
Doctors Fees	50%	2,630,000	
Variable Costs	20%	1,052,000	
Fixed Costs	10%	<u>526,000</u>	
Operating Costs			<u>4,208,000</u>
Profit before			1,052,000
Specialist Fee Contribution			260,000
Contribution on Appliance Sales			<u>200,000</u>
PAIN CLINIC PROFIT CONTRIBUTION			<u>\$1,512,000</u>

PAIN & REHABILITATION UNIT

The unit derives its custom from:

Workers Compensation Board of Queensland
Commonwealth Rehabilitation
Other medical services and private.

State legislation (Workplace Health and Safety Act) requires every employer to:

- a. To establish a workplace health and safety management program.
- b. Employers with more than 30 staff, to appoint a health and safety officer (case manager).
- c. Every employee who is off work for 28 days must be enrolled in an approved rehabilitation program within that period.

Penalties under the act are as high as \$125,000.

This unit, as a consultant, can service requirements a. and b. The unit will provide the necessary rehabilitation program c.

The return to work rate is significantly higher should the employee commence treatment within 28 days of the injury whereas the return to work rate for those who commence treatment after six months is very much less (reference South Brisbane Workers Compensation Centre). The South Brisbane Centre has achieved a 64% “discharged fit for work” in its first year of operation.

Similar legislation exists under the Commonwealth Employee’s Rehabilitation and Compensation Act 1988 (Comcare).

“Comcare’s rehabilitation program is cost-efficient. Recent Telecom experience, using the Comcare model, demonstrated a yield of \$15 saved in compensation costs for every \$1 spent on rehabilitation. In Comcare, rehabilitation case plans are required for people off work for 28 days or more.”

Pain Management is a separate discipline.

Surveys indicate that 19% of individuals report that they “are currently experiencing pain or are regularly troubled with pain”. The individual pain prevalence rate for two weeks preceding a survey was 16%. Over 35% of households included one or more persons who “where currently experience pain or regularly troubled with pain”. The household pain prevalence rate for the two weeks preceding the survey was 32%. Females had higher pain prevalence rates than males, and pain prevalence rates increased with age.

Adelaide hosted the sixth world Congress on Pain during 1990. Two thousand delegates from sixty different countries attended. Comments published:

“Professor Cousins and Professor Bonica commented on the high economic costs of pain. For example, only about 10% of those with chronic pain return to paid employment. However, Professor Cousins claims that up to 60% could resume a ‘normal’ lifestyle with proper pain management programs.”

“In chronic non-cancer pain, Professor Cousins said that multidisciplinary pain centres offered the potential to treat more than 60% of chronic pain problems and to return patients to a productive life including an ability to return to work.”

The Southport Branch (Gold Coast) of the Queensland Workers Compensation Board (Workcare) receives in excess of 5,000 new claims per annum. A similar number of claims occur for Commonwealth Compensation (Comcare). The majority of chronic cases are referred to Brisbane, capital of Queensland, for treatment.

The Pascas Health Sanctuary Pain & Rehabilitation unit is modelled after the most successful units in the world. This status was confirmed during the World Congress on Pain in Adelaide.

The Unit will be accredited to an Australian University and will function as a teaching and training centre resulting in degree courses being completed at the centre.

Patient visits are lengthy in as much as they:

- a. Receive treatment from a number of specialists during each session. Initial sessions could be as long as seven hours.
- b. Return visits are always one hour or longer.

A substantial ratio of patients are brought to the centre by others as the patient is frequently unable to drive themselves. This ratio would be around 30%.

Treatment sessions will typically follow the “Program Process” as per the defined chart. Initial interviews with the patient will involve a number of medical disciplinarians who then determine a program for the patient. The patient, on return visits, will often be treated by a number of practitioners such as pain technician, physiotherapist, occupational therapist and a visiting specialist, such sessions being from an hour to a full day at the centre.

The centre is administered by a Rehabilitation Medical Officer who is a qualified doctor having specialised in pain and injury programs. Programs are determined and administered by him, he is known as the “streamer” because he is the link between all specialties.

Pain Technicians are qualified doctors who have specialised in pain management.

The rehabilitation functions undertaken by Occupational Therapists, Physiotherapists, Psychologist, Dieticians, Hydrotherapists and are backed up by an Employer Liaison Officer. Assessment of the work place and the injured employee’s work procedures need frequently to be modified to enable the employee to return to work.

Visiting Medical Specialists will be required by some patients from time to time, these specialists are:

Rheumatologists
Psychiatrists
Anaesthetists
Neurosurgeons
Orthopods
Neurologists

The centre encompasses all the elements and standards of the world leading pain and rehabilitation centres.

ASSESSMENT OF LONG TERM TREATMENT OUTCOME OF AN AMULATORY PAIN CLINIC
by the University of Texas, Dallas:

Aim of Investigation: Management of chronic pain is a time consuming costly program. Treatment outcome should be assess through extended follow-up to determine the long term effects of the pain therapy hence the cost effectiveness of the program. This presentation is a continuation of a previous study which examined the pre-treatment variable with the treatment outcome. Furthermore, treatment modalities which are likely to be beneficial to the patients are also evaluated.

Methods: Subjects were 180 patients (176 males, 4 females) with chronic non-malignant pain. Pretreatment evaluation includes medical and psychological examinations and social worker interview. Treatment is individualised and may consist of trigger point injections (TPI), Transcutaneous electrical nerve stimulation (TENS), exercise, weight control, adjusting medications and stress management. Patients were referred for vocational retraining or socio-economic assistance, or psychiatric treatment when needed. Follow-up is during a period of 3 to 13 years through clinic visits, record review and telephone contact. The criteria for outcome determination were based on self-reported pain relief, coping ability, medication intake, employment status and health care utilisation.

Results: Two thirds of the patients followed regularly in this clinic obtained moderately to most favourable benefit. These patients presented with demonstrable physical pathology and no significant psychopathology, were employed or had a good work history. Conversely, one third of the patients responding poorly to treatment were likely to be unemployed, receiving or seeking disability compensations. Significant psychopathology with or without physical pathology, maladjustment and behaviour problems were seen in the latter group. Trigger pint injections, TENS, and exercises are beneficiary treatment in pain of myofascial origin. Patients with neuropathic pain obtained relief from peripheral local anaesthetic blocks at 4 to 6 intervals. In some patients the relief was progressively prolonged as the treatment continued.

Conclusion: Long term effect of pain therapy is favourable in most patients.

The Health and Healing Sanctuary Pain Clinic will operate within the above philosophies.

The function of each room in the centre is as follows:

Rehabilitation Medical Officer (Streamer)

Initial interview with patient accompanied by:

Employer Liaison Officer

Occupational Therapist

Physiotherapist

Other professionals as determined

a program is then determined.

Pain Technician (Medical Doctor)

He has his own office / treatment room and also three support treatment rooms. A patient will typically have ten treatments of one hour in duration each.

Physiotherapist

Has own office / treatment room plus a screened area at the end of the gym for treatment of four patients.

Occupational Therapist

Has own office / treatment room. The gym is used to undertake rehabilitation exercises and programs.

Hydrotherapist

The therapeutic pool is used for special exercises in controlled heat. The pool improves buoyancy and balance.

Employer Liaison Officer, Psychologist, Dietician

All support programs as set by the Streamer.

Visiting Specialists

Three surgeries are provided on the mezzanine floor and specialists will be called to compliment the rehabilitation program as determined by the Streamer.

Conference / Lecture Hall

Being on the mezzanine floor, group therapies and lecture sessions will be run according to the programs set down by the Streamer.

PASCAS HEALTH SANCTUARY – BLOOD PURIFICATION CLINIC:

Blood Purification System



These unique systems (above) have been developed over 22 years of intense research. They have been tested in several invivo studies involving thousands of patients.

The unique molecular structure of oxygen atoms have several therapeutic and healing mechanisms when introduced into the patient's blood. They have antiviral, antibacterial, antiprotozoic and antifungal applications.

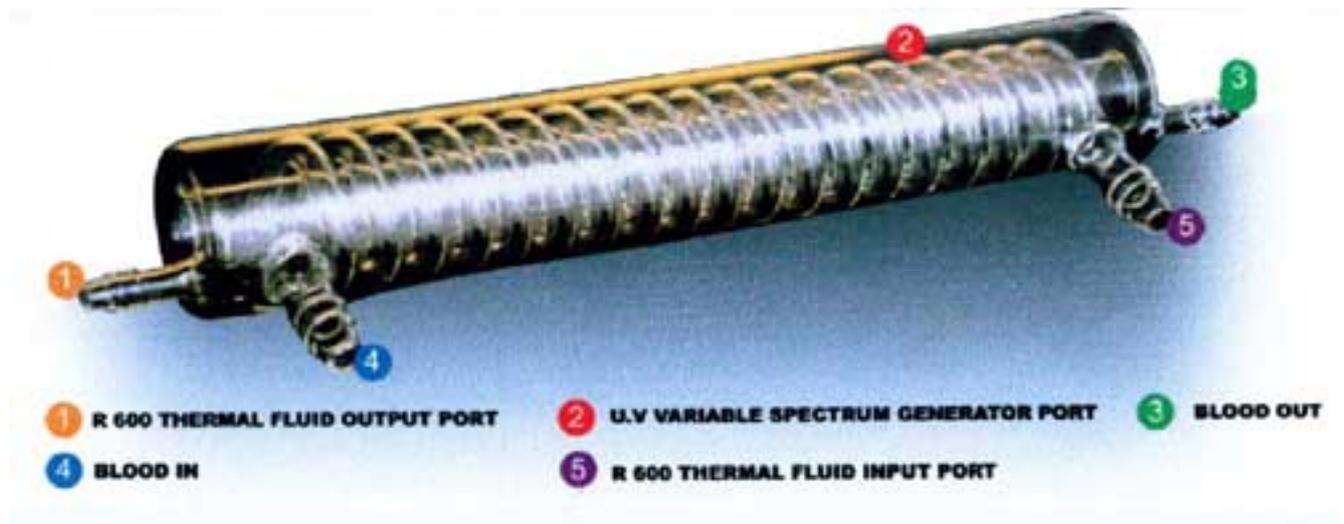
Primarily there are two ways that the treatment can be applied. One is by IV injection, that is known W.D.D.S. (Wainwright Direct Delivery System). The other is the Apheresis process, 'similar to dialysis', where the blood is drawn from the patient in an extra-corporal loop and by using a specialised mixing chamber as pictured below.

The pre-saturated oxygenated blood, is then converted into varying forms of molecular oxygen, within the blood itself, and transported over the entire systemic system. The healing mechanisms are a function of Ionization, Oxidation, plus the denaturing of the protein structures of diseased cells, inhibiting target ligand viral attachments. Oxidation will also breakdown the lipid membranes of infected cells. There are numerous other combinant forms of molecular reactions, which occur in the eradication of diseased tissue and cells.

A major contribution in which this new blood purification system can be applied, is in the treatment of stored blood and blood components, particularly in the application from donor to bag, from bag to bag, and from bag to recipient. Proven efficacy of the technology has been in the total elimination of other viral and biological warfare proteins.

One of the most important mechanisms of this process is in stimulation of the immune system and the detoxification of bodily functions. The application of these treatments are very easily applied, allowing doctors and nurses to be trained comfortably within 72 hours by fully competent international trained personnel.

SEEN ABOVE IS THE MOST ADVANCED BLOOD PURIFICATION SYSTEM IN THE WORLD.



These unique blood purification units (above) will also eliminate cellular mechanical shear, which is caused by forcing blood cells through a multitude of hollow fibre semi permeable membranes. Although not shown in the photograph above, there are two ferrite clamps providing alternating electromagnetic field polarization, breaking down all the nitrogenous components within the blood by destabilizing their subatomic structures, all renal and peritoneal dialysers (without exception) cause significant amounts of cellular trauma upon the blood entering the membranes. As can be seen from the above picture, the blood is merely recirculated through the capillary coil and the pre-supersaturated oxygenated blood, is then subjected to four incrementally spaced UV frequencies in the nanometer range.

These four frequencies are spaced at 60 millisecond separation, and convert the pre-supersaturated oxygenated blood into Molecular Oxygen within the blood itself (O₂, O₃, O₄, O₈), providing a very effective antiviral, antibacterial, antifungal and antiprotozoic elimination process. This new blood purification process also provides a thermal temperature control for the blood flowing through the UV mixing chamber. This blood purification system can also effectively breakdown all the nitrogenic and toxic components in the blood, into harmless absorbent non-toxic components, without applications of Ionic fluids or any other separation processes.

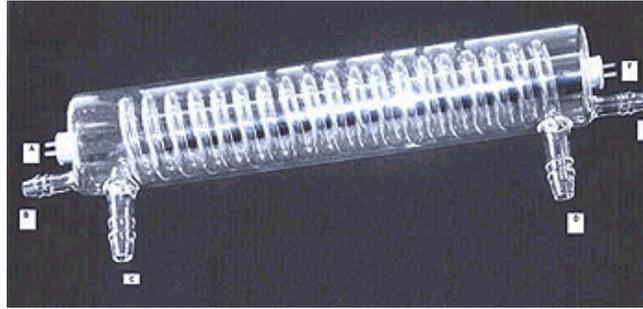
LIST of DISEASES that can be SUCCESSFULLY TREATED using APHERESIS

Acne Rosacea	HIV
Arthritis	Hypercholesterolemia
AIDS	Internal Haemorrhaging
Alzimers	Irritable Colon
Anthrax	Japanese Encephalitis
Arthrosis	Joints
Asthma	Laryngitis
Athlete's Foot	Lesions
Bacterial Infections	Liver
Bed Sores	Liver Cancer
Bladder Infection	Lung infections
Brain Cancer	Lymphoma
Breast Cancer	Marburg Virus
Bronchial Asthma	Malaria

Burns	Menopause
Cardiovascular Diseases	Multi Sclerosis
Cerebral Cancer	Muscle Cramps
Chronic Fatigue Sdyndrome	Mycosis
Cirrhosis of the Liver	Optic Nerve Disorders
Circulatory Disturbance (arterial)	Orthopedics
Circulatory Disturbance (venous)	Osteomyelitis
Climacterium	Parasitical Infections
Cold & Flu Virus	Parkinson's
Colon Disorders	Pneumonia
Constipation	Polyarthrits
Cytomegalovirus	Polio Encephalitis
Cystitis	Prostate Cancer
Decubitus	Radiation (effects thereof)
Dental Applications	Raynud's Disease
Depression	Respiratory Stress
Diphtheria	Respiratory Viral Infection
Epidermohyton	Rift Valley Fever
Eboli	Scar tissue
EBV	Segmental Pain
Epithelium Infections	Shingles
Exhaustion	Skin Cancer
Fatigue	Skin Infections
Fibroid	Spondylitis
Fibromyoma	Stomatitis
Fistulae	Sudeck' Disease
Fungus Infection	Throat Glandular Infections
Furunculosis	Thrombophelibitis
Gangrene	Thyroid
Genital Discharge	Tuberculosis
Geriatrics	Tumour
Hashimoto's Thyroiditis	Typhoid
Haemorrhagic Disease	Ulcus Crusis
Heavy Metal Poisoning (Mercury)	Varicosis
Hepatitis A B C D E F	Viral Infections
Herpes Genitalis	Yeast Infections
Herpes Labialis	Yuppie Disease
Herpes Zoster	

Covered by World Patent Application

Detailed Information About Blood Purification System



This unique system can effectively breakdown all the toxic components in the blood into harmless absorbent non-toxic components, without applications of ionic fluids or any other separation processes.

These unique blood purification units will also eliminate cellular mechanical shear, which is caused by forcing blood cells through a multitude of hollow fibre semi permeable membranes. Although not shown in the photograph above, are two ferrite clamps providing alternating electromagnetic field polarization, breaking down all the nitrogenous components within the blood by destabilization their subatomic structures.

All renal and peritoneal dialysers (without exception) cause significant amounts of cellular trauma upon the blood entering the membranes. As can be seen from the following picture, the blood is merely recirculated through the capillary coil and the pre-supersaturated oxygenated blood, is then subjected to four incrementally spaced UV frequencies in the nanometer range. These four frequencies are spaced at 60-millisecond separation, and convert the pre-supersaturated oxygenated blood into Polyatomic Oxygen within the blood itself (O₂, O₃, O₄, O₈). Providing a very effective antiviral, antibacterial, antifungal & antiprotozoic elimination process. This unique blood purification process also provides a thermal temperature control for the blood flowing through this new purification cellular system.

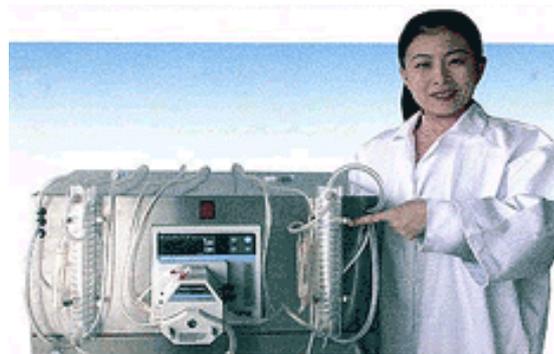
World patents pending

- A) Internal UV Transmission Unit
- B) R-600 Thermal Control Fluid Input
- C) Blood Input
- D) Blood Output
- E) R-600 Thermal Control Fluid Output
- F) UV Internal Transmission Unit

All intellectual property rights relating to these technologies are the sole right of Basil Earle Wainwright and/or his nominees.

New Unique Blood Purification System

In relation to the former blood cell purification technology, tests were performed recently to determine the efficacy of this process.



Overseen by many experienced and professional medical personnel, the results were incredible. Complete elimination of all foreign proteins was scientifically achieved, following which, exhaustive testing was conducted on all the cellular components and no deleterious effects were seen.

This technology will eventually revolutionize the medical establishment of treatment applications for numerous diseases and because of its effectiveness in the removal of toxins; this process can be used for Renal & Peritoneal dialysis.



A Non Pump Driven Recirculatory Blood Purification System

In all extra corporeal loop blood transfer procedures, a peristaltic pump is used. The pump creates both a vacuum and pressure as a result of electrically driven roller compression and decompressing the blood contained within the extra-corporeal loop tubing.

The former creates wave like movements, pushing the blood forward. This process creates cellular trauma and mechanical shear of the cells and will only allow a typical 300mls/min.

It is well known that the heart circulates typically ten units of blood per minute (2.16 litres/min). For many years, scientists and Doctors have struggled to devise a system whereby the heart will provide the appropriate blood volume and the pressure for the extra corporeal treatment applications.

The inventor of this system has overcome the difficulties which previously existed.

This technology when used with the Wainwright Blood Purification cell uses the patient's heart to provide the appropriate flow without utilising any external pumping means by inserting two Cannula's. These are specially designed for insertion into a blood vein or artery.

The outer tube is made of Teflon. The inner tube is made from N303 stainless steel and is a sharp pointed needle form.

It is the former, which facilitates the insertion and is withdrawn leaving the outer Teflon tube in place. This is then connected to the bloodline (Venous or Arterial), which then allows the blood to enter into the input port of the Wainwright Blood Purification Cell.

Following flushing of the cell and loop, one must establish a total embolism free blood output.

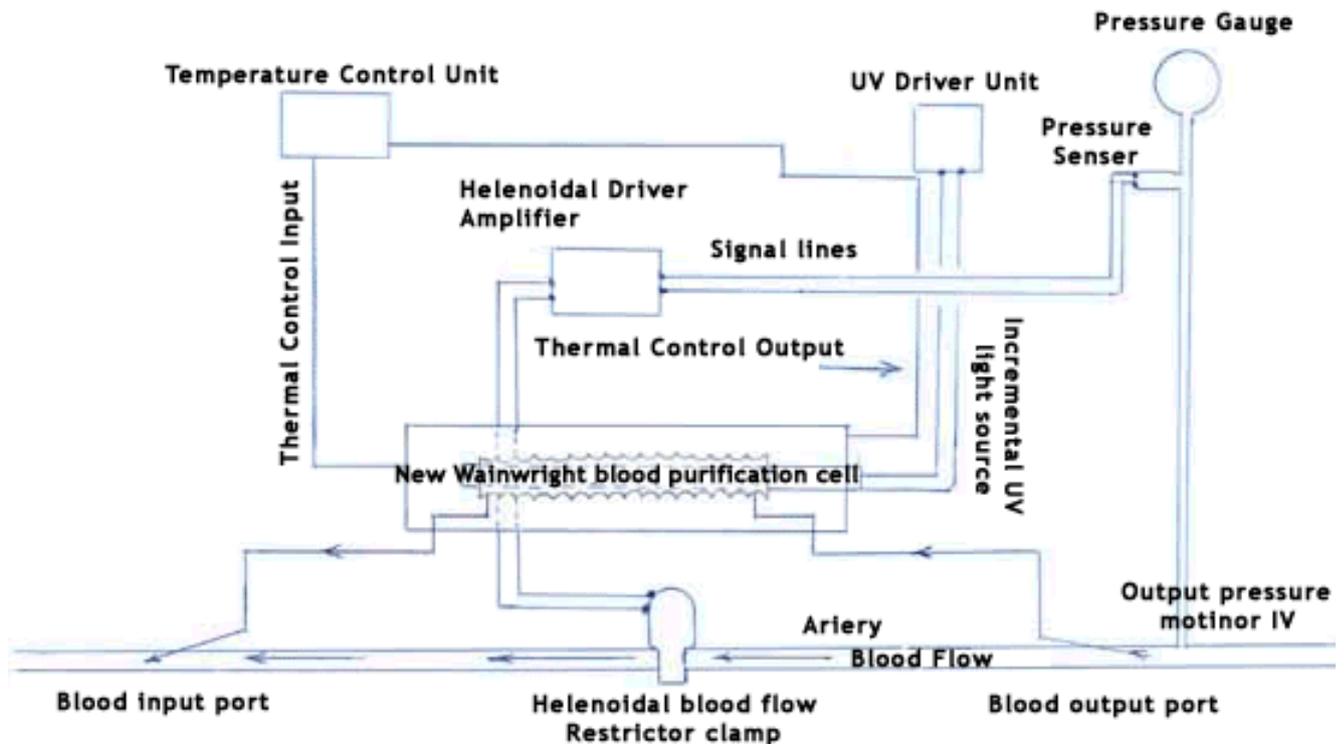
This output is then connected to the return Cannula.

To ensure good Blood flow, it is essential that the intrusion of the output IV is contra to the blood flow. Prior to this point, the patients diastolic and systolic pressures are constantly monitored by the pressure sensor system.

The information of any increase or decrease in blood pressures will be conveyed to the helonoidal blood flow resistor clamp and immediately, activates the helonoidal valve adjusting blood pressure parameters.

To ensure the blood pressure parameters are consistent at all times, a continuous blood monitoring sensor will automatically adjust any variations thereof, Helonoidal restrictor clamp placed between the output and input Cannula IV sites.

To ensure good blood flow, 14 gauge cannula ports are recommended. Pre-flushing of the self-circulatory extra corporeal loop, must take place prior to the blood return line being connected to the patients return IV port.



PASCAS HEALTH SANCTUARY - MEDICAL ADVISORY COMMITTEE:

The medical advisory committee has a number of functions:

- a. Provide advise to the administration of the complex.
- b. Set the levels for ethics and skills.
- c. Endorse medical providers to use the facility and reject those who do not possess the standards set by the medical advisory committee.
- d. Advise on the equipment and physical assets required to enable the medical teams to function at the level set by the committee and the administration.
- e. Assist in ensuring that all proposed medical services are provided and at the highest possible standard.

A representative would be appointed from each department and the appointees then elect their chairman. A Leader will act as liaison officer between the committee and administration.

MEDICAL TEAMS:

Based around their various disciplines and frequently with over lapping boundaries:

MEDICINE	Endocrinology Paediatrics Respiratory Oncology Haematology	(Diabetes - Thyroid - Endrenal) Cardiology Renal Medicine (crosses over to all sections) Dermatology
PATHOLOGY	DIAGNOSTICS	RADIOLOGY
SURGERY	Neurosurgery Urology Trauma Surgery In-Vitro Fertilisation Ophthalmic Surgery Plastic & Reconstructive Surgery	Ears Nose & Throat Orthopaedic Gynaecology General Surgery Dental & Faciomaxillary Surgery Cardio Thoracic
ANAESTHETICS	Anaesthetics Intensive Care - Coronary Care	Pain Clinic
EMERGENCY	Crash Team	Ambulance

These teams will be drawn from the more than 200 medical specialists and 550 general practitioners practising on the Gold Coast, the specialists practising in the capital city of Queensland, Brisbane, 80 kilometres to the north, and from throughout Australia and overseas, such teams are notionally available now however they will be expanded and added to during the construction period of the Complex.

PASCAS HEALTH SANCTUARY – HOSPITAL PROFESSIONAL MEDICAL TEAMS:

Briefing notes by a leading Medical Specialist who acts as liaison officer and is instrumental in establishment of various medical advisory committees consisting of 12 to 22 members:

The team concept as per these headings for a Hospital & Clinic goes like this:

NEUROSURGERY:

A neurosurgical team includes neurosurgeons capable of dealing with intracranial, spinal and peripheral neurological disorders. They are supported by neurophysicians for diagnostic work as well as radiologists and various therapists who are involved post-operatively. A neurosurgical team also requires that there be nursing staff with expertise in the management of neurosurgical cases.

EARS, NOSE & THROAT - ENT:

In addition to orthodox ENT surgeons there is a need for an endoscopic sinus surgeon, laser surgeon, head and neck surgeon, along with support and speech pathologists, speech therapists, radiologists, etcetera.

UROLOGY:

Surgeons and urologists co-operate most frequently in the discipline of urology. A urologist with paediatric experience or a paediatric surgeon with urological experience is also essential as well as support physiotherapists etcetera.

ORTHOPAEDIC:

General orthopaedic surgeons would be needed plus arthroscopy experts, hand surgeons, microsurgeons, trauma surgeons. Physiotherapy and orthopaedic surgery can't survive without each other.

TRAUMA SURGERY:

Trauma surgery is a special consideration as the Hospital will have a busy accident and emergency department so there needs to be readily available general surgeon with trauma experience; orthopaedists, neurosurgeons, etc, twenty-four hours a day to back up the Accident and Emergency (A & E) department and with the ability to call in other surgical disciplines as required for example, ophthalmic, plastic, etcetera.

GYNAECOLOGY:

Gynaecological surgery is now split into general gynaecology, cancer surgery, endoscopic surgery, colposcopic and laser surgery. Either way, the hospital will require several experts or gynaecologists with multiple expertise.

IN-VITRO FERTILISATION - IVF:

There is no mention of IVF in the projected work areas and this may well be of consideration for Pascas Health Sanctuary. For IVF there is need in addition to endoscopic surgical expertise, a dedicated

laboratory support team for efficient function as well as support counsellors, etcetera.

Radiology / ultrasound are an integral part of gynaecological services these days.

GENERAL SURGERY:

General surgeons have split their expertise so there are now colorectal surgeons, breast and endocrine surgeons, vascular surgeons, endoscopic surgeons, and so on. Their teams include radiology / ultrasound, alimentary tract endoscopists, endocrinologists, pathologists, physiotherapists, etcetera.

Paediatric surgery is a highly specialised area which encompasses endoscopic surgery as well as plastic surgery and requires special theatre facilities and post-operative care teams.

OPHTHALMIC SURGERY:

Eye surgeons now specialise in the anterior and posterior chamber of the eye, plastic and reparative / corrective surgery, laser surgery, lens extraction and implants, and work on a mix of day case and inpatient care. They require orthoptists and trained ophthalmic nursing staff as part of their team.

DENTAL and FACIOMAXILLARY SURGEONS:

They work in the same area and need radiological, pathology and physiotherapy support. General Dental is equally as important as Special Dental for dentures, crowns, bridges, etc., incorporating Periodontic and Orthodontic.

PLASTIC and RECONSTRUCTIVE SURGERY:

Plastic and reconstructive surgeons include microsurgical repair teams, reconstructive surgery and head and neck surgeons who again require radiology, pathology, physiotherapy and special nursing care staff.

CARDIO THORACIC:

Cardiac by-pass surgeons need the assistance of cardiologists, radiologists, perfusionists as well as physiotherapists and highly skilled intensive care nursing personnel.

This list is not exhaustive but aims to provide an idea of the teams that are required for the various surgical units that Pascas Health Sanctuary will establish from within the Gold Coast, Brisbane and elsewhere during the construction and fitout period.

You will note that there are particular support disciplines common to all surgical teams - for example, radiology, anaesthetics, physiotherapy and nursing care.

For many of the surgical disciplines specialised nursing skills are required - for example, ophthalmic, orthopaedic, paediatric and so forth.

ONCOLOGY - CANCER:

When looking at the relevant cancer treating teams you add to the basic unit specialist radiotherapists as well as radiologists and these are two separate areas of expertise within the frame work of radiology, chemotherapy specialists and pathologists, counsellors and support staff and the usual management goes like this:

A patient is diagnosed with a malignancy. Pathological confirmation is obtained and the relative oncology unit usually considers the individual in committee and allocates a therapeutic management protocol for the ongoing care of the patient. For this purpose special specific discipline oncology clinics are held where follow-up is also maintained after initial treatment. These clinics are usually held on a once a week basis and there would be in attendance, for instance say for gynaecology, the patients gynaecological cancer surgeon, radiotherapist, chemotherapy specialist, support nursing staff or counsellor and pathologist.

These special discipline teams usually meet on a weekly basis where they see new cases and follow-up cases and of course function all year round.

One reason why it is important to make sure there is two of every type of surgical specialist on the staff is that there is always people away on leave or at courses and so forth, and if there is only one person then everything grinds to a halt during their absence, whereas if with at least two then these clinic service go on irrespective.

A Cancer Clinic complex consists of facilities to service the 20 sub-clinics that make up an Oncology unit.

CARDIOLOGY:

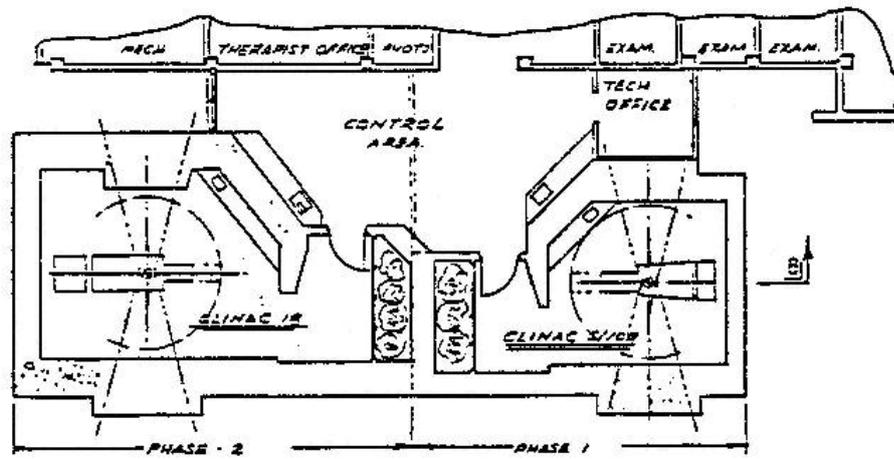
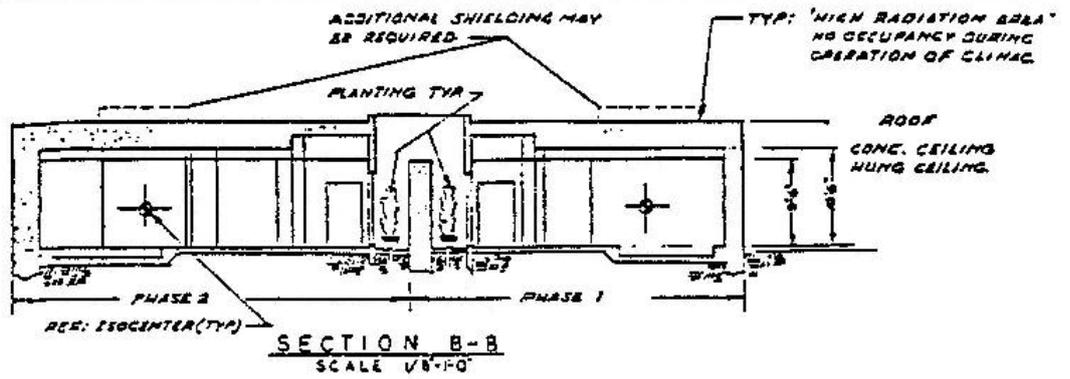
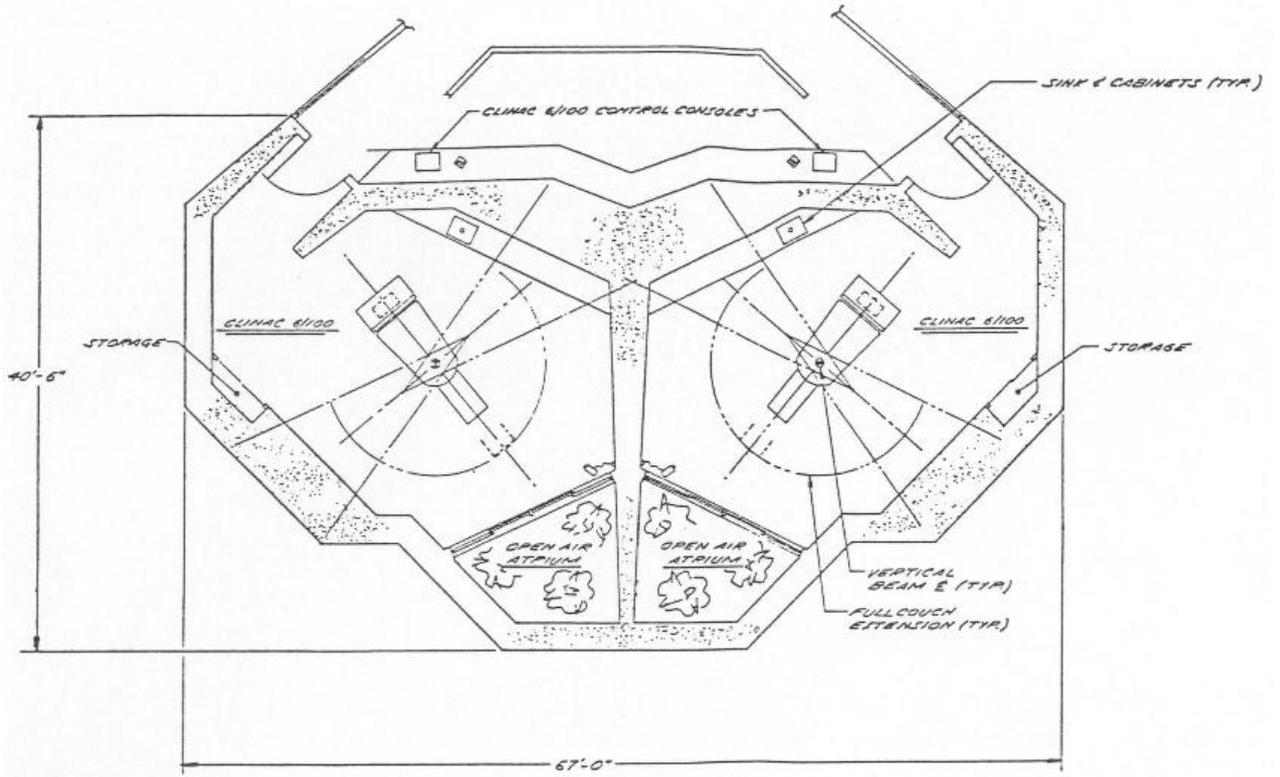
Similarly with heart disease patients, the diagnosis involves triage by clinical history and examination, stress test, angiography and perhaps nuclear medicine, and then a committee of the cardiology clinic may allocate individuals to different therapeutic programs - for example, angioplasty or CABG surgery or palliation only, etcetera.

Within the cardiology clinic there will therefore need to be cardiologists, interventional cardiologists, radiologists, cardiac surgeons, as well as anaesthetists with specialised skills and perfusionists, physiotherapists, dieticians, psychologists, etcetera.

RADIOTHERAPY UNIT: (not part of a Pascas centre)

A steering committee consisting of Radiation, Haematology, Medical and Nurse Oncologists would proceed to establish guidelines, working rules and safety procedures. Support can be drawn from the likes of Malcolm Millar of the Peter McCallum Institute, Dr David Paix, consultant medical physicist from Adelaide, Dr Bernie Mason & Dr Liz Kenny of Wesley Cancer Care Centre and Dr Roger Allison of Queensland Radium Institute.

There will be a need for two of everyone covering radiation oncology, medical oncology, radiographers covering planning and treatment, nursing staff that are oncology trained in therapeutic radiation, physicists, x-ray engineers and pharmacist - pharmacy must have laminar flow unit. Patient care has two groups, a day care unit to accommodate 10 in a quiet area with observation and the other being a cluster of wards for the more serious cases. A radiotherapy director is to be appointed.



ALTERNATE PLAN
SCALE - 1/8"=1'-0"
(FOR TREATMENT ROOMS)

**RADIATION FACILITY
DESIGN STUDY**

DIRECTOR of MEDICAL SERVICES

Each clinical service will have its own director who, in turn, are to be supported by a Director of Medical Services as appointed by Pascas Health Sanctuary.

MEDICAL SPECIALISTS RETURNING TO AUSTRALIA from OVERSEAS POSTS:

Ambitious and dedicated Australian medical specialists frequently depart from these shores to achieve higher skills and accreditation in world renowned medical institutions in USA and Europe. This going and returning results in superior medical teams in the main hospitals in Australia.

A review of a number of specialist's status in the cardiac and oncology teams in the Brisbane specialty hospitals has revealed a proliferation of world accredited and respected specialists.

As an example: Dr Nick Little is now returning to Australia having achieved accreditation as a radiologist specialising in chest pain services with the Mayo Clinic in USA.

During the ensuring construction period and commissioning of the Centre, such Australian specialists who are overseas and are completing their program will be approached for the purposes of joining the speciality teams at Pascas Health Sanctuary.

PASCAS HEALTH SANCTUARY – X -RAY UNIT:

DIAGNOSTIC SERVICE

The X-Ray Unit is possibly the most important and most expensive diagnostic unit within the total complex. The unit requires a wide range of equipment not only within the department but mobile units within the Theatre suites.

Access to the Unit has to be from:

1. The emergency / casualty service department and being direct.
2. Outpatients being referred by Doctors within the complex and outside the complex.
3. Inpatients being brought from the wards for examination and emergency service and support for the Theatres.

EMERGENCY

Emergency patients should not be moved long distances from one hospital department to another during crucial times in their fight for life says American radiographer Mary Lou Durizch.

And she says the best set-up for saving lives is often in smaller hospitals where the radiography department is next to the emergency room.

EQUIPMENT SUPPORT

An engineers office is to be set up within the hospital to enable bio-medical engineers to maintain the equipment on site. The room should be 4 metres by 4 metres and this would enable most maintenance and repairs to be carried out on site.

It is proposed that the Hospital would employ its own technician though he would be trained by the major equipment supplier for the department.

Service contracts after the initial 12 months warranty are 7% of the unit cost per annum however these can be negotiated down to 4%.

Steve Shapter, the past General Manager of the Medical Division of Toshiba (Australia) Pty Ltd (Bs 02 9887 3322 - current General Manager is Rosina Davies) has proposed that Toshiba would pay the Hospital for the use of its facilities for making the centre a training unit for Toshiba. About 20 technicians are trained at a time and they would be disbursed to all over South East Asia, Australia and New Zealand. The concept has merit in as much it will assist in the promotion of the complex in export market areas.

EQUIPMENT SUPPLIER

The best deal is to be struck with a supplier who can provide the widest range of equipment at the best price. Equipment must be compatible such as the CAT Scan must be compatible with the Linear Accelerator.

A one supplier situation will enhance maintenance as responsibility will be with one firm and economies in maintenance can be achieved as outlined above as well as the speed of the maintenance.

The supplier will have to actively promote our facility locally and overseas.

MAGNETIC RESONANCE IMAGING

Apart from its very expensive price tag of up to \$2.2 millions and the lack of any refund to Medicare patients, it is clear that the equipment is under going continual rapid development and that the correct time to review an acquisition would be in 1996. Rapid enhancements are being made to programs as well as the hardware which would put current models in the dark ages within two years.

MRI has the lead over CT's in the neurological department. It is clear that MRI can carry out a number of investigations that CT can not do as well.

Dr Simon Strass states that he experienced the need for at least two patients per week requiring the services of MRI. A survey of a wide range of Doctors is required to be undertaken.

As of June 95, Royal Brisbane and Princess Alexandra provide MRI services to the public for free.

Space must be provided within the complex such as for MRI Spectroscopy.

EQUIPMENT SUPPLIER

They are:

- Toshiba
- Fischer Imaging Aust
- General Electric
- Hitachi
- Phonar
- Seimans
- Philips
- Elscint Medical Equipment

CAT SCANS on the GOLD COAST

They are:	GE	(GE MRI 1.5 Tesla)	John Flynn Hospital
	Picker	Gold Coast Public	
	Toshiba	TCT 80B	Tweed Heads Public
	Toshiba	TCT 400s	Private Practice 4
	GE 9800	Pindara	
	GE 9000	Allamanda	
	Picker 1200	Allamanda	

STANDARD OF CAT SCAN REQUIRED

The computerised tomography of the Toshiba TCT 900S has the ability to:

1. Take 30 frames per second to produce a live image.
2. A computerised program that enables reconstruction such as of the face for plastic surgery.
3. Is compatible with Toshiba and Varian linear accelerators.
4. A service life of 10 years.

The Toshiba TCT Xpress/sx has a cost factor of \$1.10 million and one is installed at Prince Charles. An every day work horse such as a Toshiba XSpeed would cost \$400,000.

The best may not be economical as it will still take 30 minutes to process a patient. The high speed of the equipment with laser cameras does not get the patient in and out of the CT room any quicker.

FUTURE DEVELOPMENTS

An observation of St Vincents Private Hospital in Sydney was that after 11 years of operation the area for the radiology department was way inadequate.

The future will bring many developments to radiology and expansion must be planned for with additional space being available in the initial design and room to extend if need be.

OSTEOPOROSIS - an example

There is only one unit in Australia, at the Royal Adelaide Hospital.

Osteoporosis screening measures the bone calcium level with low level X-ray equipment. The service enables the treatment for calcium deficiency.

DIGITAL IMAGING STORAGE

At \$1 million it is not onbut inevitable, provide terminal space for archiving in the basement.

The system stores Xrays on micro discs. From consoles in the operating theatres, patient consulting rooms, the medical centre, the specialist suites, a doctor can access any X-ray of his own and carry out his diagnosis and consultation.

The system enables X-rays to be enhanced and the development onto film of unnecessary X-rays to be avoided.

The cost benefit is the reduced storage space.

The system has consideration when it comes to the stage of medical and patient files of the Hospital. It is believed that a 300 bed hospital will require 300 square metres of storage per annum for medical files.

DEPARTMENT MANAGEMENT

The head radiologist is paid a fee of 12.5% to 15% of the gross receipts of the department.

Hugo Mackay, Phone 02 9639 4366, Baulkham Hills 02 9601 4333, Liverpool 02 9212 3547 Sydney, has successfully carried out this function in Sydney and the Gold Coast and is well suited to do the same for the Pascas Health Sanctuary.

OVERHEADS

(all costings to be reviewed)

The following costs relate to a comprehensive but unsophisticated Radiology Unit:

	Monthly
Administration	\$1,000
Contrast Media	600
Film & Chemicals	1,700
Pharmaceutical	400
Printing & Stationery	500
Secretary (2)	1,400
Radiographers (2)	6,400
Overtime	1,000
Couriers	200
Repairs	500
Electricity	1,000
Telephone	400
Tubes (2 per annum)	4,000
Service Contract	6,000

Total Per Month	\$25,100
	=====

This unit billed around \$3,500 per day resulting:

Monthly Fees		\$70,000
Less Overheads	25,100	
Head Radiologist	10,500	
Rent	8,000	

		43,600

Net Profit		\$26,400
		=====

This unit does 10-12 CT's and 40-50 general cases per day. It should be noted that these cost factors and fees are relevant to a unit which is not in any way up to the standard of the Southern Cross unit.

It must be established that we will have to charge fees well in excess of scale to warrant the investment necessary to establish the services that we are looking to export.

REPLACEMENT

A replacement program should be adopted. In regards to CAT scans and ultrasound, these pieces of

equipment have a life span of five years subject to upgradability. By then maintenance and improved technology make them unattractive. The rest of the equipment being X-ray based has a life span of ten years.

Equipment under consideration from Toshiba is being reviewed on the following basis:

1. That enhancements can be added to the equipment purchased.
2. That there is a buy back arrangement to facilitate the installation of new equipment when there is a major enhancement released. This will enable Toshiba to continue to use our complex as a show and training centre.

Of all the equipment only a back up to the CAT Scan should be considered. A hospital of the size being proposed should have a backup CT Scan covering down time of the main unit and busy periods.

LOCAL MARKETING

The quality of reporting will be responsible for the success or failure of the Unit on the Gold Coast.

Analysing an independent radiology unit on the Coast as against the already established practices, two important points emerge:

1. There is no 24 hour radiology practice.
2. No one bulk bills.

The Coast has six medical practices covering the night hours and radiology only available by going to the public hospital or ringing around to find an on-call radiographer and still not having a specialist report as there are no on-call radiologists. South Coast Radiology is the dominant radiology group with a small unit available in Broadbeach, where General Practitioners report on the X-ray.

The facility should be marketed to all general practitioners from the point of view that the Unit is available for 24 hours a day and that the Doctor could instruct his / her patient in an emergency, over the phone, to proceed to the Unit and that reporting could be relayed by phone to the Doctor at his / her home should the situation arise.

Furthermore the high standard of the facility should achieve a major market penetration rapidly.

EQUIPMENT SCHEDULE

Costs and equipment as per Toshiba:

	(all costings and equipments to be reviewed)
MRI Flex Art	\$2,200,000
Cardiac Catheter Lab DFP 2000 C4	1,200,000
CT Scanner Xpress SX	1,100,000
CT Scanner Xspeed	400,000
Angiography Unit	800,000
Dual Head Gamma Camera GCA 7200	600,000
Fluoroscopy Room DUA	400,000
General Ultrasound Unit Power Version	300,000
Cardiac Ultrasound Unit Power Version	300,000

Mobile Image Intensifier SXT 650A	main theatres	140,000
Mobile Image Intensifier SXT 650A	day theatres	140,000
Mammography Unit	MGU-10A	115,000
General Xray Room	RXD Generators	100,000
Tomography Room	RXD	80,000
Mobile Xray Unit	RCD-12MC	50,000
Total		\$7,925,000

Other major equipment could be:

Monitoring equipment, ECG/pressures	\$160,000
Dark Room AGFA	\$50,000
Laser Camera	\$100,000
Osteoporosis	\$95,000
Lithotripter	
Linear Accelerator (10MEV)	\$1,000,000
Linear Accelerator (6MEV)	\$900,000
Simulator for Radiation Therapy (via CT Unit)	
Pathology Lab	\$500,000
Theatres etc	

REVENUE

Preliminary figures based on 300 bed hospital with 1 million catchment:

RADIOTHERAPY REVENUE

One linear accelerator handles between 40 and 50 patients per day, each patient receives on average 30 treatments being a treatment every week day for six weeks, the average cost of such treatment is \$3,000 (one unit per QRI). One linear accelerator will employ two radiographers on \$50,000 each pa, equipment maintenance and supplies \$100,000 to \$150,000 pa. Brisbane is serviced with 5 units at Royal Brisbane, 2 at Wesley and 2 at Mater, total 9 units.

TOTAL REVENUE per day	45	\$100	\$4,500
Number of days per year say 48 weeks at 5 days per week = 240 = Annual			\$1,080,000
Less operation costs 35%			378,000
Net Revenue before depreciation & interest			\$702,000

ROOM X-RAY UNITS	Case Load per Day	(all costings to be reviewed) Price per Procedure TOTAL	
General Chest	40	\$100	\$4,000
U/S General (2 rooms)	24	200	4,800
U/S Cardiac	10	200	2,000
CT	20	300	6,000
MRI	5	500	2,500

Fluroscopy	6	150	900
IVP (Tomography)	5	150	750
Angiography	5	400	2,000
Cardiac Catheter	4	1,000	4,000

TOTAL REVENUE per day \$26,950

Number of days per year say 48 weeks at 5 days per week = 240 = Annual \$6,468,000

Less operation costs 51% 3,300,000

Net Revenue before depreciation & interest \$3,168,000

RADIOTHERAPY & ONCOLOGY CLINIC:

MULTIMODALITY AND MULTIDISCIPLINARY RELATIONS:

Oncology services include cancer surgery, radiation oncology and medical oncology. Many patients require combined modality treatment and, for some time, the integration of these services in specialised cancer treatment centres or by multidisciplinary teams has been advocated. The care of the cancer patient necessitates access to a wide range of medical specialists and the expertise of a diversity of other professions including specialist nurses, radiographers and counsellors. A comprehensive service requires the development of special groups with expertise in treating cancer in special anatomical sites such as the breast, colon, lung, lymph glands, urological sites, and head and neck. Full facilities for supportive care, pharmacy services, pain relief, rehabilitation and psychiatric assistance are also needed both within the hospital and in the community.

The definition of multidisciplinary therefore includes not only the different groups of medical specialists involved in the treatment of cancer, but also all other health professionals such as nurses, physiotherapists, occupational therapists, social workers, dieticians and psychologists.

The Pascas Health Sanctuary Clinic has been defined as an organised medical service offering diagnostic, therapeutic, or preventive treatment to ambulatory patients. The advantages of group medical service, with facilities and technical personnel beyond the means of an individual practitioner plus the benefit of group consultation, have encouraged the establishment of such clinics. Such a clinic is essentially a voluntary association of physicians engaged in the practice of medicine on an organised group basis. Common administration and facilities are used, and the resulting expense and income are shared according to a predetermined plan.

This Clinic is to work towards the organisation of cancer services along multidisciplinary, disease focused lines rather than in terms of medical speciality or other means and is to network with other hospitals and treatment services.

There is good evidence that the survival of cancer patients is usually better if they are treated by a specialist who also treats a large number of similar patients, and who has access to the full range of treatment options in a multidisciplinary setting. However, the patient's ability and willingness to travel long distances to obtain treatment in such a setting must be considered.

A multidisciplinary approach benefits the patient and creates a working environment for medical and paramedical staff in which they can provide an optimal level of management and treatment.

Cancer management is considered to be more effective when given by a multidisciplinary team, with one member of the team acting as a point of reference for the patient.

Furthermore, Pascas Health Sanctuary will explore all possible avenues for the delivery of health solutions, such solutions may well be found outside Western medicine platforms and practices.

PROMOTING BEST PRACTICES:

Evidence-based clinical practice guidelines for the use of radiotherapy for treating different cancers could assist in changing clinical practise so that it is based more on research, as guideline development involves analysing and rating the existing evidence and making recommendations based on the analysis. Guidelines can also identify areas where further research is needed.

The Quality of Care and Health Outcomes Committee (QCHOC) propose that the primary purpose of guidelines is to achieve better health outcomes by improving the practice of health professionals and by better informing consumers about treatment options. Guidelines are seen as having a role in professional and consumer education and in quality assurance, and they may also assist in the resolution of legal disputes and ethical dilemmas.

General principles for clinical guideline development should be outcome focused and that clinical guidelines should be based on the best available evidence. Guideline development should be a multidisciplinary process.

The Australian Cancer Network supports a best-practice guideline approach. It proposes a broad structure aiming to follow practices which deliver the best outcomes, which change effectively when necessary and which continually improve. In a multidisciplinary setting, elements included would be:

- The development of a partnership between patient and practitioner;
- Relationships between treating practitioners at a level recognising and enhancing their individual competence and skills;
- A shared vision in which participation is underpinned by consultation, agreed plans of action and integrated change where necessary;
- Acknowledgment of 'leadership' within a flat structure when 'group' care is contemplated;
- Provision to patients of clearly stated options and an opportunity to discuss these before commencing treatment; and
- Training and certification of each member of a multidisciplinary clinical group by their own learned college. Each should also be awarded credentials by their caring facility.

There is growing use of evidence-based clinical practice guidelines to promote best practice in many areas of medicine. Guidelines aim to achieve better health outcomes by improving the practice of health professionals and by better informing consumers about treatment options.

Evidence-based best-practice guidelines for the use of radiotherapy in the management of cancer should be developed for each cancer.

QUALITY ASSURANCE:

Quality assurance in radiotherapy is all those procedures that ensure consistency of the medical prescription and the safe fulfilment of that prescription as regards dose to the target volume, together with minimal dose to normal tissue, minimal exposure of personnel, and adequate patient monitoring aimed at determining the end results of treatment. The quality of radiotherapy treatment is not only important for safety and minimising side effects, but also contributes to the success of the treatment.

Quality assurance procedures include regular physics assessment of beam output data, record and verify procedures in patient treatment, regular port films during treatment plus informal chart review by medical staff throughout the treatment course.

RECOMMENDED MODEL FOR SERVICE DELIVERY:

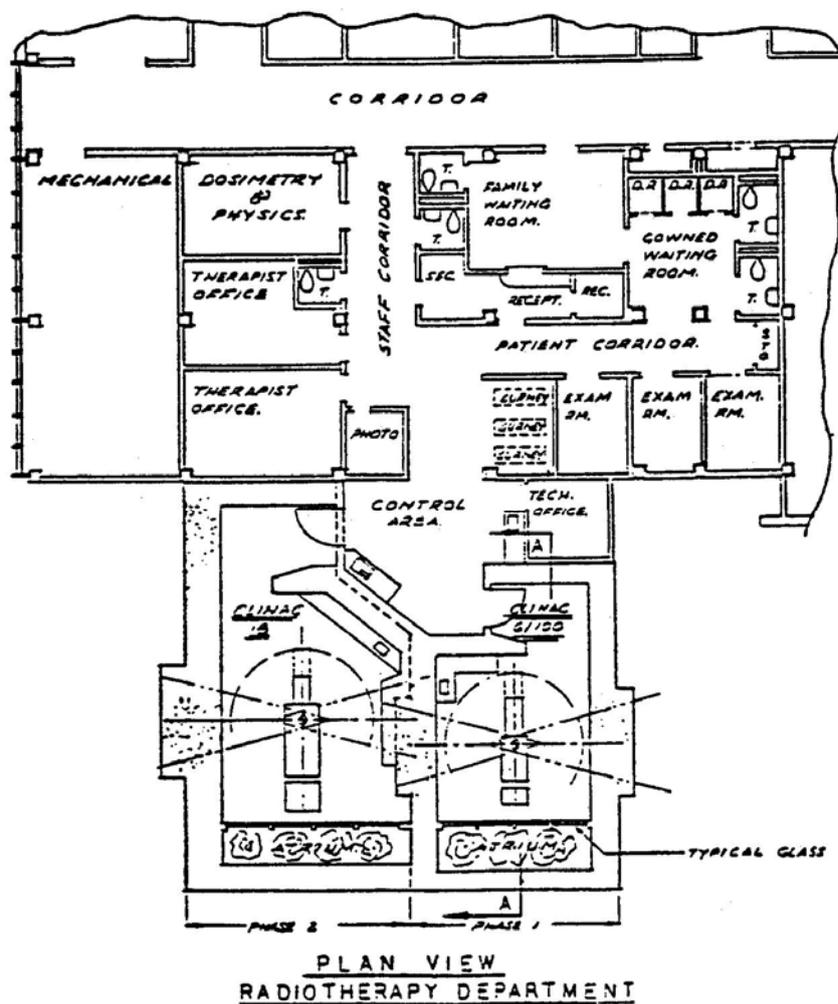
In considering the optimal model for delivery of radiotherapy services, an attempt has been made to balance two vital needs of patients: quality and access.

The Pascas Health Sanctuary Clinic will have advantages in terms of research, clinical education and quality assurance due to proposed affiliations with universities and possibly teaching hospitals.

The centre will have an active interdisciplinary multimodality approach, state-of-the-art equipment and important clinical research tools. Basic research and participation in clinical research, especially randomised controlled trials, are parts of the coordinated management platform. There is emphasis on undergraduate and postgraduate medical education, and a program of professional development which includes attendance at scientific meetings. There is an active quality assurance program that collects treatment and follow-up data.

The minimum number of three radiation oncologists on staff will be achieved within the first two years of operation. During this development period, the centre will be formally connected to a larger metropolitan centre for quality assurance activities and to ensure that staff education continues. The equipment scheduled to be installed exceeds the minimum listed below:

- Two megavoltage machines. There will be one dual modality linear accelerator (DMLA) and one single energy machine (SPLA). On expansion to a three machine department, there will be two DMLAs and one SPLA;
- Planning simulator;
- CT interfacing computer planning facility;
- Facilities for construction of custom-made blocks and patient immobilisation devices;
- Dosimetry equipment for machine quality control;
- Computerised database system for evaluation of treatment outcome; and
- Access to remote automatic afterloading brachytherapy facilities.



PROJECTIONS FOR FUTURE PROVISION OF SERVICES:

Radiotherapy services in Australia must expand, not only to compensate for the current shortfall in staff and facilities, but to keep pace with the growing demand for services. The objectives of expansion include the ability to treat increasing numbers of radiotherapy patients, to reduce waiting times for radiotherapy and to improve the accessibility of radiotherapy services.

Demand analysis is based on:

- Population projections for the city and provincial areas south into central northern New South Wales as reported by the ABS and their trend growth lines.
- The incidence of cancer being reported; the Queensland Cancer Fund for 1995 reported 5,770 new cases per 1,000,000 (3,260 males + 2,510 females), this figure exceeds the projections based on data supplied by the Nation Cancer Statistics Clearing House of the Australian Institute of Health and Welfare, Canberra which was up to 1991 for NSW and 1988 for Queensland, however with a historical **growth rate of 2.4%** per annum, there is convergence in 2008. Alternative being 4,724 per million in 2000 with growth ratio of 2.4% per annum, this does not take into account the fact that the Gold Coast median age is 6 years above the national average and it is the post 65 age group that incurs the bulk of cancer diseases.
- Referral rates of 50% to 55% are to be adopted being those diagnosed with cancer and requiring radiotherapy treatment.
- Of those new cases, 25% will require re-treatment.
- With about 17 to 19 attendances per course, the average number of treatments is 17.6.
- At 4.1 treatments per hour then in an eight hours per day operation there are 33 treatments given.
- The number of attendances for megavoltage treatment per machine is set at 8,280 per year.

Unless an active program of increasing facilities is embarked upon now, the current remaining shortage of machines will worsen and projections for the next ten years will not be met, as demand for services will continue to grow.

Current radiotherapy facilities should be expanded progressively to allow for the continuing growth in need for radiotherapy services.

CONSUMER ISSUES:

Access to radiotherapy treatment services in Australia is a key issue. Access is defined as having geographic, financial, psychological and social dimensions.

Most country areas are serviced by clinics attended by staff from treatment centres, although this is not comprehensive.

Because most radiotherapy treatment is provided on an outpatient basis, metropolitan people receiving treatment can visit the centre daily while living at home even though they may need the assistance of family or friends with transport and social support. People living in rural or isolated areas who decide to have radiotherapy treatment for what is usually a life threatening illness have the additional burden of finding affordable accommodation nearer to the treatment centre.

Access difficulties are caused by: distance from centralised city treatment centres; long absences from families and personal support systems; and the effect of choice of initial treatment option.

Patient Accommodation and Travel Schemes (PATS) are designed to assist rural and isolated people who need specialist treatment that is not available locally. All PATS schemes require a \$30 to \$75 contribution from the patient for the return journey, as well as for the attendant if this is deemed applicable by the referring doctor. An attendant is automatic for patients under 17 years in some States and 18 years in others. The benefit in any State or Territory is \$30 to \$35 per person per night for commercial accommodation and \$10 per person per night for private accommodation. Eligibility for assistance to those living beyond a 200 km radius of the treatment centre (in Queensland it is 100 km). All States require that the application for assistance be completed by a general practitioner.

The needs of carers of radiotherapy patients should not be overlooked because of an emphasis on the complex issues surrounding the delivery of the services.

Newer treatment modalities can sometimes require longer courses of outpatient rather than inpatient treatment. Therefore, daily or weekly travel, accommodation, meals and loss of earnings result in substantial out-of-pocket costs to patients and carers, especially as most PATS are based on a single treatment and not on repeated visits.

Education about the benefits of radiotherapy to patients and issues concerning equal opportunity to access this treatment should be targeted to rural practitioners.

QUALITY OF LIFE:

Quality of life has both objective and subjective dimensions. Both patients and their doctors will have views on quality of life issues in relation to technological interventions.

There is evidence of increasing consideration of the outcomes and effectiveness of medical technology - not just physiological but also social and functional outcomes. Medical care is thought to be effective in quality of life terms when that care is able to maintain a symptom free state in people, allow them to maintain employment or assist them to endure the ending of life. For those with chronic, disabling conditions, technological interventions can improve the quality of life in terms of increasing comfort or functional capacity.

Quality of life in relation to cancer treatment by radiotherapy cannot be easily defined. Ethical justifications for treatment require that the best interests of the patient be maintained, and that the benefits of the treatment outweigh the costs. Treatment should be given in the knowledge that it is better for the patient *in terms of cure, relief or comfort* than the alternative.

Cancer patients should be well informed about the treatment they are to have. Open, honest relationships about the intent of any treatment and its possible outcomes form the basis of the rules of informed consent. Instruments that attempt an objective measurement of quality of life are available and are regarded as integral to evaluations of the effectiveness of clinical treatments. However, given that quality of life definitions are also subjective, a climate of information sharing can assist with the quality of *how people live, how they die, and how they live while dying*.

Quality of life in relation to cancer treatment by radiotherapy cannot be easily defined, but it is an essential component to any evaluation of the effectiveness of the treatment.

VOLUNTARY AND SUPPORT GROUPS:

The proliferation of voluntary and support groups for people living with cancer is an important

development in Australia. The groups are community based and most gather and disseminate information to enable people to make informed decisions about their illness and treatment. They provide psychological and practical support as well as fund raising for cancer services and research. Their importance for the promotion of self help and understanding cannot be underestimated.

EDUCATION:

Establishment of a system of regional multimodal assessment centres should be a priority. This structure could provide a focus for the provisions of consumer information and the opportunity for exchange, particularly in relation to treatment options. Such an environment providing multidisciplinary information is likely to be better for the patient than the traditional one-to-one exchange which characterises the usual form of patient-doctor interchange.

Continuity of care following radiotherapy treatment needs to be enhanced. Quality management and thus continuing quality care may not occur for some patients, indicating a need for more structured community processes and the development of guidelines for the coordination of community based care.

Primary care guidelines in a multidisciplinary framework should be developed for post-radiotherapy management, particularly for general practitioners and district nurses.

WORKFORCE, EDUCATION AND TRAINING REQUIREMENTS:

There has been an increasing desire among patients to be kept informed and involved in their treatment. As a result there is an expanding role for those involved in continuing and supporting care including social workers, community nurses, domiciliary carers, physiotherapists, pharmacists, dieticians and counsellors.

The four major categories of personnel involved in the delivery of radiotherapy treatment are: radiation oncologists, radiation therapists, medical physicists and oncology nurses.

On current projections of cancer incidence and population changes, the number of radiation oncologists required by the year 2014 will be 12 per million of population.

In determining the number of radiation oncologists required, the use of numbers of population tends to understate the real position because it does not take into account increasing cancer incidence and the increasing complexity of treatment for cancer.

One proposed ratio is one radiation oncologist for every 250 new referrals.

Trainees in radiation oncology are required to have one year of general post-intern experience before being accepted into an accredited training program lasting four years. All trainees must occupy a training post for four years.

The way in which cancer management is taught in undergraduate and postgraduate medical education should be reviewed. In particular, medical schools should be asked to consider an integrated cancer curriculum as part of medical education.

Radiation therapists are primarily concerned with treatment planning and delivery. The growing complexity of radiotherapy technology and more complex quality assurance and safety standards are adding to the time needed for radiation therapists to deliver treatment.

Radiation therapists qualify by undertaking a three-year undergraduate course and a professional development year.

Medical physicists role in radiation oncology includes, but is not limited to, equipment quality assurance, dosimetry, provision of radiation beam data, advice on radiation oncology, involvement in the planning and treatment of complex external beam treatments, involvement in the quality assurance of external beam treatment planning, evaluation of the accuracy of treatment planning and treatment techniques, planning and delivery of brachytherapy treatments, calibration of external beam and brachytherapy sources, commissioning of new equipment, provision of scientific and technical advice for the selection of equipment, provision of advice and training on radiation protection and safety, and research and development.

There is no formal training requirement for employment as a medical physicist. Most hold a basic science degree with a major in physics and then obtain on the job clinical training in a hospital.

Medical physicists in radiation oncology play a key role in the delivery of radiotherapy through the maintenance of stringent standards of radiation doses delivered to patients.

Oncology nurses' education is generally provided as in-service by hospitals with an emphasis on chemotherapy nursing. District and community based nurses are responsible for much of the aftercare of radiotherapy patients, particularly the elderly.

There is insufficient recognition of the important role played by radiation oncology nurses in the treatment of cancer patients.

Oncology education for nurses should include all treatment modalities. Nurses working with oncology patients need accessible and flexible study options in oncology nursing that include consumer perspectives, treatment options and aftercare management.

There should be increased recognition of oncology nurses, including a widely accepted definition of their role and a national program for professional development.

FUTURE DEVELOPMENTS IN RADIOTHERAPY:

The technical and clinical advances now being introduced will make delivery of the treatment more accurate and facilitate changes in clinical practice which may increase rates of local control and cure. CT scanning has already improved practice by giving anatomical information for treatment planning which was previously constructed by hand. Three dimensional treatment planning allows more precise targeting of tumours and sparing of adjacent tissues improves efficacy without increasing the complication rate.

Most of these new techniques are interdependent. For example, while the initial results of 3D conformal radiotherapy in several cancer sites suggest that this treatment should be available, the need for new, highly complex equipment such as a multileaf collimator, CT scanning and 3D reconstruction of the tumour volume, and the fact that conformal radiotherapy is a time consuming procedure requiring additional expertise, means that it is not likely to be widely used.

Other techniques, such as radiosurgery and stereotactic radiation therapy, are being adopted enthusiastically because they offer the possibility of cure in cancers for which treatment has always

been palliative.

New clinical practices such as Multiple Daily Fractions (MDF) treatments in external beam irradiation and High Dose Rate (HDR) treatments in brachytherapy are growing in use all the time. The increasing role of brachytherapy in cancer management, the reduced bed stay costs involved and the greater patient convenience all suggest that HDR will have an important role in the future.

Technical and clinical advances over past decades have established the place of radiotherapy in cancer management. Future developments in the field are likely to further improve the effectiveness and efficiency of the technique.

Technical advances include: multileaf collimators and independent jaws; on-line portal imaging; record and verify systems; 3D planning systems; and the use of CT scans as simulators.

New clinical techniques include: treatments given in multiple daily fractions; 3D conformal radiotherapy; high dose rate brachytherapy; stereotactic radiosurgery, intra-operative radiotherapy; and combined hyperthermia and radiotherapy.

REVIEW:

Radiotherapy appears to be under-used in Australia. The main issues contributing to this are:

- Rates of radiotherapy treatment which are well below overseas standards, caused by
 - a lack of understanding of the effectiveness of radiotherapy compared with other treatments
 - insufficient medical education about radiotherapy at undergraduate and postgraduate levels and
 - lack of knowledge about the cost effectiveness of radiotherapy;
- Inadequate staffing levels in all States and insufficient facilities in some areas; and
- Problems with access to services for patients living outside metropolitan areas.

Radiotherapy services need to be integrated with other treatment modalities to enable coordinated management of cancer patients for the development of best practice and service provision. Ideally, these multidisciplinary centres would conduct research and quality assurance programs to provide Australian data on which to more accurately assess the role of radiotherapy in this country, as well as promoting best practice guidelines to reduce variability in practice.

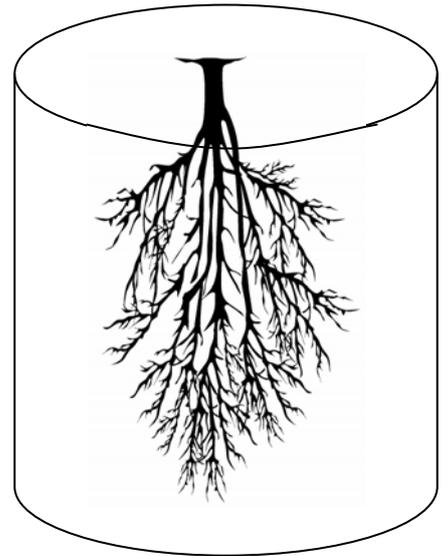
To improve access to services but maintain high quality treatment, these centres, such as Pascas Health Sanctuary, could also be the central units of a network, and provide support, quality assurance activities and continuing education for affiliated public and private centres.

Radiotherapy is a rapidly changing area, and it can be expected that a number of current and future developments will alter the nature and structure of services and should improve both treatment delivery and outcomes. This will further increase demand for radiotherapy services, making it even more important to address and resolve as soon as possible current problems such as low referral rates and staff shortages.

Referral rates in Australia are lower than those in some comparable countries. In the absence of evidence on appropriate referral rates for particular cancers, AHTAC recommends that a **referral rate of 50% to 55%** should be considered for Australia.

RADIOTHERAPY PRACTICE (not part of a Pascas centre)

- Cancer management is considered to be more effective when given by a multidisciplinary team, with one member of the team acting as a point of reference for the patient.
- There is growing use of evidence-based clinical practice guidelines to promote best practice in many areas of medicine.
- It is considered that appropriate quality assurance activities should be incorporated into all radiotherapy services.
- AHTAC recognises the advantages in terms of research, clinical education and quality assurance if public and private radiotherapy facilities have affiliations with universities or teaching hospitals.



CONCLUSIONS:

It is clear that radiotherapy is a dynamic area of medicine, with constant innovation and adoption of new techniques. This degree of continual change will alter the nature and structure of services.

It is necessary to consider the effect that changes in practice will have on consumers as well as on the specialty itself. This consideration must include the families and social support networks of people with cancer. The establishment of multimodality clinics will be a vital component of improvements to consumers' access to information and the facilitation of partnerships in decision making about treatment. The success of these clinics suggest that the principle of case management, particularly for complex illness, may better define treatment options as well as enhance the continuity of care between primary and tertiary providers. There should be an increased emphasis on participation to encourage a focus on people rather than institutions.

Review of oncology services as a whole, including radiotherapy, surgery and chemotherapy, will address the goal of providing the best integrated approach to cancer care. This is the Pascas Health Sanctuary concept of exploring all possible options for better health solutions.

PASCAS HEALTH SANCTUARY - ALTERNATIVE MEDICINE FIELDS:

Classification of Alternative Systems of Medical Practice

Office of **Alternative Medicine** of National Institutes of Health classifies the following complementary and alternative medical health care practices:

- Acupuncture
- Anthroposophically Extended Medicine
- Ayurveda
- Community-Based Health Care Practices
- Environmental Medicine
- Homeopathic Medicine
- Latin American Rural Practices
- Native American Practices
- Natural Products
- Naturopathic Medicine
- Past Life Therapy
- Shamanism
- Tibetan Medicine
- Traditional Oriental Medicine

Bioelectromagnetic Applications

- Blue Light Treatment & Artificial Lighting
- Electroacupuncture
- Electromagnetic Fields
- Electrostimulation & Neuromagnetic Stimulation Devices
- Magneto-resonance Spectroscopy

Diet, Nutrition, Lifestyle Changes

- Changes in Lifestyle
- Diet
- Gerson Therapy
- Macrobiotics
- Megavitamins
- Nutritional Supplements

Herbal Medicine

- Echinacea* (purple coneflower)
- Ginger Rhizome
- Ginkgo Biloba* Extract
- Ginseng Root
- Wild Chrysanthemum Flower
- Witch Hazel
- Yellowdock

Manual Healing

- Acupressure
- Alexander Technique

Biofield Therapeutics
Chiropractic Medicine
Feldenkrais Method
Massage Therapy
Osteopathy
Reflexology
Rolfing
Therapeutic Touch
Trager Method
Zone Therapy

Mind / Body Control

Art Therapy
Biofeedback
Counselling
Dance Therapy
Guided Imagery
Humour Therapy
Hypnotherapy
Meditation
Music Therapy
Prayer Therapy
Psychotherapy
Relaxation Techniques
Support Groups
Yoga / Pilates

Pharmacological & Biological Treatments

Anti-oxidizing Agents
Cell Treatment
Chelation Therapy
Metabolic Therapy
Oxidizing Agents (Ozone, Hydrogen Peroxide)

CARDIO THORACIC CLINIC:

Cardiac surgery is a superspecialty service. Superspecialty services are defined as those which cater for relatively rare diseases or provide unusually lengthy or costly forms of treatment.

It seems unlikely that a cardiac surgery unit could provide a cost-effective service with caseloads of less than 200 - 300 a year. Optimal patient outcomes are associated with caseloads of 900 or more a year. Optimal performance at institutions with low caseloads (under 400 a year) can be achieved through relationship with a larger institution, involving consultation, and rotation of surgical, anaesthetic, technical and nursing staff.

ADULT CARDIAC SURGERY

Current technologies in adult cardiac surgery include:

- Coronary artery bypass grafting (CABG);
- Valve surgery;
- Insertion of pacemakers; and
- Operations on the aorta, electrophysiology surgery, surgery for cardiac tumours and trauma, and pericardiectomy related to infectious disease.

ADULT INTERVENTIONAL CARDIOLOGY

Some forms of coronary artery and valve disease can now be treated without open surgery, by means of catheter-based techniques including:

- Percutaneous transluminal coronary angioplasty (PTCA);
- Valvuloplasty;
- Stenting;
- Atherectomy; and
- Laser angioplasty.

ADULT ELECTROPHYSIOLOGY

Electrophysiology is primarily concerned with the management of cardiac arrhythmias through:

- Pacemakers (some insertions performed in cardiac surgery units);
- Anti-tachycardia devices;
- Electrophysiology surgery;
- Anti-arrhythmia drugs;
- Radiofrequency catheter ablation; and
- Implantable cardiac defibrillators.

PROJECTED NATIONAL CASELOADS

The most recent estimates for national caseloads for the major cardiac interventions, and projected caseloads for the year 2001, are:

ADULT INTERVENTIONS	Procedures per million, 2001 per annum		
ADULT CARDIAC SURGERY	from -	to	Group Total
CABG	970	1,060	
Valve	170	280	
other cardiac procedures	70	90	
			1,210 - 1,430
ADULT CORONARY ANGIOPLASTY			
PTCA			770 - 1,170
PACEMAKER IMPLANTATION			580
RADIOFREQUENCY CATHETER ABLATION			>55
IMPLANTABLE DEFIBRILLATORS			26 - 52
TOTAL PROCEDURES per annum			2,641 - 3,287
DIAGNOSTIC CATHETER LAB PROCEDURES (84:16 ratio)			13,865 – 17,256

These estimates do not allow for a possible increase in the proportion of overseas consumers undergoing cardiac surgery in Australia. There could be an increased demand for Australian services particularly from South East Asia. (AHTAC report on Cardiac Interventions)

POPULATION PROJECTION	2001
Gold Coast Statistical Area	455,760
Hinterland, Mt Tamborine to Beenleigh	66,874
Richmond Tweed	184,878
Mid-North Coast	289,555
TOTAL GOLD COAST & REGIONS Population	997,067

CONSIDERATIONS:

ADULT CARDIAC SURGERY:

- Units with caseloads below 400 a year should have formal affiliation with larger units;
- New units should not be established in cities where a unit already exists unless a start-up caseload of 300 a year can be achieved and 500 a year within 2 years is a reasonable prospect;
- The caseload for a trained cardiac surgeon should be at least 200 a year and preferably more than 250 a year.
- Cardiac surgery units have specific requirements in terms of staff, beds, operating rooms, equipment and supporting services.

ADULT INTERVENTIONAL CARDIOLOGY:

- Interventional cardiology should be undertaken only in cardiology units with a minimum diagnostic cardiac catheterisation caseload of 900 to 1,000 a year;
- To maintain expertise in PTCA, a trained interventional cardiologist should undertake at least 75, and optimally more than 200, procedures a year;
- The minimum caseload for an interventional cardiology unit should be at least 150, and optimally more than 400, coronary angioplasties a year;
- Valvuloplasty services should be restricted to units with a caseload of at least 10 procedures a

year;

- Cardiology units should ensure that, in an emergency, PTCA patients can be transferred to a fully-staffed cardiac surgery operating theatre within 30 minutes.
- Interventional cardiology units have specific requirements in terms of staff, beds, equipment and supporting services.

ADULT ELECTROPHYSIOLOGY:

- Pacemaker implantation should be performed either by an electrophysiologist or by a cardiologist or cardiac surgeon who is able to maintain a caseload of at least 40 implantations a year.
- Radiofrequency catheter ablation should only be performed by electrophysiologists. A caseload of at least 50 a year is required to maintain skills.
- Cardiology units providing electrophysiology services should make adequate provision for the specific resource requirements of these services, in particular the different staff and equipment requirements, to ensure optimum quality of care and cost effectiveness.

GENERAL ISSUES:

- All hospitals with coronary care, cardiac surgery and cardiology units should have arrangements to ensure that cardiac rehabilitation programs are available to all cardiac care consumers. Inpatient and outpatient components of the programs are to be integrated.

The Pascas Health Sanctuary proposed facility meets all guidelines.

The diagnostic cardiac catheterisation procedures will exceed 2000 per annum and the resulting interventions will exceed 500 per annum, such interventions being spread proportionally across the above range of procedures (national ratio being 84% diagnostic and 16% intervention).

The through put of patients will exceed all minimum levels where such services are introduced. The levels of throughput have been assessed on the L/E/K Partnership data and also on the local area primary catchment data as well as the regional and interstate markets which extend into the mid-north coast of New South Wales without regard for export of these medical services.

Southern Cross has embarked on an early and extended marketing campaign to market these services to our South Pacific Island neighbours and to South-East Asia. It is already clear that Australia is held highly in the quality of medical services that it provides and the concept of delivery of these services is well received by our neighbours.

Furthermore, Pascas Health Sanctuary will have a working affiliation with a major metropolitan Hospital which is held in high esteem for its work in this area.

INTRODUCTION:

Heart disease is a major cause of morbidity and mortality in Australia, causing one quarter of all deaths in Australia in 1992. The most common forms of heart disease affecting Australians are coronary artery disease, acquired valve disease, conduction defects, congestive heart failure and congenital heart defects. Often two or more of these conditions may coexist, and congestive heart failure can be the outcome of one or more of the others.

Cardiac services now offer a range of types of intervention for the treatment of heart disease. The 1983 guidelines for cardiac surgery covered coronary artery bypass grafting (CABG), adult valve surgery

and other forms of cardiac surgery, and paediatric cardiac surgery. Since that time, other interventions have come to play an increasingly important role in the treatment of heart disease. There has been dramatic growth in the use of minimally invasive catheter-based techniques, particularly percutaneous transluminal coronary angioplasty (PTCA) for the treatment of coronary artery disease. A new minimally invasive technique, radiofrequency catheter ablation, has been developed for the treatment of certain arrhythmias. The use of pacemakers has grown substantially, and the automatic implantable cardiac defibrillator has been introduced.

The most common form of heart disease, coronary artery disease, can often be prevented.

ADULT CARDIAC SURGERY:

The estimated rates of interventions are projected to increase at the annual compound rate for the period from 1996 to 2001 without considering any population increases:

CABG	2.68%	-	2.87%
Valve	1.20%	-	5.92%
Other Cardiac Procedures	0.00%	-	0.00%

These estimates do not allow for a possible increase in the population of overseas consumers undergoing cardiac surgery in Australia. There will be an increased demand for Australian services particularly from South East Asia.

A cardiac surgery unit should be under the direction of a cardiac surgeon who is actively involved in surgical procedures. Cardiac surgery and cardiology departments in a hospital are to work in close cooperation with each other. There are advantages in having a combined cardiovascular division comprising cardiology, interventional cardiology, and cardiac surgery. Within this division the departments of cardiac surgery and cardiology are to be headed by appropriate specialists.

Some patients may be transferred from other hospitals for cardiac surgery. Mechanisms are to be in place to ensure that the transfer is appropriately timed, and that medical records and diagnostic images are transferred from the referring hospital and back to it after the procedure. A process is to be established to determine whether a patient will need community services support (such as nursing and meals service) after discharge from hospital.

RESOURCE REQUIREMENTS

Average hospital stays typically reported are:

CABG	10 - 12 days
Valve Surgery	11 - 15 days
Other Cardiac Surgery	9 - 15 days.

Approximately nine staff are present during open heart surgery. These include an average of 1.0 surgeons, 1.5 assistants, registrars or fellows, 1.5 anaesthetists or anaesthetic assistants, 1.0 perfusionists and 2.7 registered nurses or nurse assistants. The nurse-patient ratios are 1:1.1 for cardiac intensive care, 1:2.4 for step-down and 1:5 for general wards. There is considerable variation in the types and number of ancillary staff employed specifically by cardiac surgery units, with secretaries, physiotherapists and counsellors most commonly employed.

The average operating time for cardiac surgery is 3 - 3.5 hours. If an operating theatre is operated from 7 am to 7 pm, including set-up and cleaning time, it can be used for a maximum of three operations a day.

Balloon pumps are used by all cardiac surgery units, for an average of 3.1% of cases. Transoesophageal echocardiography is used by 80% of units for an average of 7.1% of cases. Left ventricular or biventricular assist devices are used by 55% of cardiac surgery units for an average of 1.1% of cases.

A cardiac surgery unit requires 24 hour coverage with adequate staffing at all levels. Qualified medical, surgical, anaesthetic, radiology, nursing and technical personnel are to be available for emergency duty at all times.

To ensure continuity of services, a cardiac surgery unit should have the equivalent of at least two qualified full-time cardiac surgeons, unless it is a small unit formally affiliated with a larger unit, or in the commencement phase, when one surgeon may be part-time. For a larger unit the equivalent of three full-time surgeons is required.

The cardiac surgeon is to be primarily responsible for patient care not only during the operation but for the first 24 - 72 post-operative hours, longer if the condition warrants.

The intensive care unit may require the services of a specialist in intensive care and a registrar intensivist.

Staff required in the operating theatre for a standard cardiopulmonary bypass are:

- one cardiac surgeon;
- two surgical assistants;
- one anaesthetist and one anaesthetic technician;
- two nurses (should be capable of performing cardiac resuscitation);
- one perfusionist and one perfusion technician; and
- one laboratory technician.

Appropriately qualified nursing staff are required for the operating theatre and post-operative intensive care, as well as general nursing staff. In the post-operative phase, a nurse-patient ratio of 1:1 is recommended in the intensive care unit, at least while the patient is on ventilation (usually 6-8 hours). After the patient is extubated, the nurse-patient ratio can be reduced to 2:1 if the patient is haemodynamically stable. In step-down beds the nurse-patient ratio should be 2.5:1 and in general wards 5:1.

Bypass patients require intensive physiotherapy after surgery to expand their lungs. A physiotherapist is to be assigned to the unit on a full or part-time basis, depending on the average number of patients. Patients at all three stages of post-operative care will require this service. A full or part-time counsellor and pastoral services is to be available. Administrative support such as secretarial and medical records staff is required by the unit.

The equipment required in the operating theatre includes the following:

- extracorporeal bypass machine and related equipment;
- anaesthetic machine and monitoring equipment;

- electrocardiography (ECG) monitors;
- intra-aortic balloon pumps to assist circulation if the patient cannot be weaned from the bypass;
- left ventricular or biventricular assist devices for the support of failing hearts in cases where balloon pumps are inadequate;
- four channel invasive haemodynamic monitoring (Swan-Ganz, PAP, PCWP, atrial, central venous pressure);
- internal and external defibrillators in case of ventricular fibrillation; and
- pacemakers, cell saver, diathermy machine, surgeon's head lights, operating table, instrument trolley, instruments and infusion pumps.

Cardiac intensive care units are to be sited to allow easy access to and from the operating theatre, cardiac catheterisation laboratories and other supporting departments. Infection control and ease of access to the patient are major factors to consider in their design. Beds and patients are to be well separated from one another to minimise the risks of cross-infection with 10 - 20 square metres to be allowed around each bed. All patients will have drainage tubes after surgery. Techniques should be in place for the disposal of drainage fluids without risk to patients or staff. Ideally waste disposal systems should be in each cubicle.

Electrical connections should be designed to allow easy access. Ideally, a power column allowing 360 degree access to the patient should be considered as against the wall mounted points. The intensive care unit must be a cardiac-protected electrical area, with additional earthing and tripping mechanisms to minimise risks. Oxygen and air are to be supplied to each bed for patient ventilation.

It is essential to allow for adequate storage for drugs, equipment, and so on. The following equipment is required:

- cardiac monitors for each bed which give the ECG, central venous and atrial pressures, Swan-Ganz and cardiac output;
- core temperature monitoring devices;
- oxygen saturation monitors;
- blood gas machines measuring oxygen and carbon dioxide levels and providing analyses of potassium, chloride, haemoglobin and pH;
- ventilators;
- intravenous pumps capable of delivering drugs at precisely controlled rate;
- syringe pumps;
- intra-aortic balloon pumps;
- warming blankets to restore patients to normal temperature after surgery;
- a defibrillator;
- a sternotomy tray (equipment to open the patient's chest in an emergency); and
- emergency pacing equipment.

A step-down ward should have the facilities of a normal ward. In addition it requires facilities for telemetry and central monitoring, a sternotomy tray, emergency pacing equipment, a defibrillator, infusion pumps and oxygen saturation monitors.

SUPPORTING SERVICES AND DEPARTMENTS

The cardiac surgery unit should have a close working relationship with a cardiology department equipped with a cardiac catheterisation laboratory, electrocardiography (ECG) and echocardiography

diagnostic services, including transoesophageal echocardiography. It is desirable to have access to nuclear medicine cardiac diagnostic services. There is to be a close link with a cardiac rehabilitation program. Other services which are to be available include diagnostic imaging, pathology and pharmacy, pulmonary function testing, blood transfusion services, biomedical engineering, haemodialysis, dietetic services, social work and pastoral services.

ADULT INTERVENTIONAL CARDIOLOGY:

Some forms of coronary artery and valve disease can now be treated without open heart surgery, by means of catheter-based techniques. The best established of these is percutaneous transluminal coronary angioplasty (PTCA), in which a catheter with a balloon annealed near its tip is percutaneously inserted into a major artery.

A number of other catheter-based techniques for the treatment of artery disease have been developed. They include various forms of atherectomy (based on mechanical devices for cutting or grinding through obstructions), stenting (using devices that can be expanded within arteries to form tubular supporting structures) and laser angioplasty (using a laser beam to cut through obstructions).

Stents appear to have a role in the prevention and management of arterial closure as a complication of angioplasty.

The caseloads are projected to increase at the annual compound rate for the period from 1996 to 2001 without considering any population increases:

PTCA	2.82%	-	2.58%
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At 770 – 1,170 per million population, the PTCA casemix will remain as it is now, but there is a possibility that there will be a substantial increase in its application to the treatment of myocardial infarction.

Interventional cardiology is generally an integral part of the cardiology unit providing principally diagnostic cardiac catheterisation services. While not all cardiologists working in the unit would necessarily undertake interventional procedures, technical and nursing staff should be able to assist at both diagnostic and therapeutic procedures.

A cardiology unit performing interventional procedures is to be under the direction of a practising cardiologist.

SURGICAL BACKUP

In about 2% of cases, patients undergoing PTCA need to be transferred from the cardiology unit to a cardiac surgery operating theatre for immediate emergency surgery within 30 minutes. When the cardiology and cardiac surgery units are in the same hospital, any procedural or physical difficulties within the hospital in effecting such a transfer need to be identified and resolved.

RESOURCE REQUIREMENTS

Average hospital stays are 2.4 days for PTCA and 1.8 days for percutaneous valvuloplasty. The average length of stay is 1.3 days for diagnostic angiography and 1.2 days for other diagnostic cardiac catheterisation. Elective angiograms are typically day cases where the patient remains in hospital for

less than eight hours. The average length of stay recorded in hospital morbidity data for PTCA is 5.1 days as against the above survey data.

Nurse-patient ratios are 1:1.9 for coronary care, 1:4.1 for telemetry beds and 1:5.8 for general wards. An average of 17.7 staff is used to operate the procedure suites, of whom 5.4 constitute the team of cardiologists.

STAFF REQUIREMENTS

A minimum of two cardiologists are required for a viable unit undertaking interventional cardiology. A unit where more than 150 coronary angioplasties and 1,000 diagnostic procedures are performed a year would require at least three qualified cardiologists. In addition there is the need for at least two cardiology registrars in a teaching hospital setting. One to two radiographers, one to two cardiac technicians, three nurses and at least the part-time services of a radiation physicist is required. Nursing staff capable of cardiac resuscitation and a nurse-patient ratio of 1:2 in coronary care, reducing to 1:4 in telemetry beds and 1:6 in general beds. In addition an orderly, and administrative support such as secretarial and medical records functions are needed. the unit has part-time access to other staff such as an anaesthetist and data processing staff. Some interventional cardiology units find that employing sufficient fully trained cardiac technicians obviates the need for nurses in the immediate vicinity of the catheter laboratory.

BED REQUIREMENTS

The facilities required for coronary care and cardiology telemetry beds differ from those needed in cardiac surgery beds. Coronary care beds require continuous electrocardiography (ECG) monitoring, together with a capacity for intravascular pressure measurement, intra-aortic balloon pumping, and pacemaker insertion, but do not need the ventilator capacity usually provided for intensive care.

Full coronary care is not always necessary for interventional cardiology patents but must be available.

Patients undergoing elective angioplasty usually require 1 - 2 days in a telemetry or coronary care (monitored) bed. Those with unstable angina or acute myocardial infarction commonly require 2 - 3 days in a coronary care bed; when indicated, angioplasty would be performed during this time.

EQUIPMENT AND LAYOUT REQUIREMENTS

These guidelines cover the equipment requirements relevant to interventional cardiology. Equipment purely for non-invasive cardiological procedures is not included.

With the design of a cardiac catheterisation laboratory, important factors include radiation safety, temperature control, and space requirements. The laboratory should be lead lined, with a lead glass partition between the procedural and monitoring areas. Radiation protection within the procedural area will require lead glass shields and lead aprons and collars. The imaging equipment generates substantial heat and adequate, reliable air conditioning is essential for protection of computers.

Monitoring systems incorporate ECG, electrophysiology, haemodynamics and oxygen saturation. Facilities for dye dilution and measurement of activated clotting times are also necessary.

The unit will have adequate supplies of angiography and balloon catheters in a range of sizes, guidewires and contrast medium. Non-ionic medium should be available at least for high risk patients

and for angioplasty. Stents are available for emergency use by a trained cardiologist.

Storage space is available for imaging data of tapes and optic discs, for catheters and for contrast medium. A room adjacent to the cardiac catheterisation laboratory is provided for preparation of the patient, and examination of the results of previous diagnostic tests. Remote work stations enable cardiologists to access raw data, manipulate images and prepare reports.

SUPPORTING SERVICES AND DEPARTMENTS

Back-up surgical facilities are provided as above. Other departments and services available to the unit include non-invasive diagnostic cardiac services (including stress testing, nuclear medicine tests, echocardiography), radiology, pathology, pharmacy, pulmonary function testing, blood transfusion services, biomedical engineering, haemodialysis, dietetic services, social work and pastoral services. Cardiac care consumers have the opportunity to participate in a cardiac rehabilitation program.

ADULT ELECTROPHYSIOLOGY:

Cardiac electrophysiology is primarily concerned with the management of cardiac arrhythmias, abnormal heart rhythms which can originate in different regions of the heart.

Diagnostic and therapeutic electrophysiology procedures (other than pacemaker insertion) require an electrophysiology laboratory and an operator with highly specialised expertise.

Pacemakers are a long-established means of treating bradycardias. Other forms of therapy for arrhythmias include anti-arrhythmic drugs, surgery, radiofrequency catheter ablation, anti-tachyarrhythmia devices, and implantable cardiac defibrillators.

Cardiology units are responsible for most pacemaker implantations. Pacemakers are compact, weigh 23 - 75 grams, can be programmed non-invasively, and last 6 - 10 years.

Pacemaker implantation is a safe, simple procedure performed under local anaesthesia with a high success rate and a very low complication rate.

Pacemaker implantation should be performed either by an electrophysiologist or by a cardiologist or cardiac surgeon who is able to maintain a caseload of at least 40 implantations a year.

Electrophysiology is generally included in cardiology departments, although it requires specific training.

RESOURCE REQUIREMENTS

Average lengths of stay in cardiology units is 1.3 days for electrophysiology studies, 1.8 days for radiofrequency ablation, 4.5 days for insertion of anti-tachyarrhythmia device and 1.9 days for insertion of permanent pacemakers. Cardiac surgery units report an average stay of 2.6 days for insertion of a pacemaker.

An average of 4.5 staff are present in the operating room of a cardiac surgery unit when a pacemaker is being inserted. Staff include 1 surgeon, 0.7 registrars, surgical assistants or surgical technicians, an anaesthetist, anaesthetic assistant or anaesthetic technician, and 1.7 nurses or nurse assistants.

The average length of stay for electrophysiology studies and cardiac mapping is 5.6 days. For 19% of these admissions, cardiac surgery or an interventional cardiology procedure is also performed; average stay for the remainder is 4.3 days. For implantation of a defibrillator the average stay is 19.1 days. Average stays are 6.9 days for insertion of temporary or permanent pacemakers, and 4.5 days for radiofrequency catheter ablation. Some centres now undertake pacemaker and electrophysiology procedures (including catheter ablation) as day case procedures.

STAFF REQUIREMENTS

An electrophysiologist is a trained cardiologist with specialised expertise and training in electrophysiology techniques. A cardiology department providing electrophysiology services requires at least one and preferably two fully trained electrophysiologists. For pacemaker implantation, usually performed in the cardiac catheterisation laboratory, the operator should be assisted by a cardiac technician and a nurse.

Defibrillator implantation requiring open chest surgery is performed in a cardiac surgery operating theatre. A cardiac surgeon, an electrophysiologist, an anaesthetist, and at least two nurses should be present. In addition, specialised technical staff provided by the manufacturer (usually two people) need to be present.

BED REQUIREMENTS

Average bed day requirements are 1 - 2 days for electrophysiology studies, pacemaker insertion and radiofrequency, 5 days for anti-tachyarrhythmia device insertion, and 6 - 7 days for implantable defibrillator insertion. In some centres approximately 50% of pacemaker insertions and 70% of radiofrequency ablations are day cases.

EQUIPMENT REQUIREMENTS

Ideally the electrophysiology laboratory would be separate from the conventional cardiac catheterisation but this is impractical.

Electrophysiology procedures require permanently installed standard fluoroscopy equipment with a C-arm, programmable stimulators for generating electrical impulses, and dedicated computerised equipment for recording, storing, and analysing stimuli delivery and electrocardiography (ECG) data. Capacity to monitor haemodynamic data is desirable but not usually essential. A radiofrequency energy generator meeting electrical safety standards is required for radiofrequency catheter ablation.

A defibrillator is available, together with full facilities for resuscitation, including drugs and respiratory therapy equipment. Pulse oximetry is to be available. Emergency equipment is available.

SUPPORTING SERVICES

Electrophysiology services in general require the same supporting services as interventional cardiology, including access to emergency cardiac surgery.

CONCLUSION

Electrophysiology has specific resource requirements that differ from those of interventional cardiology, including qualified electrophysiologists and specialised testing and monitoring equipment.

REHABILITATION:

A comprehensive rehabilitation program includes:

- early ambulation;
- psychosocial intervention (alleviation of anxiety, explanation, education and counselling);
- health education for cardiac care consumers and their relatives (including advice on lifestyle changes);
- fostering of peer support from consumers who have experienced cardiac intervention and rehabilitation (these should contribute to alleviation of anxiety and provide lifestyle advice);
- risk factor evaluation and counselling on modification;
- physical training in outpatient groups;
- post-discharge follow-up and support;
- vocational counselling;
- long-term community based programs;
- consumer-friendly information, including the availability of such information in languages other than English and the use of interpreters; and
- regular use of quality assurance measures designed from the perspective of the consumer.

A rehabilitation program not only reduces risk factors and improves outcomes, but is also cost effective.

The National Heart Foundation (NHF) has stated that secondary prevention programs, including cardiac rehabilitation, should be available to all patients who have had acute myocardial infarction, coronary artery bypass grafts, PTCA or other cardiovascular disease. The NHF has published minimum standards for outpatient cardiac rehabilitation.

A cardiac rehabilitation program in a major hospital should be under the direction of a cardiologist with experience in rehabilitative techniques, and be undertaken by a multidisciplinary team of health care professionals that includes registered nurses, a physiotherapist, a dietitian, an occupational therapist, a psychologist, a social worker, a program coordinator and administrative officers. The role of coordinating, managing and evaluating many cardiac rehabilitation and secondary prevention programs has been undertaken by critical care trained nurses who have the diversity of skills, knowledge and training these programs demand. Hospital programs should have links with external rehabilitation programs. Inpatient and outpatient components of the programs should be integrated.

CONCLUSION:

The Pascas Health Sanctuary Clinic will be multidisciplinary, with one member of the team acting as a point of reference for the patient. The services will be made available for the regional population, intrastate, interstate and overseas.

PASCAS HEALTH SANCTUARY - IMPROVING THE QUALITY OF HEALTH CARE:

The development of appropriate quality management strategies is an essential element of any plan to improve the quality of health care. Quality management involves a continual assessment of the process of health care delivery (at the institutional and/or the individual level) with the results of each assessment feeding back into the process. In short, it is an on-going evaluation that seeks to improve the outcome of health services and to identify and implement more effective treatment and/or services. The primary objective of quality management activities is to improve the quality of health care, at the general level of practice standards and at the level of the individual practitioner.

Health care institutions and professions are already actively working on improving the quality of health care. Measures currently being used include:

- Voluntary accreditation of health care facilities through the Australian Council on Healthcare Standards (ACHS);
- Credentialing of medical practitioners by health care facilities;
- Incident monitoring in individual hospitals and on a national level through the National Hospital Outcomes Program;
- Review of medical records for adverse events, such as through the Quality Assurance Royal North Shore (QARNS) program;
- The development of procedures for consumer feedback and the development of complaints procedures both in hospitals and externally;
- Peer review both through hospitals and the maintenance of professional standards requirements of the learned medical colleges;
- Morbidity and mortality reviews;
- The development of clinical practice guidelines through the National Health and Medical Research Council (NHMRC);
- The development and implementation of recertification or maintenance of professional standards requirements by some of the learned medical colleges (eg Royal Australasian College of Physicians (RACP), Royal Australasian College of Surgeons (RACS), Royal Australasian College of Obstetricians and Gynaecologists (RACOG), and the Royal Australasian College of General Practitioners (RACGP).

The principles of quality management and risk management are of relevance to all health professionals. The relevant learned colleges and/or professional associations as well as health authorities have an important role to play in the development and co-ordination of risk management activities which are appropriate for particular areas of practice. The Medical Defence Organisations (MDOs) support the use of risk and quality management strategies to improve the quality of health care delivered and are keen to work with the medical profession and the health care industry on further measures to improve quality. The MDOs are already using the risk management strategy of loss prevention by way of educational activities for their members. One of the MDOs has gone further in the development of practice audits. All MDOs have developed a means to analyse data, stratify their risk and to perform some trend analysis in relation to incidents.

CLINICAL PRACTICE GUIDELINES

The development of clinical practice guidelines has been an important phenomenon in recent years. There are now numerous guidelines issued by a variety of bodies, with the nature of these guidelines ranging from consensus statements through to evidence-based guidelines for clinic practice. In Australia, the National Health and Medical Research Council (NHMRC) has published guidelines for

the development of clinical practice guidelines. One of the "guiding principles" articulated in these *Guidelines* is that "clinical practice guidelines should be based on the best available evidence". Evidence-based guidelines on the management of early breast cancer have already been published by the NHMRC.

Evidence-based clinical practice guidelines can play an important role in improving the quality of health care by improving the knowledge of medical practitioners about "best practice" in particular clinical fields. Appropriate implementation procedures are also a necessary part of guidelines' development: "it is important to employ strategies which will ensure that clinicians are aware of the guidelines and that they are incorporated into clinical practice."

The MDOs support the development of evidence-based clinical practice guidelines provided their primary purpose is seen as educative. Improvement of patient care must be the primary motivating factor for the development of clinical guidelines. Furthermore, guidelines must be seen as a *basis* for medical care and not a *formula*. As one commentator noted: "guidelines should be used to inform medical decision making, not to enforce medical decisions." Guidelines must not be utilised in a way that undermines the application of clinical judgement.

DATABASE OF DEIDENTIFIED INFORMATION

At present there is no system of integrated incident or outcome data or quality health care management throughout the health care industry. A database of de-identified incidents, patient complaints and outcome reviews are essential for risk identification and trend analysis and therefore could provide valuable information about the areas to which preventative strategies should be targeted:

"It is important to use every occasion on which something goes wrong as an opportunity to refine the system. The systematic classification and study of incidents, complaints, morbidity, mortality, adverse events which are identified through medical record review, and cases in which litigation is threatened or commenced, exploit these opportunities to the full."

It is essential that any database covers all health professionals and not just medical practitioners.

However, incident monitoring is only one means of quantifying risks and measuring quality. In addition to information about incidents and complaints, utilisation assessment of various health care services, positive indicator reviews and outcome studies must also be available as part of the database. Information on utilisation rates will enable interested parties to plot the trends over time and to determine, for example, whether the growth in complaints or incidents in a particular service is in line with the growth in the use of the service. More importantly, best practice enhancements may be quickly identified and adopted throughout the medical industry.

MEDICAL & HEALTH SERVICES FIELDS:

Various medical funds recognise a wide range of medical services and rebate fees for the likes of:

General Dental Medibank Private
 Special Dental - dentures, crowns, bridges
 Periodontic
 Orthodontic
 Optical
 Chiropractic
 Osteopathy
 Physiotherapy
 Chiropody
 Podiatry
 Clinical Psychology
 Dietetics
 Eye Therapy
 Hearing Aid
 Occupational Therapy
 Speech Therapy
 Approved external prostheses and appliances
 Pharmaceutical prescriptions
 Natural Therapy NIB
 Naturopathy
 Herbalism
 Homoeopathy
 Iridology
 Nutrition
 Orthopaedic Shoes
 Orthotic Appliance
 Acupuncture
 Chiropractic & Osteopath X-rays
 Orthoptic Therapy
 Home Nursing
 Midwifery Services MBF covers the above list

NIB contribute \$30 for over-night accommodation for non patients being accommodation expenses for a spouse / parent to accompany a patient who is an in-patient of a recognised public or private hospital. Similarly, patient accommodation (other than in hospital) when receiving treatment at a hospital more than 100 kms from a patient's home. National Mutual Health contribute \$40 per night (max \$150 per person).

NURSING CARE STANDARDS:

Miss Isobel (Pixie) Annat, MBE, OAM, Dip N Admin, RN, FAIM, consultant registered nurse, will carry out the function as provisional Director of Nursing for the purpose of establishing the protocols and standards to be initiated by Pascas Health Sanctuary for the Nursing Division. Miss Annat was Director of Nursing and later Chief Executive Officer for a total of 27 years at St Andrews War Memorial Hospital at Spring Hill and was a surveyor for the Australian Council on Healthcare Standards for 18 years.

Assisting with this establishment phase is Professor Anne McMurray who is responsible for nursing education at the Griffith University Nurse training protocols adopted by Pascas Health Sanctuary will be those endorsed by Griffith University which are accredited by the Queensland Nursing Council as it is proposed that Griffith University will establish on-site training at Southern Cross.

Essential structures that will enable and support clinical nursing practice encompass the following standards developed by the National Australian Nursing Council and endorsed by the ANF:

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <p>PHILOSOPHY AND OBJECTIVES</p> <p>The Nursing Division has a statement of philosophy and objectives that is used as a guide to planning, implementing, and evaluating all aspects of the Nursing Division.</p> | <p>Standard 1</p> |
| <p>ORGANISATION AND ADMINISTRATION</p> <p>The Nursing Division is structured and administered to achieve the stated Nursing Division objectives.</p> | <p>Standard 2</p> |
| <p>STAFFING AND DIRECTION</p> <p>The Nursing Division is directed by a registered nurse and is staffed by qualified nurses and support staff to enable achievement of the objectives of the Division.</p> | <p>Standard 3</p> |
| <p>NURSING CARE</p> <p>Effective and holistic nursing care is provided.</p> | <p>Standard 4</p> |
| <p>POLICIES AND PROTOCOLS</p> <p>There are policies and protocols which reflect current knowledge and principles of nursing practice and are consistent with the requirements of statutory authorities and the objectives of the Nursing Division.</p> | <p>Standard 5</p> |
| <p>STAFF DEVELOPMENT</p> <p>There is a staff development program for all nursing personnel to facilitate and encourage continuing development of each individual as a professional practitioner.</p> | <p>Standard 6</p> |
| <p>QUALITY ASSURANCE</p> <p>The Nursing Division assures the provision of high quality nursing service by its conduct of a nursing quality assurance program as part of a hospital wide program.</p> | <p>Standard 7</p> |

POSITION DESCRIPTIONS:

The following position descriptions, that are provided as examples, will be further developed in accordance with best practice and in compliance with the standards as set down by the Australian Council on Healthcare Standards.

Each appointment will be in compliance with the Queensland Health Care standards and appointees will be sought being only those having achieved qualifications at acknowledged institutions.

Job Descriptions that follow:

A.	Director of Nursing Services	DON
B.	Deputy Director of Nursing	DDON
C.	Nursing Unit Manager	NUM
D.	Nursing Unit Manager L3 ICU	NUM - ICU
E.	Registered General Nurse	RN
F.	Enrolled Nurse	EN

PROFESSIONAL MEDICAL TEAMS - OVERVIEW:

Briefing notes by Dr Daniel T O'Connor who will act as liaison officer and be instrumental in the establishment of the medial advisory committee (Gold Coast) which will consist of 12 to 22 members:

The team concept as per these headings for the Pascas Health Sanctuary Hospital & Clinics goes like this:

NEUROSURGERY:

A neurosurgical team includes neurosurgeons capable of dealing with intracranial, spinal and peripheral neurological disorders. They are supported by neurophysicians for diagnostic work as well as radiologists and various therapists who are involved post-operatively. A neurosurgical team also requires that there be nursing staff with expertise in the management of neurosurgical cases.

EARS, NOSE & THROAT - ENT:

In addition to orthodox ENT surgeons there is a need for an endoscopic sinus surgeon, laser surgeon, head and neck surgeon, along with support and speech pathologists, speech therapists, radiologists, etcetera.

UROLOGY:

Surgeons and urologists co-operate most frequently in the discipline of urology. A urologist with paediatric experience or a paediatric surgeon with urological experience is also essential as well as support physiotherapists etcetera.

ORTHOPAEDIC:

General orthopaedic surgeons would be needed plus arthroscopy experts, hand surgeons, microsurgeons, trauma surgeons. Physiotherapy and orthopaedic surgery can't survive without each other.

TRAUMA SURGERY:

Trauma surgery is a special consideration as the Hospital will have a busy accident and emergency department so there needs to be readily available general surgeon with trauma experience; orthopaedists, neurosurgeons, etc, twenty-four hours a day to back up the Accident and Emergency (A & E) department and with the ability to call in other surgical disciplines as required for example, ophthalmic, plastic, etcetera.

GYNAECOLOGY:

Gynaecological surgery is now split into general gynaecology, cancer surgery, endoscopic surgery, colposcopic and laser surgery. Either way, the hospital will require several experts or gynaecologists with multiple expertise.

Gynaecological cancer surgery on the Gold Coast is provided by Professor Neville Hacker from Sydney who visits John Flynn Hospital once a month seeing patients one day, operating the next and doing one days post-operative visits before returning to Sydney. Professor Alex Crandon from

Brisbane's Gynaecology Oncology Unit at the Royal Women's Hospital attends monthly also providing a two weekly service together with Professor Hacker.

There are now two new young excellent gynaecological cancer surgeons in Brisbane (Dr Perrin and Dr Nicklin) who may be prepared to provide a similar service on a weekly basis to Pascas Health Sanctuary Cross Hospital.

IN-VITRO FERTILISATION - IVF:

There is no mention of IVF in the projected work areas and this may well be of consideration for Pascas Health Sanctuary. There is an IVF unit run by John Handy, Ted Korman and Paul Larkin at Allamanda Hospital and it is an off-shoot of the Monash unit in Melbourne. For IVF there is need in addition to endoscopic surgical expertise, a dedicated laboratory support team for efficient function as well as support counsellors, etcetera.

Radiology / ultrasound are an integral part of gynaecological services these days.

GENERAL SURGERY:

General surgeons have split their expertise so there are now colorectal surgeons, breast and endocrine surgeons, vascular surgeons, endoscopic surgeons, and so on. Their teams include radiology / ultrasound, alimentary tract endoscopists, endocrinologists, pathologists, physiotherapists, etcetera.

Paediatric surgery is a highly specialised area which encompasses endoscopic surgery as well as plastic surgery and requires special theatre facilities and post-operative care teams.

OPHTHALMIC SURGERY:

Eye surgeons now specialise in the anterior and posterior chamber of the eye, plastic and reparative / corrective surgery, laser surgery, lens extraction and implants, and work on a mix of day case and inpatient care. They require orthoptists and trained ophthalmic nursing staff as part of their team.

DENTAL and FACIOMAXILLARY SURGEONS:

They work in the same area and need radiological, pathology and physiotherapy support.

PLASTIC and RECONSTRUCTIVE SURGERY:

Plastic and reconstructive surgeons include microsurgical repair teams, reconstructive surgery and head and neck surgeons who again require radiology, pathology, physiotherapy and special nursing care staff.

CARDIO THORACIC:

Cardiac by-pass surgeons need the assistance of cardiologists, radiologists, perfusionists as well as physiotherapists and highly skilled intensive care nursing personnel.

This list is not exhaustive but aims to provide an idea of the teams that are required for the various surgical units that Pascas Health Sanctuary Hospital will establish from within the Gold Coast, Brisbane and elsewhere during the construction and fitout period.

You will note that there are particular support disciplines common to all surgical teams - for example, radiology, anaesthetics, physiotherapy and nursing care.

For many of the surgical disciplines specialised nursing skills are required - for example, ophthalmic, orthopaedic, paediatric and so forth.

ONCOLOGY - CANCER:

When looking at the relevant cancer treating teams you add to the basic unit specialist radiotherapists as well as radiologists and these are two separate areas of expertise with the frame work of radiology, chemotherapy specialists and pathologists, counsellors and support staff and the usual management goes like this:

A patient is diagnosed with a malignancy. Pathological confirmation is obtained and the relative oncology unit usually considers the individual in committee and allocates a therapeutic management protocol for the ongoing care of the patient. For this purpose special specific discipline oncology clinics are held where follow-up is also maintained after initial treatment. These clinics are usually held on a once a week basis and there would be in attendance, for instance say for gynaecology, the patients gynaecological cancer surgeon, radiotherapist, chemotherapy specialist, support nursing staff or counsellor and pathologist.

These special discipline teams usually meet on a weekly basis where they see new cases and follow-up cases and of course function all year round.

One reason why it is important to make sure there is two of every type of surgical specialist on the staff is that there is always people away on leave or at courses and so forth, and if there is only one person then everything grinds to a halt during their absence, whereas if with at least two then these clinic services go on irrespective.

CARDIOLOGY:

Similarly with heart disease patients, the diagnosis involves triage by clinical history and examination, stress test, angiography and perhaps nuclear medicine, and then a committee of the cardiology clinic may allocate individuals to different therapeutic programs - for example, angioplasty or CABG surgery or palliation only, etcetera.

Within the cardiology clinic there will therefore need to be cardiologists, interventional cardiologists, radiologists, cardiac surgeons, as well as anaesthetists with specialised skills and perfusionists, physiotherapists, dieticians, psychologists, etcetera.

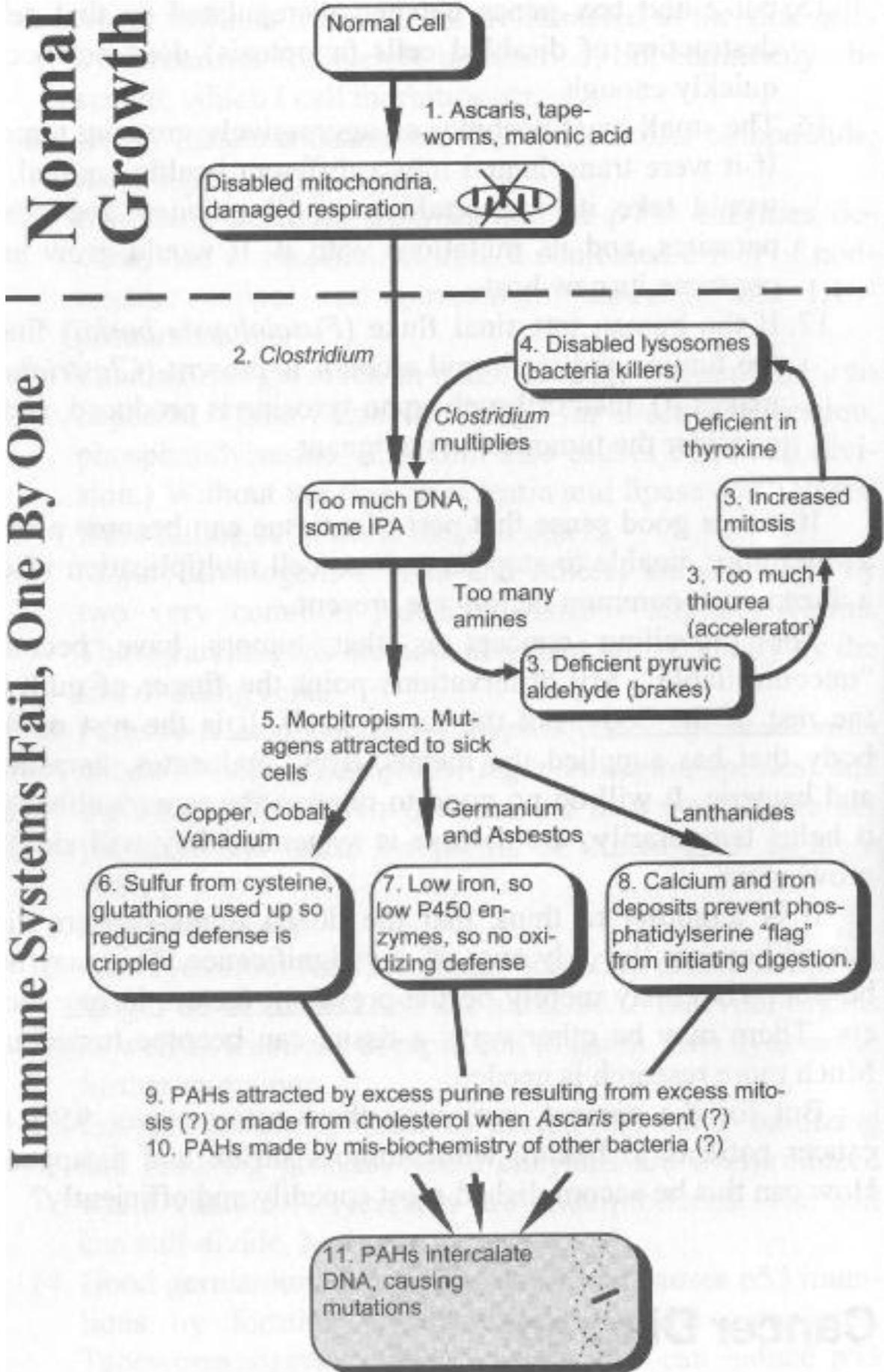
RADIOTHERAPY UNIT: (not part of a Pascas centre)

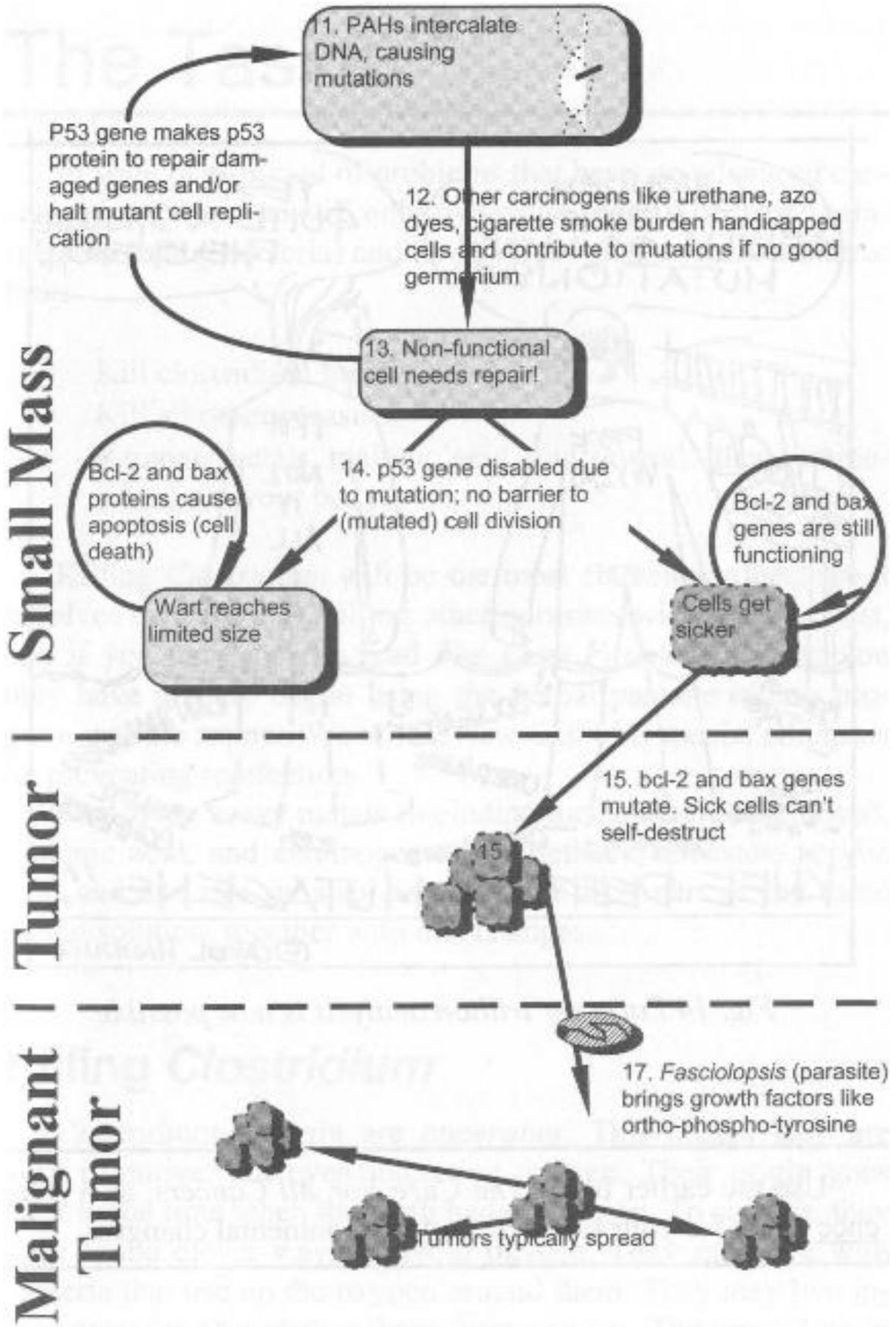
A steering committee consisting of Radiation, Haematology, Medical and Nurse Oncologists will proceed to establish guidelines, working rules and safety procedures. Support can be drawn from the likes of Malcolm Millar of the Peter McCallum Institute, Dr David Paix, consultant medical physicist from Adelaide, Dr Bernie Mason and Dr Liz Kenny of Wesley Cancer Care Centre and Dr Roger Allison of Queensland Radium Institute.

There will be a need for two of everyone covering radiation oncology, medical oncology, radiographers covering planning and treatment, nursing staff that are oncology trained in therapeutic radiation, physicists, x-ray engineers and pharmacist – pharmacy to be equipped with laminar flow unit. Patient care has two groups, a day care unit to accommodate 10 in a quiet area with observation and the other being a cluster of wards for the more serious cases. A radiotherapy director is to be appointed.

DIRECTOR of MEDICAL SERVICES:

Each clinical service will have its own director who, in turn, are to be supported by a Director of Medical Services as appointed by Pascas Health Sanctuary.





The PERFECT BLOOD TEST

Test	Healthy range by our clinic standard	Units	Our lab range (for comparison)
WBC	5.5 - 7.5	thous/uL	4.0 - 10.0
RBC	4.4 - 4.7	MIL/mm ³	4.5-6.5
platelet count	200- 300	thous/uL	150-450
eosinophils	<3	%	
blasts	0	%	0
glucose (fasting)	85-95	mg/dL	65-115
BUN	15 - 16	mg/dL	5.0-26.0
creatinine	0.9 - 1.0	mg/dL	0.6-1.4
AST or SGOT	12	U/L	0-55
ALT or SGPT	12	U/L	0-55
GGT	12	U/L	0-57
Total bilirubin	≤ 1.0	mg/dL	0.1-1.8
uric acid	3.0 - 4.0	mg/dL	2.2-7.7
cholesterol	200 plus your age	mg/dL	130-200*
triglycerides	100 - 200	mg/dL	30-180
sodium	138 -142	m Eq/L	133-145
potassium	4.5 - 4.7	m Eq/L	3.3-5.6
chloride	98 - 104	m Eq/L	95-111
calcium	9.1 - 9.6	mg/dL	8.5-10.4
phosphorus	3.0 - 4.0	mg/dL	2.2-5.6
Total protein (T.p.)	7.0 - 7.4	gm/dL	6.3-8.3
albumin	4 - 4.6	gm/dL	3.9-5.1
globulin	2.5 - 2.8	gm/dL	2.0-5.0
LDH	125 - 160	U/L	91-250
alkaline phosphatase (alk phos)	75 - 85	U/L	39-117
total iron (serum)	75 - 105	ug/dL	30-170
HGB		gm/dL	13.5-18.0
carbon dioxide		m Eq/L	12.0-33.0

*Cholesterol range not statistically set, see text.

Common abbreviations

alk phos	alkaline phosphatase	HGB	hemoglobin
ALT	alanine amino transferase	K	potassium
AST	aspartate aminotransferase	LD or LDH	lactic dehydrogenase
BUN	blood urea nitrogen	Na	sodium
Ca	calcium	P	phosphorus
chol	cholesterol	plt	platelet
Cl	chloride	RBC	red blood corpuscles
CO₂	carbon dioxide	T.b.	total bilirubin
creat	creatinine	T.p.	total protein
FBS	fasting blood sugar or glucose	trig	triglycerides
GGT	gamma glutamyl transpeptidase	WBC	white blood cells