

UCIP Combined Medical Studies Course Guide

A guide to playing a Star Fleet Officer in the medical sciences
By Captain Garth Triss & Ensign Matthias Larynski



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Contents

Chapter 1 Introduction	1
Chapter 2 Duties and Responsibilities	3
2.1 Medical Officers	3
2.2 Nurses	4
2.3 Counsellors	5
2.4 Department Protocols	7
2.5 Ethics	9
Chapter 3 Medical Department Operations	11
3.1 Sub Departments	12
3.2 Emergency Medical Operations	15
3.3 Emergency Medical Hologram	17
3.4 Burn Classification	17
3.5 The difference between a Starship and a Starbase	18
Chapter 4 Basic Humanoid Physiology	19
4.1 Bajoran	19
4.2 Betazoid	19
4.3 Ferengi	20
4.4 Human	20
4.5 Klingon	20
4.6 Romulan	21
4.7 Trill	21
4.8 Vulcan	22
Chapter 5 Basic Psychology: Ego Defence Mechanisms	25
Chapter 6 Psionic Fields	27
6.1 Telepathy	28
6.2 Psychokinesis	28
Appendix A Standard Medications	29
Appendix B Standard Equipment	33
Appendix C Medical Conditions & Procedures	37
C.1 Conditions	37
C.2 Procedures	38
Bibliography	41
Index	43

“Please state the nature of the medical emergency.”

— *The Doctor*

CHAPTER



1

Introduction

This text is thought to be as much of a reference and inspiration guide as it is a course guide for the UCIP Combined Medical Studies course. Chapters 2-5 comprise the main course. Additional chapters are meant just as additional information and inspiration and won't be covered in the exam at this time. Several appendices are attached as well, listing various medication, equipment and medical procedures. No one can remember it all, and they are there as reference material only. However it will be necessary find drugs or equipment for the exam.

Very little (besides a good dose of imagination) is really needed to give the impression of a qualified doctor – the [hypospray](#) and the [tricorder](#) goes a long way. But for added 'realism' making use of just a little of the extensive information build up over the years can really help spice up logs, subplots and add a whole new dimension to the game.

While the world of Star Trek Medicine is an interesting one, you got so much more out of it if you blend it together with real concepts from either medicine, biology or even chemistry. It is in no way a necessity though, but it is surprising now a little research can add life to medical practice. It need not be much, fairly simple concepts such as hyperthermia or Hypothermia, or the mentioning of the L3 lumbar vertebrae in case of back problems in a patient can add so much to a log. Here Wikipedia is your friend (check out the bibliography at the end of this text.)

The guide is hyperlinked as thoroughly as is conveniently. Besides from the usual way into a text, the table of contents, the guide contains a simplistic index that will hopefully make the length guide easier to approach.

UCIP's medical course have a long and proud history with many people adding and building upon the works of earlier works. This is only the second version of the combined Medical and Counselling guide, but a lot of work has preceded it in earlier editions.

Senior Instructor Garth Triss
Combined Medical Studies, UCIP Academy
SD 240908.13

Duties and Responsibilities

This chapter is more about the formal role of playing a medical officer. It deals with what you can and cannot play with on your SIM the organisation in the department and the various positions, whenever they are fellow players, permanent NPC's or just NPC's that you use in your logs or on IRC.

“I swear this oath by Apollo physician, by Asclepius, by health and by all the gods and goddesses: In whatsoever place that I enter I will enter to help the sick and heal the injured, and I will do no harm.”
—*The Doctor*

While it is important to know what you can and cannot do, so you do not step on other player's toes, it's even more important to have fun playing your role.

If you are in an assistant role and do not know what to do during a SIM or what to write a log about, then get in touch with your CMO. As a senior officer she'll be able to give you suggestions, whenever it is about how to interact during the plot, or just with an entertaining duty log. Remember, SIMing is a team effort.

2.1 Medical Officers

The term, 'Medical Officer' is a general expression for any doctor that besides from having gone through the training at Starfleet Academy also have spent four years at Starfleet Medical Academy to get their degree to practice medicine. Besides their formal Starfleet rank, they can also be addressed as 'doctor'.

The primary duty of medical officers is to provide for the health and well being of the crew on the facility they are serving on. As Medical Officers are doctors they are required to assist and render aid to *anyone* who may need it, regardless of personal feelings. Medical Officers also have jurisdiction over any medically hazardous or medically necessary situation so as to make sure that it will not endanger the ship or facility. Because of this directive, it may be necessary to leave the ship in order to provide care. It is common practise to include a Medical Officer in an standard away teams – it is better to be on the safe side.



Figure 2.1 Superficial wound



Figure 2.2 Uniforms. From left to right: Standard Uniforms (male and female), Vest, Undershirt, Cadet Jumpsuit and Dress Uniform.

Medical Officers are also responsible for the biohazard protocols on your ship, and for the monitoring of the transport bio filters. And keep in mind that Site-to-site transport's are only for medical emergencies where usual transports simply is not fast enough. Site-to-site transport uses twice as much energy and effectively halves the capacity of the transport system. For more information, see the [UCIP Advanced Engineering Studies](#).

In various situations, the Medical Officer has the possibility of using a Medical Override Security Access Code. This code can be used in one of these two ways:

1. Due to an emergency, accident and/or contamination the Medical Officer can use this code to separate the biohazardous area (with force fields and/or emergency doors.)
2. When the Medical Officer's attention is needed in a secured area, he/she can use it to override the locks and gain access to any patients.

To gain access to an area separated by the Medical Override, you need an Override Code of your own – be it Medical, Security, Command or any other existing one. Misuse of command codes such as this (especially reason number two above) will be referred to Starfleet's Judge Advocate office.

The Chief Medical Officer (see [chapter 3 on page 11](#) for the departmental organization), besides from being a department head and a member of the senior staff, is directly responsible for seeing to that the Commanding Officer at all times are capable of performing his duties. The Chief Medical Officer may relieve the Commanding Officer of duty if there is a medical reason for it. Though, it is recommended that she consults a Counsellor and other senior officers before doing so.

2.2 Nurses

The Head Nurse oversees all the Nurses currently aboard. Ensuring they are assigned to task and working as required in their area. Additionally the Head nurse performs the normal duties of the nurse, assisting the Duty Medical Officer in sickbay.

Nurses will in general be officers who are trained in basic medical care, and are capable of dealing with less serious medical cases. In more serious matters the nurse assist the Medical Officers in the examination and administration of medical care. This includes but is not

limited to the injecting required drugs, or simply assuring the injured party that they will be 'OK'.

The nurses also maintain the medical wards, overseeing the patients and ensuring they are receiving medication and care as instructed by the Medical Officers.

On most occasions Nurses and Medical Technicians are Non-Player characters and will be played by YOU during the SIM or in your logs.

2.3 Counsellors

Counselling can often be a difficult position as it even more than the medical officer requires you to interact heavily with the rest of the crew. On the other than it's also a more free role, were you often have to be creative in ways to get yourself involved if there's no explicit counselling duties in a plot as described below.

One thing easily forgotten is that counsellors have a doctorial degree just like medical officers do, and therefore are trained psychiatrists. It's a more clinical role where treatment could involve the prescription of for example antidepressants.

On smaller ships Counsellors can also at times be seen as a dual role as a counsellor and a medical officer at the same time.

Crew Member Counselling In the unlikely event that there is nothing you can do in the present situation, a Counsellor can always write a log that has them counselling a non-player character. This would not be advisable in an IRCSIM, but if you are on an E-mail ship you can use this method to make sure you meet your minimum log count. If you are to counsel a character that is played by an actual person, you should always check with them first, or wait until they come to you. It is intolerable to just take control of another person's character and give them psychological problems. In this situation you should discuss the details with the other person first, what they want the problem to be, what has caused the problems etc. You can use this duty at anytime and can be anything from marital problems and family counselling to childhood and deep emotional trauma, and everything in between.

Crew Member Evaluation The Executive Officer and the Counsellor normally do this. Of course you have no real say in who gets promoted, that is the Commanding Officer's duty, but it is an In Character plot line you could use. To do this effectively you should coordinate the story with the Executive Officer. You should *not* mention any promotions unless the Commanding Officer has already announced them.

Crew Member Orientation When a new group of crew members joins your ship or facility, it is the counsellor's job to show them around, make them feel welcomed, and make sure they have been given everything they need. This is more than just a tour. Orientation should last for a few weeks at least, integrating them into the ship's community. You should be available to answer any questions that the new personnel have in regards to shipboard policies, each Commanding Officer is different and will have different opinions on how a ship should be run and transferring crew will need as much attention as cadets will.

This should be done when new crew arrives, during busy SIM periods it should be done in a side room on IRC, or on E-mail ships and facilities at any time in your logs. During slow SIM periods it can be used to fill the time.



Figure 2.3 Counselor in her office.

At times, and depending on your Commanding Officer this may take an Out of Character element as well.

First Contact Procedures When your ship encounters a new species for the first time, first contact procedures should be observed. The Commanding Officer, Executive Officer, Chief of Security, Counsellor and Chief Medical Officer should be present in full dress uniform and an official greeting on behalf of the Federation should be offered. The main concern you will have, as counsellors, will be advising the Commanding Officer after observing the behavioural patterns of the species.

It is also your job as Counsellor to report to your Commanding Officer any known information about the species' customs or beliefs (from duck blind studies etc.), that might aid his or her role as a diplomat. When these procedures cannot be done, i.e. the new species attacked on sight, the counsellor should be on the bridge to help the Commanding Officer interpret the actions of the species, if possible. This should be used rarely, and only when the Commanding Officer states that the procedures are being followed. You can't just decide the ship is meeting a new species.

It is the Counsellor's duty to make a report about the First Contact Procedure together with the Executive Officer and the Chief Medical Officer. In the report the Counsellor should at least describe:

- ☞ The behaviour patterns of the species,
- ☞ The appearance of the species,
- ☞ and all special abilities the species might have (Telepathic etc.)

You will have to send this report to your Commanding Officer (He or she will send it to the Fleet Commander).

Away Missions In non-hostile away missions a counsellor is often invited to join the team. There could be any number of reasons for this: Cultural exchange; interaction with other or new cultures (Again you will have to write a report about this); advising the officer in command of the team of your opinions and the cultural peculiarities; etc.

The Commanding Officer and Executive Officer are extremely busy people and they have a lot to learn before they can effectively command a ship. A lot of that is technical, it is the counsellor's' job to have studied the cultures that are in Starfleet, the Federation, and any other races they might encounter and interact with. This can be used whenever an away team is sent and it is non-hostile. Joining a hostile away team or even a non-hostile away team can only be done on the Commanding Officer's permission.

Morale Officer This is pretty self-explanatory. A morale officer is responsible for keeping the spirits of the crew up during times of duress. Things you could do to lift their spirits could range from personal attention to arranging a party. Keeping an eye on crew morale is a good reason to be in places such as sickbay or anywhere on the ship, the counsellor can be where the action is when it happens. This is a good way of making sure you have something to write about, just remember you are not restricted to your quarters or the office.

This can be used on a number of scales: A single person could be feeling depressed and you could be trying to cheer them up; the entire crew is starting to feel depressed/angry etc (due to an ongoing war etc but it would have to be extenuating circumstances before the entire crew where in need of cheering up) and you could arrange a party or something along those lines; to anywhere in between.



Figure 2.4 Offering support.

Middle Person Role The ship Counsellor can be used as a mediator between crewmembers that have some kind of problem between them that needs sorting out. They can also act as a go between when a crew member wants to discuss a problem with the Executive or Commanding Officer, in so much as they can arrange appointments etc. This would more likely be of a personal nature, i.e. personal problems with the department head or complaints about the department head.

All other problems should be taken to the head of the department – an appointment with the Executive or Commanding Officer is unnecessary unless you have already done that and no action has been taken or you have been treated poorly. This is a duty that can be performed at any time, but as with crewmember counselling it should be thoroughly discuss with the role-played characters involved.

Advisory Position There are many roles that a Counsellor can fulfil on a ship or base, and one of them is the advisory role. Whether it is for individual crewmembers in their own pursuits, or on Away missions to other species' planet, an important part of your duties, is to help people solve their problems. One of the main advisory positions on board the ship will be in your interaction with the Commanding or the Executive Officer in the communication between the ship and other cultures. This situation may require you to interpret and, or translate the actions and behaviours of these people.

2.4 Department Protocols

Cruise Mode - Condition Green This condition can be initiated by the Commanding Officer or Executive Officer on determination that there is no clear and present danger to the vessel or facility or other unusual circumstances. This is the normal operating condition of the ship.

1. All current patients are to have their charts updated at four hour intervals unless otherwise specified by in their charts. Any unusual results will be reported to the senior medical duty officer.
2. Level 4 diagnostics are to be performed on all major medical systems at four-hour intervals, with any unusual results being reported to the senior medical duty officer.
3. All experiments are to be reviewed as is required by the originator of the experiments.

Special Circumstances - Condition Blue This condition can be initiated by the Commanding Officer or Executive Officer on determination that there are circumstances which require increased crew readiness, but are not considered alerts. One such situation would be the landing a Starship.

1. All off duty medical personnel are brought to standby.
2. All on duty personnel should immediately report to the senior duty medical officer for special instructions.
3. All current patients are to have their charts updated at four hour intervals unless otherwise specified by in their charts. Any unusual results will be reported to the senior medical duty officer.
4. Level 4 diagnostics are to be performed on all major medical systems on the initiation of the condition and at one hour intervals, with any unusual results being reported to the senior engineering duty officer.
5. All experiments are to be reviewed as is required by the originator of the experiments.
6. A communications channel is to be established with the bridge or operations centre so that medical personnel may be informed of the nature of the situation.

Alert - Condition Yellow This condition may be initiated by the Commanding Officer, Executive officer, on detection of a threat which does not immediately or seriously compromise the safety of the ship.

1. All off duty medical personnel are brought to standby.
2. The Chief Medical Officer is to report directly to sickbay, calling in off duty personnel as needed to fulfil items listed below.
3. All current patients are to have their charts immediately updated and then updated at one hour intervals unless otherwise specified by in their charts. Any unusual results will be reported to the senior medical duty officer.
4. Level 4 diagnostics are to be performed on all major medical systems on the initiation of the condition and at one hour intervals, with any unusual results being reported to the senior medical duty officer.
5. Only experiments listed as important or critical are to be reviewed as is required by the originator of the experiments.
6. A communications channel is to be opened and maintained with the bridge or operations centre so that medical personnel may be informed of the nature of the situation.

Alert - Condition Red This condition may be initiated by the Commanding Officer, Executive Officer, or automatically by the computer, on detection of a threat which immediately or seriously compromises the safety of the ship.

1. All off duty personnel are brought to active status and assigned to sickbay or remote medical teams as determined by the chief medical officer.
2. The Chief Medical Officer is to report directly to sickbay.
3. Remote medical teams are to follow standard patrol routes, with one radiation team reporting to engineering.
4. All current patients are to have their charts immediately updated and then updated at thirty minute intervals unless otherwise specified by in their charts. Any unusual results will reported to the senior medical duty officer.
5. Level 4 diagnostics are to be performed on all major medical systems on the initiation of the condition and at fifteen-minute intervals, with any unusual results being reported to the senior medical duty officer.
6. Only experiments listed as critical are to be reviewed as is required by the originator of the experiments.

Imminent Core Breach or Evacuation of Ship - Condition White This condition can be initiated by the Commanding Officer, Executive Officer, Chief Operations Officer, Chief Engineering Officer, or Chief Tactical Officer, any engineering personnel, or automatically by the computer, upon detection of a possible warp core breach.

1. All work not related to the moving of patients is to be immediately ceased.
2. All personnel are to dedicate themselves to assisting the moving of patients.
3. Red alert will be sounded throughout the ship, and the chief medical officer will keep an open channel to the bridge and communicate the status of evacuation procedures.
4. All condition red protocols are in effect, unless superseded by those listed here.
5. Any non-medical personnel assigned to assisting the medical staff are to follow the orders of the Chief Medical Officer.

2.5 Ethics

Ethics is the proper and moral use of your sensitive position as a doctor or a Counsellor. You're there for the mental and physical benefit of the crew, which means that what happens in sickbay and in counselling will remain private unless it would endanger the facility or the Federation.

For Betazoids and other species with telepathic or empathic abilities (see chapter 6 on page 27) this is particular important.

Telepathy and empathy can be a great tools when trying to understand patients in sickbay or when working with the inner workings of the crew's mind. Such abilities must not be abused and it means that you *may not* try and read minds without asking permission. This need to be adhered to without question, or it could result in removal of your duty station and possibly court marshal but the Judge Advocates Office.

In that regard it can be enlightening to take a look at the Hippocratic Oath:

I swear to fulfil, to the best of my ability and judgment, this covenant:

- ☞ I will respect the hard-won scientific gains of those physicians in whose steps I walk, and gladly share such knowledge as is mine with those who are to follow.
- ☞ I will apply, for the benefit of the sick, all measures [that] are required, avoiding those twin traps of overtreatment and therapeutic nihilism.
- ☞ I will remember that there is art to medicine as well as science, and that warmth, sympathy, and understanding may outweigh the surgeon's knife or the chemist's drug.
- ☞ I will not be ashamed to say "I know not," nor will I fail to call in my colleagues when the skills of another are needed for a patient's recovery.
- ☞ I will respect the privacy of my patients, for their problems are not disclosed to me that the world may know. Most especially must I tread with care in matters of life and death. If it is given me to save a life, all thanks. But it may also be within my power to take a life; this awesome responsibility must be faced with great humbleness and awareness of my own frailty. Above all, I must not play at God.
- ☞ I will remember that I do not treat a fever chart, a cancerous growth, but a sick human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the sick.
- ☞ I will prevent disease whenever I can, for prevention is preferable to cure.
- ☞ I will remember that I remain a member of society, with special obligations to all my fellow human beings, those sound of mind and body as well as the infirm.

If I do not violate this oath, may I enjoy life and art, respected while I live and remembered with affection thereafter. May I always act so as to preserve the finest traditions of my calling and may I long experience the joy of healing those who seek my help.



Figure 2.5 Diagnosis in progress.

CHAPTER **3**

Medical Department Operations

The Medical Department is centralized in a Ship, Station or Colony Sickbay. The Sickbay is generally made up of a central care facility, surgery suites, a physical therapy facility, a null gravity therapy ward, a dental facility, and a biohazard containment unit. Nearby can also be found the Medical Staff's offices, laboratories, and a nursery. The actual make up will vary depending on the size and class of the supporting facility.

“Chief Medical Officer’s Log, Stardate 41512.9. I’ve begun to suspect whatever is killing the Aldeans is related to a danger faced by Earth in the 21st century. Can it be that Aldea’s ozone layer has been weakened?” —*Beverly Crusher*

The number of staff that is usually on duty naturally depends on the size of the ship or facility.

The presence of civilians ordinarily increases the number of needed medical staff members needed since better care is needed in securing their privacy.

		Doctors	Nurses	Technicians	Research Staff
1)	Duty shift	1	2	1	–
	Total	4	12	3	12
2)	Duty shift	1	2	2	–
	Total	10	20	9	25

Table 3.1 Number of medical staff generally assigned to: 1) Galaxy class Starship with a crew compliment up to 1000 and, 2) Deep Space 9, with a standard population of up to 1200 crew and civilians.

Besides from the standard medical staff up to 40% of the crew will be Cross-trained personnel in some form of secondary medical functions, able to assist in larger medical emergencies. Research staff can also when needed go into the usual crew rotation if for some reason there is a shortage.

The Chief Medical Officer is the department head and *anything* that require approval should be run by her. Due to the size of most Starships today the Chief Medical Officer cannot

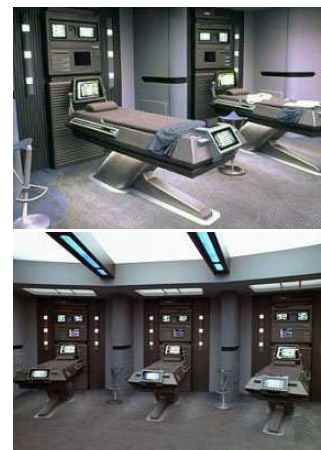


Figure 3.1 Standard Biobeds.

be expected to do all the work – as a doctor you should know the problems of being on duty 24 hours a day will cause. Medical Officers assist the Chief Medical Officer in all areas, such as administration, application of medical care and emergency treatment. The Chain of Command is as follows:

$$\text{MEDICS} \rightarrow \text{RN} \rightarrow \text{AMO/MO} \rightarrow (\text{aCMO}) \rightarrow \text{CMO}$$

Additional medical support is available via the Emergency Medical Hologram (EMH) Program. The EMH is a fully functional holographic physician that utilizes current Starfleet medical databases to render treatment. For more information see section 3.3.

According to Starfleet protocols, physicals are mandatory following away missions that last more than two weeks. Aside from ordered physicals Starships and facilities also have regular physicals to monitor the regular health of the crew. Whenever this is annually or any other specified interval is determined by the Chief Medical Officer.

But while making crew physicals is both fun and a good way to interact with other crew members when there is not a plot demanding your attention, there are other ways to write interesting logs as well. Everything from the more mundane duties such as checking ship supplies and inventory and small accidents to more interesting things, for example making sure the transport bio filters are maintained (perhaps even together with an engineer?). Only your imagination sets limits to what you can log about.

Also keep in mind that Medical, Counselling and Science all wear the same teal collared uniform for a reason. By working together you can add a lot to the SIM environment by playing on each department's strengths. For example physical injuries will often be accompanied by mental traumas, requiring you to work together with the counsellor. Similarly the counsellor might see you for more expertise about suitable medicine he or she can administer. Involving science is very much related to medical research (see also section 3.1), and can assist you in analysing complex scan results. Similarly you can help science. Can you think of a way?

3.1 Sub Departments

The size of the Sickbay will depend on the size of the Starship. On smaller ships such as the intrepid class (see figure 3.2 on the facing page), the sickbay itself will be made up of a main sickbay, and an office for the officer on duty. Nearby will be laboratory facilities. Instead of an Operating Room (OR) this sickbay has an area that can be separated by force fields in order to create a sterile environment. On the other hand, the defiant class Starship only harbours a simple sickbay for treating casualties, larger facilities such as Starbases and colonies will even have sub departments, specialized in various aspects of the medical profession.



Figure 3.3 Mending a dislocated shoulder.

General Practitioners The General Practitioner (GP), also known as family practitioner (FP), provides primary medical care for the station's staff, crew, and long-term visitors.

The GP is responsible for a majority of standard surgeries (including, but not limited to, tonsillectomies, hernia repairs, appendectomies, etc). Additionally s is responsible for programs of preventive care and health education on the base. She plays a role in the survey of epidemics, research for the bettering of station health, and is first in care of diseases and traumas that don't require a specialist.

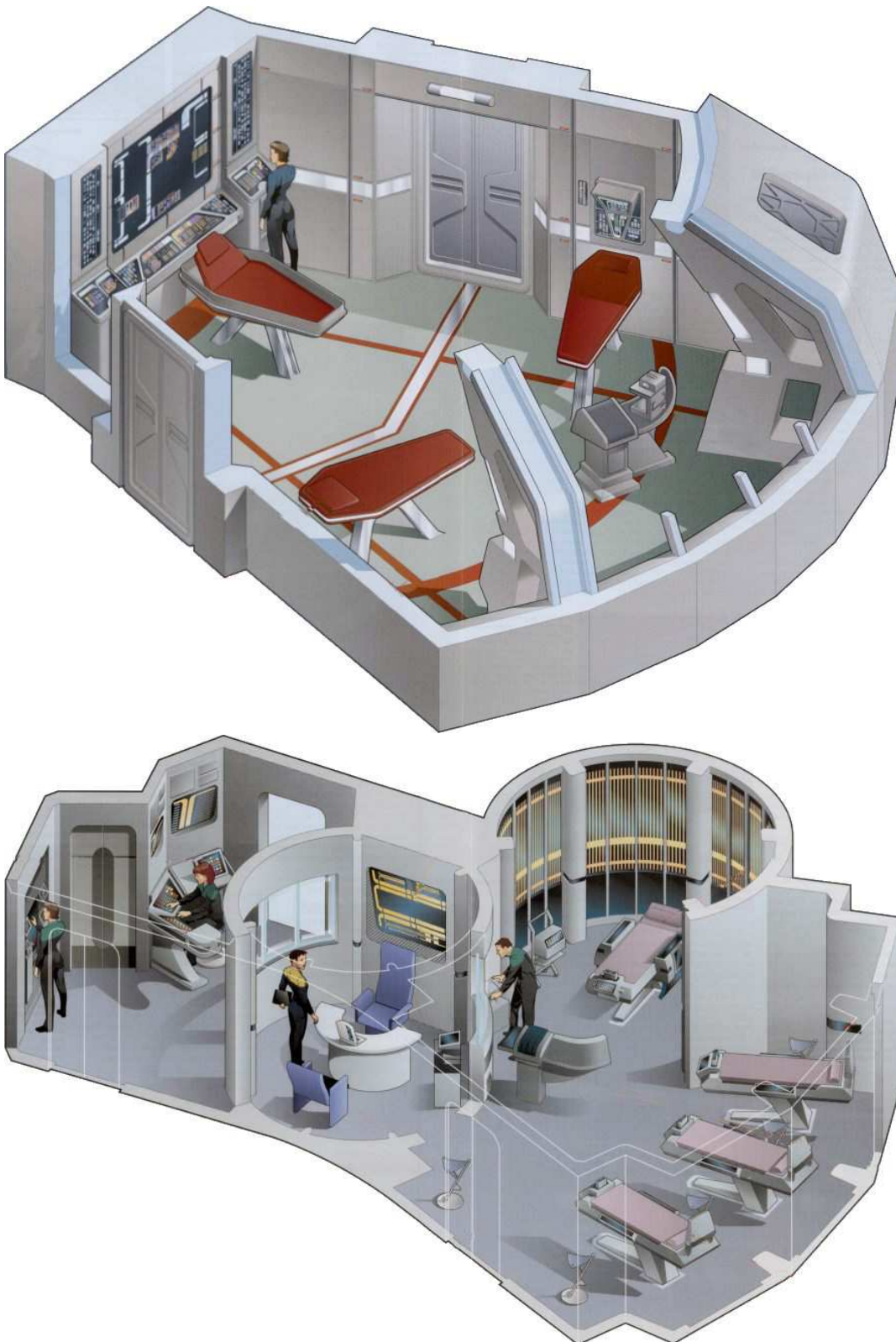


Figure 3.2 Sickbays. At the top is the defiant class sickbay and below is the intrepid class sickbay. The differences correspond to the differences in ship classes. The defiant is a ship of war while the intrepid is a science and exploration craft. While the first calls for immediate emergency medical care, the later to provide longer term medical care.

The GP (and her staff members) also serve in the role as a mediator between the medical and non-medical worlds. Meaning, they are the “continuing and current expression of the historical medical practitioner”.

Surgeons Although every Medical Officer on a starship knows how to perform operations, bigger ships, stations and colonies have separate wards dedicated for Surgery. Thanks to this, the GPs only perform the minor surgeries, while anything from complex nano-surgery to more hands on work by the use of exo- or laser scalpels fall under the surgeons domain.



Figure 3.4 A surgical suite, two surgeons, surgeon at work and a blood-gas (plasma) infuser.

Surgeons (Surg) usually take care of patients that have had an accident, be that an explosion of an EPS conduit or a malfunction of the holodeck’s safety protocols. After performing the needed operations using all of the Medical Department’s equipment, the surgeon usually looks after his/her patients for a couple of days in case of any complications.

Emergency Medicine Emergency Doctors (EDs) are the first line when it comes to help those critically wounded in an accident. Their main duty is to stabilize the patients so that other specialists can take care of them. Also, EDs are usually sent to the place of an accident, as they are best fitted for quick evaluation of the wounded. In times of peace and quiet, they tend to practice their skills with the help of the vessel’s holodeck and training programs.

Paediatrics Paediatrics (Ped) is the area of medicine dealing specifically with the care of infants, children, and adolescents and provides preventive health maintenance for healthy children and medical care for children who are acutely or chronically ill.

In other words, paediatricians are GPs whom were trained in taking care of the children on the vessel. They have been trained in ways of relaxing their little patients and providing them with all the medical care they need.

While not strictly part of Paediatrics an interesting thing that comes up in SIMming from time to time is that of pregnancies and childbirth.

Common genetics of most humanoid races means that numerous inter-species pregnancies are possible, although sometimes genetic technology is necessary.

In this way Humans and Vulcans are quite compatible and due to their close relationship in the early history of the Federation the result of Human-Vulcan mating is perhaps the most proven in the Federation.

Though use common sense when judging how well an inter-species pregnancy would go. Details and complications makes for great SIMming if the parents are up for it a longer sub plot. Do recall that although you as the doctor will be crucial for the plot, you are just assisting. Also note that any telepathic abilities in inter-species relations are severely limited.

Full Betazoids are perhaps the only species where it is relevant at all. For more details about individual species, see chapter 4 on page 19.

Researchers Medical Research is the scientific discipline a doctor can engage in where the need to merge Science and Humanism is not as outspoken as it should during rounds with patients.

Any research done to further the knowledge of the humanoid body can be considered as medical research. As such depending on the research being done there can be a significant overlap to science disciplines such as biology, chemistry and exobiology. Inspiration can also be found in the [UCIP Advanced Science Studies](#) course materials.

It can be anything from a study of micros, to more clinical research such as evaluating new treatments, in elaborate clinical trials, for developments of new treatments altogether. Note that this need not be purely medical. While substantially harder, counsellors are doctors too and similarly can conduct research into the psyche and mental conditions as well.

3.2 Emergency Medical Operations

While emergency medical operations can take place any any SIM, be it a colony, Starbase or a Starship it is most crucial in the case of the limited space on a Starship. As such this section will detail the case from the perspective of a Galaxy class Starship. For points concerning Starbases and colonies, refer to section 3.5 on page 18.

At first glance, it might appear that a Starship is over equipped for medical support. While the nominal mission of the medical department is to provide health care for the ship's crew and attached personnel, this is a relatively small task considering the standard long-term crew complement of around 900 individuals. However, the Medical department must also be capable of responding to a wide range of medical and emergency situations. These scenarios include emergencies on other spacecrafts, planetary disasters, and bacteriologic and other exobiological threats, as well as crises involving non-humanoid patients.

One of the key provisions for emergency preparedness is the requirement that at least 40% of crew and attached personnel be cross-trained for various secondary assignments including emergency medical, triage, and other disaster response functions. Yellow and Red Alert protocols (see section 2.4 on page 7) call for cross-trained personnel with non-critical primary assignments to be available for their secondary assignments as necessary.

Emergency medical facilities are designed to significantly increase the patient-load capacity of the ship's sickbay. Depending on the severity and patient load, different options are available.

Large numbers of patients can be handled by emergency conversion of one or more shuttle bays into triage and treatment centres. These emergency care facilities are equipped for full biohazard protocol, minimizing exposure risk to the ship's personnel.

Note that the use of the shuttle bay facilities for medical service will necessarily impact shuttlecraft launch and recovery operations, a factor that can be significant during evacuation scenarios. For this reason, large-scale evacuation involving shuttlecraft support generally make use of sickbay and other facilities first, before shuttle bay conversion procedures are invoked.

Fewer numbers of patients can be handled by conversion of other facilities. Guest quarters are convertible to medical intensive care use, and utility hook-ups to those compartments



Figure 3.5 Laboratory.

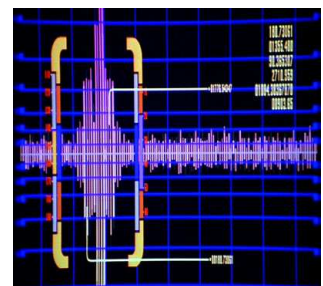


Figure 3.6 Thalaron radiation.



Figure 3.7 Emergency tray.

include bio-medical telemetry links and medical gas connections. The ship's cargo bays, gymnasiums, and other recreational facilities can also be converted to emergency medical use. All of these compartments are stocked with medical conversion kits, which provide necessary hardware and standard medical supplies. Additionally, during non crisis situations, one or more Holodecks can be converted to patient care use. While this is a very convenient procedure, it is also very energy intensive and is not normally employed for long-term care or during alert situations.

Supplementing emergency medical supplies, contingency preparedness scenarios include provisions for large-scale replication of supplies and hardware. Nevertheless, because energy availability for replication may be severely limited during crisis situations, emergency plans are designed to depend primarily upon the use of stored supplies.

A typical emergency situation might be a case where a severe explosion has injured 150 crew members on a Starship. The ship's medical department response might be as follows:

1. After the determination of the existence of the emergency situation, the Chief Medical Officer would receive a report from the Main Bridge. The Chief Medical Officer would consult with the Commanding Officer as well as the Chief Security Officer to determine that the accident site is sufficiently safe for the ship's personnel to transport over. Such determination would generally be based on sensor scans of the accident site.
2. A survey and triage team would then be transported to the accident site. The Chief Medical Officer would normally lead this team, evaluating the extent of casualties and on-site requirements. Simultaneously, the medical staff on the ship would be preparing sickbay and secondary treatment areas for the imminent arrival of patients.
3. At the accident site, the triage team would separate patients into one of four categories as shown in table 3.2.



Figure 3.8 Death by Romulan & Cardassian disrupters.

Minor:	Walking Wounded
Delayed:	Injuries are not immediately life-threatening
Immediate:	Injuries are severe enough to require immediate attention.
Morge:	injuries are so severe that they are beyond help.

Table 3.2 Four catagories used in a triage situation.

Individuals in the third category are prioritized for transport to the ship. The triage team does not administer any actual patient care (except for airway management) because to do so would slow triage processing to an unacceptable rate. The Chief Medical Officer may opt to supplement the on-site triage team with an on-site treatment team, although treatment in a controlled on-ship environment is usually preferred.

Using all personnel transporters aboard the ship, a maximum of approximately one thousand individuals per hour can be evacuated to the ship. If the number of casualties is relatively small, site-to-site transport can be used to beam the patients directly to the on-board treatment area. Otherwise, patients are beamed only to the transporter rooms and then shuttled to the treatment area by gurney. This is because site-to-site transport effectively halves the capacity of the transporter system.

While on-site triage is underway, conversion of the secondary treatment areas would be prepared, using medical conversion kits. For major disasters, hospital and emergency patient care modules can be deployed, providing full-scale surgical and intensive-care facilities. If necessary, these conversions can include complete biohazard protocols.

Once patients are received onboard, treatment teams would include all available medical staff. The medical staff would be supplemented as needed by additional cross-trained personnel from other departments.

In some situations, a cross-trained officer will be the first one to arrive at the site of the accident. In a situation like this, he is obliged to help all those, who were wounded by using all means available. In cases that clearly are a threat to the patient's life, the medic has to order a medical emergency transport of the patient to the sickbay and the take care of the other victims until a doctor arrives. After that, the cross-trained officer should stay at the site of the accident to help the Medical personel.

3.3 Emergency Medical Hologram

The Emergency Medical Hologram (EMH) is a specialized hologram created by Doctor Lewis Zimmerman in the early 2370s. Through all those years, there have been many versions of the program, with each being more sophisticated. The EMH Mark I was programmed with 5 million possible treatments from the collective information of 2000 medical references and the experience of 47 individual medical officers. With additional subroutines, it was able to learn and even develop new ways of treatment.

The current EMH Mark IX shares this ability. This hologram, now looking like a strawberry-blond woman, is capable of fulfilling its duties with greater ease than the older models. It's bedside manners have improved, it's database is bigger and its ability to copy itself in times of emergency make the new EMH a nearly perfect doctor.

Unfortunately, the EMH has its limitations. It can only be active in places that are equipped with omnidirectional holographic diodes (OHDS). Also, a newly activated EMH lacks the human-like creativity, as the program needs time to 'set in' with the crew and its surroundings. There is also another limitation - the EMH cannot be active all of the time or its program would start to degrade. Currently, Starfleet Medical is working on a Long-term Medical Hologram (LMH) that could serve as a full-time doctor.

It's worth noticing, that bigger facilities may also be equipped with an Emergency Nurse Hologram (ENH) that can assist the doctor when needed.

3.4 Burn Classification

Starfleet facilities and Starships in particular are dependable on highly charged plasma, channelled throughout the ship and accessible through different types of EPS taps. Disruptions and failures in any given system can lead to an overload, and high voltage will easily result in electrical burns if someone is nearby. Drugs such as [cordrazine](#) and [tricordrazine](#) will be useful here.

Containment failure of the plasma itself could result in moderate radiation burns as well. Keep in mind there are several means of dealing with radiation burns in particular. [Kelotane](#) and [hyronalyn](#) are medications worth keeping in mind here.

First Degree Burns Damage to the skin surface, resulting in redness and may swell up. Sun burns, contact to hot liquids fall into this category.

Second Degree Burns Damage up to several layers of skin, and skin blistering. Some nerve damage may be present in severe cases. Contact with boiling water falls into this category.



Figure 3.9 EMHS mark I & II.

Third Degree Burns Damage of all skin layers. Nerve damage may be present. Charring and dead skin is visible.

Fourth Degree Burns Damage beyond the skin to muscles and tendons. No feeling in the burn area. Contact with high voltage falls into this category.

Keep in mind that the [dermal regenerator](#) can only heal damage to the outerlayers of skin (first, second and some third degree burns.) More serious third degree burns and more extensive tissue damage will require time and the application of larger bioregenerative fields and possibly bandages inbetween treatments. The skin though serves a vital function in protecting against infections. The dermal regenerator will still be an appropriate first action, but it cannot stand alone.

Weapon damage will often lead to burn damage as well. For example the phaser is a direct energy weapon and will, depending on the settings of the weapon it will cause radiation burns.

A high stun setting will generally result in first degree burns, while a moderate phaser setting above stun will result in second to third or fourth degree burns. At higher settings organic tissue will simply fall apart or evaporate in the path of the beam. This will require extensive reconstructive surgery. Even higher settings and your duties as a medical officer will be limited to verifying that the patient is in fact death.

For more information about the damage of weapons, see the [UCIP Advanced Security Studies](#) or Kelly (2007).



Figure 3.10 Third to fourth degree burns.

3.5 The difference between a Starship and a Starbase

So what does all of the above mean to you? In truth, it may not be so important. First of all the size of a Starship means there will not be an elaborate sub structure of the medical department. The staff will be smaller and the need or usefulness of specialising is debateable. And even while it makes sense on larger facilities to have sub departments, they may not be SIMMED out for various reasons.

For these reasons the various specialisations above can be seen as a place to look if you're short of something to log, need an idea, try something new or you are just trying to make your character a more realistic doctor.

Current Star bases in UCIP have crew compliments from anything between 1,200 to 120,000 crew and civilians. In the extreme case you will have a medical department of more than 1,000 staff members!! It is difficult to grasp such huge departments and how complex they would be – so it is usually not done. However, it does give you an excellent opportunity to SIM NPCs as well, perhaps even using ideas from section 3.1 as mentioned above.

There is also a slight change in terminology. On a Starship the primary care centre is called Sickbay. On Starbases though, it's called an *Infirmiry* and on even larger scales such as colonies it's called Hospitals.

On larger star bases you might even have secondary infirmaries and clinics spread out though the station in key areas and likely close the promenade, commercial areas and civilian's quarters. And where there are civilians, there is also the task of upholding the law – the security department may need assistance from time to time in sedating more troublesome elements.

There may also on such facilities be an active academic environment in relation to the research performed on the site.

Basic Humanoid Physiology

4.1 Bajoran

An ancient race of humanoids from Bajor III. The Bajorans had a thriving primitive culture in the arts and sciences 25,000 years ago. They slowly developed space travel and colonized their system and several nearby star systems. Almost identical to Terrans except for distinctive nose ridges and minor differences in the female reproductive system.

The Bajoran race was conquered by the Cardassian Empire in 2328 and formally annexed 2339. Bajoran freedom fighters repulsed the Cardassians in early 2369. Soon afterwards the Bajoran wormhole was discovered in the Denorios Belt. With the enormous economic boon of the only known stable wormhole, the rebuilding of Bajor has been accelerated. The Bajoran people petitioned the Federation for membership soon after the discovery of the wormhole and are in the slow membership process.

“Medical Log, Stardate 47229.1. Chief O’Brien and I have been working overtime to prepare for the arrival of a new cartographer. Ensign Melora Pazlar is the first Elaysian to join Starfleet and, as such, requires special accommodations.”
—*Julian Bashir*

SPECIES SPECIFIC CONDITION(S): [Orkett’s Syndrome](#)

MENTAL ABILITIES: Limited

4.2 Betazoid

Betazoids are externally almost indistinguishable from humans. Only their irises are different – they are completely black. Also, their REM phase is reached at a different frequency.

The Betazoid are very powerful telepaths, with the ability’s center located in the paracortex and psilosynine being the main neurotransmitter, See also section 6.1. The majority of Betazoids gain control over their powers by training. Although some are able to use their powers from birth, but usually they lack the ability to screen their minds from other’s thoughts.

This can lead to mental instability. There are also Betazoids, who lack the powerful skills of their species.

These powers range from empathy, through mind reading and up to mind control. Due to their culture, the Betazoids do not use their powers against an unknowing individual – they see this as a violation of the other being’s right to privacy. They also tend to be very honest – another aspect of their culture.

Betazoids are capable of breeding with other humanoid species and their pregnancy usually lasts 10 months. In mid-life Betazoid women undergo physiological changes (it’s called “The Phase”) when their sex drive increases by a factor of four or more. Inter-species breeding has an effect on their telepathic abilities – the offspring’s powers are usually weaker than the Betazoids of the same age. Also, full-blood Betazoids cannot read the minds of Ferengi, Breen, Ullians or Dopterians while cross-breeds sometimes feel the emotions of those species.

SPECIES SPECIFIC CONDITION(S): [Zanthi Fever](#), and many others

MENTAL ABILITIES: Full Telepaths



Figure 4.1 Betazoid

4.3 Ferengi

Greedy humanoid race first encountered in 2364 in the Delphi Ardu system. Although several deep space incidents occurred before, this was the first face-to-face encounter. Possessing a rigid and in-flexible code requiring males to relentlessly seek profit while females are left naked and submissive. They appear as short humanoids with skin tones ranging from dull yellow to dark brown. The males have characteristically very large ears while the females have extremely small ears. Coming from a political alliance just beyond Klingon space, they have no firm alliances and prefer to maintain business with all sides. The Klingons detest the Ferengi, however and embargo them. Some rogue Ferengi’s pursues profit as pirates. This is legal only through a loophole in their laws. Ferengi’s have no telepathic abilities and cannot be scanned because of their four lobed brains.

SPECIES SPECIFIC CONDITION(S): [Dorek Syndrome](#)

MENTAL ABILITIES: None

4.4 Human

The ubiquitous race of humanoids from Sol III. Since achieving interstellar spaceflight over 300 years ago, they have proved major figures on the galactic stage. They were instrumental in forming the United Federation of Planets, and now are the leading members. The leading language of the Terrans, English, was adopted as one of the five official languages of the Federation and is the one most commonly spoken and used. The origin of the word “Human” often used to describe life-forms that resemble them. Genetically, physiologically and psychologically flexible they can cross-breed with most humanoid races with medical assistance.

4.5 Klingon

These humanoids are larger and stronger than humans. Their most distinctive trait is their ridged forehead. Their skull is encased in an exoskeleton with a structure called the tricripital lobe. Smashing the tricripital lobe is lethal. Ridges also exist on their spines, chests and feet.

The Klingon anatomy is very different from Terran anatomy – Klingons are known for having 'back-ups' for their internal organs (called "brak'lul" in Klingonese). They have a large, 8 chambered heart, two livers, 23 ribs, double lines neural pia matter, a backup synaptic system, and even a small, auxiliary brain at the base of their spinal column, protected by the pelvic girdle. Even the neuronal sheathing of the Klingon has redundant layers, which make not only for faster reflexes and movements, but contribute to the resistance of the Klingon physique to beam stunners. Even with these changes, Klingons have nutritional requirements similar to those of humans.

A typical Klingon pregnancy usually lasts 30 weeks. This time can change when a mix-species pregnancy occurs. Also, the metabolic differences in the fetus and the mother can cause fainting. It's worth mentioning, that the Klingon characteristics are dominant and will appear through many generations.

The Klingons mature faster than humans – at the age of one, a Klingon child looks like a 4-year-old Terran. At the age of eight, the Klingon child gained maturity. The Klingon version of puberty is called jak'tahla. A typical Klingon is able to live up to 150 years.

It is said, that Klingons lack tear ducts and that the natural odor produced by them was comparable to "vanilla with a hint of lilac".

4.6 Romulan

Warrior humanoids from twin worlds of Romulus and Remus. When the Vulcan race adopted logic and rejected violence, those that disagreed with Surak's philosophy boarded several large colonization ships and sought a new world. Arriving at the class M world of Romulus and its Trojan class K twin Remus, the Romulan Star Empire was born. Romulans are very similar to Vulcans and can only be distinguished by a detailed genetic scan. The Romulan wars between Earth and Romulus in the 2150's led to the formation of the United Federation of Planets. The Romulans emerged from a long absence in 2364 and are a leading threat to the Federation today. The Romulans are the inventors of the Cloaking devices used in the Alpha and Beta quadrants. The Romulans have a bipolar personality, very caring one minute, ruthless the next. The Romulans have had a relationship with the Klingons ranging from military alliance to open warfare and back in just a few years time.

SPECIES SPECIFIC CONDITION(S): [Tuvan Syndrome](#)

MENTAL ABILITIES: Limited

4.7 Trill

Trills are species living in the alpha quadrant, and are a member of the UFP. Their homeworld is shared by two species, the very vulnerable symbionts living in huge subterranean pools and the humanoid hosts, who populate the surface. The Trills are not too different from humans, but have some very unique characteristics: They have a quite large space in the lower torso, for holding a symbiont, which is the main difference from most humanoid races. These symbionts if joined with a host share the nervous system and the mind with it and cannot be removed in a few days after the joining, or the host will perish. Once the symbiot is taken out of a body it should be joined with another Trill host as soon as possible, since it is very vulnerable on its own, thus it is unable to survive a longer period without a host. It is highly advised not to join a symbiont with any other known species, since the host and the symbiont has a minimal chance of survival. The hosts live about as long as humans, but the symbionts can live up to 1000 years.



Figure 4.2 Klingon Anatomy



Figure 4.3 Trill host and symbiont

The hosts are humanoids, but have a narrow band of patches or spots running from the hairline down the whole body, coming to front side on the torso and to the sides of the legs. Trills have always cold hands, so this is not a sign of any illness.

The most important gauge of the health of the joined Trill is the isoboromine levels. If it falls below 50, the symbiont will be removed from the Trill. Joined trill are also highly allergic to insect bites and toxins, they also have slightly heightened senses of smell, taste and hearing. In particular a Trill is able to identify known people according to the beat of the person's footsteps.

SPECIES SPECIFIC CONDITION(S): [Rugelan Fever](#)

MENTAL ABILITIES: Limited

4.8 Vulcan

One of the major races populating the Federation is the Vulcans. Being both founding members of the Federation and comprising nearly one third of the entire population, Vulcans are one of the most studied races, physical and cultural. Here we are going to take a short look into the physiology of the Vulcan race.

Vulcan is far like Earth. It is hot and dry, lower level of oxygen in the atmosphere and having a higher gravity than Earth, to mention the most noticeable. Following Darwin's theory, with time Vulcans grew accustomed to this harsh environment. This gives Vulcans a great physical strength and endurance compared with most humanoids.

It is worth mentioning that when special like the second eyelid, when it was first evolved; the clans and tribes breed those characteristics, and "traded" it for good living places, ruler ship of settlements or water resources. The same goes for other specialities like the nerve pinch.

Seeing genetic characteristics as a valuable influence on power and authority, some characteristics died out - one of the most dramatic was the ability to kill with the mind.

As mentioned before Vulcans have adapted to the environment of Vulcan, and because of the tense radiation, dry weather and dusty surface Vulcans have developed a sound eyelid as protection. The same goes for the pointed ears; experiments have shown that Vulcans ears intensify sound in the dry, thin air of Vulcan. This naturally gives them a better hearing when in a normal class M-planet environment. Also the internal body is specialized. Their lungs are bigger and more efficient, and in turn the heart is placed where the human liver is placed. Their heartbeat with 232 stokes/min and by turn is stronger than a human one. Another difference if you ever are going to see a bleeding Vulcan is that their blood isn't coloured by the Iron in the haemoglobin, its copper based and will be green instead of red. Vulcans internal are even more complex and we're just going to mention that when and if a Vulcan do get hurt they will centralize most of their body resources to heal that part as quickly as possible. This, and during Ponn farr is the only times Vulcans is not having complete control of their body.

Now Ponn farr is not a strictly a physiological thing. It's an expression of the Vulcan way of living (living with suppressing emotions). Once every seventh year every Vulcan male must mate. In this they have no choice but to let go of their logic and return to their ancestor's passion. Now a day however Ponn farr and be lived out more civil with help of medications. However Ponn farr is one of the most personal things, and one should be careful engaging in talks about it without knowing the person very well.

This is natural not all there is to know about Vulcan physiology, there's much more – not



Figure 4.4 Vulcans

to mention Vulcans Psychic abilities (see chapter 6 on page 27). I'll close this with a small reminder to always give a Vulcan their personal space, and only touch them if you share intimacy or it is required.

SPECIES SPECIFIC CONDITION(S): [Bendii syndrome](#), [Tuvan Syndrome](#)

MENTAL ABILITIES: Touch sensitive telepath

Basic Psychology: Ego Defence Mechanisms

This section is not an attempt to give an overview of psychology, as it would require many months to complete such a course. In the interest of aiding realism for counsellors, the ego defence mechanisms, these behaviours categorized by Doctor Anna Freud, are given below to help Counsellors understand why their patients are acting in a certain way in response to stress or hardship.

“Enterprise Medical Log, Stardate 5027.3. Dr. Leonard McCoy recording. I’m concerned about Captain Kirk. He shows indications of increasing tension and emotional stress. I can find no reason for the captain’s behavior, except, possibly, that we’ve been on patrol too long without relief and diversion. He’s resisted all my attempts to run a psychological profile on him.” —*Leonard McCoy*

In essence, the mind has many implements to prevent the person’s consciousness from bearing the full brunt of a given negative emotion or many such emotions. These tools protect the mind and are actually healthy, if not used to excess.

Compensation Compensation consists of using one behaviour or action to compensate for being unable to accomplish another behaviour or action.

Denial An ego defence mechanism that subconsciously relieves ego conflict by refusing to perceive and accept the unpleasant aspect of reality.

Displacement Displacement consists of redirection emotions from a dangerous object to a safe object, in order to release them.

Projection A mechanism where one’s own unacceptable or unwanted thoughts are attributed to others.

Regression The reversion of a person to an earlier life stage, in order to avoid unacceptable impulses.

Repression The process of pushing one’s thoughts into the unconscious and preventing painful or undesirable thoughts from entering the consciousness.

Disassociation The separation or detachment of a feeling that would accompany a situation.

Psionic Fields

Throughout the galaxy many species have developed the ability to manipulate psionic fields. It is therefore important to have a basic understanding these abilities and the underlying courses. Both to understand patients with psionic powers and to be able to assist should complications arise. This is a short overview of the science behind such psionic fields.

“Enterprise Medical Log, Stardate 4769.1. Three alien minds now inhabit the bodies of Captain Kirk, Science Officer Spock, and Dr. Ann Mulhall. As planned, the construction of android robots is underway. All is proceeding as expected and as promised. I can find no reason for concern, but yet I am filled with foreboding.”
—*Leonard McCoy*

Psionics is used as a broad description for a range of psychic abilities, ranging from telepathy, Psychokinetic abilities and beyond. It is a research topic in its own right, combining the disciplines of theoretical physics, psychology and medicine to investigate the fundamental physical manifestation of Psionics: The Psionic Fields.

In general a psionic field is a bioelectric energy field; a field produced by all living life forms and is in a sense unique to each individual. It is formed by the mental processes in the brain and the central nervous system, but it is also highly influenced by the physical state of the subject. As such, a well chosen diet, being well rested or being at good health all positively influences the psionic fields the body produces.

As psionic fields are as normal as DNA, all species will have some fields emanating from them regardless whenever or not they are able to use it or not. A qualitative scale for the use of psionic abilities comes with the Esper rating: A measure for a person’s potential of the use of psionic fields in one way or another. It is empirical scale and should be used as such.

A region in the brain called the paracortex is instrumental in the ability to use psionic fields in any form. Thus it is no wonder that those species that have a natural flair for tapping into these fields have a highly developed paracortex. Prime examples here are the Vulcans (see section 4.8 on page 22), Betazoids and even to some extent Bajorians.

Though it is commonly accepted that humans to a lesser extent can exhibit psionic traits, it is extremely rare.

6.1 Telepathy

Telepathy is in general the ability to communicate and share thoughts directly with the mind, without the help of any other senses. There are several ways to accomplish this and often species that can communicate telepathically are limited to one of them. For examples are Vulcans natural touch-telepaths, while Betazoids can communicate with each other without being in contact.

Even species and individuals that are not telepathically inclined can sometimes perceive things out of the ordinary. This is called Extrasensory Perception (ESP) and it is closely linked to empathy.

Empathy is a weaker manifestation of a psionic abilities than telepathy. It is the ability to perceive emotions in others and can be seen as a lesser form of telepathy, and it is not unusual that an empath will be able to form telepathic connections with certain individuals. This stems back to the interaction of the psionic fields. While unique to each individual, each species have their own characteristics as well. The most striking example is that of Betazoids who can communicate telepathically with one another, but is only able to read the thought of Humans.

Like the Esper rating a measure for a person's ability to sense things is contained in the *apperception quotient*. A high quotient signifies that possibilities of perceiving extrasensory through ESP. It is not however an exact science and hence it should be viewed critically.

Together the Esper rating and the apperception quotient give a qualitative idea about an individual's Psionic abilities without performing any medical procedures.

Mental illnesses specific to a species are mentioned in [chapter 4 on page 19](#), but more generic situations can of course arise as well. Something that is often seen is telepathy gone wild – a telepathically inclined patient is unwillingly probed by the minds around her, unable to shut it out. Similarly a more advanced form of that could be telepathic hallucinations. In such cases [Neural Inhibitors](#), can be a key element in the first stage of helping the patient regain control of their mind. How best to do this depend on the specific situation. It could be a viral infection, or it could be a purely mental problem, requiring counselling.

6.2 Psychokinesis

There is not much is known about this. Though it is certain that it requires a highly trained mind. Indeed not many may able to display this power. For example in the Vulcan Mysticism only the highest and most esteemed monks or priestess seem to have this power.



Standard Medications

Various drugs and medication is available to the medical officer in her duties to treat the sick and as preventative care. Below is a list of the most useful. A more complete list is available here in form of this [cheat sheet](#). Furthermore, each medication belongs to one or more *categories*, which besides from the cheat sheet can be accessed though the index.

Analgesics Drugs used to relieve pain (painkiller).

Antibiotics Is substances used to combat microorganisms such as bacteria and fungi.

Burns Is a category of drugs used to heal burns, such as radiation, heat and electrical burns of various degrees.

Cardiovascular Contains drugs effective against cardiovascular symptoms, such as diseases and infections affecting the heart, blood vessels and the lungs.

Neurological Medications suited for the brain and the nervous system.

Resuscitative A group specific to restore consciousness in a patient.

Sedatives Used to relax, calm and allow a patient to sleep.

Stimulants Is the opposite of sedatives and used to temporarily increase alertness and awareness.

Medication come, or are prepared in small glass vials for easy insertion into the [hypospray](#).

NAME: Acinolyathin

CATAGORIES: analgesic

NOTE: Painkiller used for muscle spasms.

ALTERNATIVE: [Rexlin](#)

NAME: Anesthezine

CATAGORIES: anesthetic

NOTE: General anesthetic used successfully by security personnel to subdue intruders.

Better anesthetics exist for surgical purposes, but it may be used in emergency cases.

NAME: Benjusidrine

CATAGORIES: cardiovascular

NOTE: is a drug prescribed for vulcans with heart conditions.

NAME: Chloromydride

CATAGORIES: cardiovascular

NOTE: cardio stimulatory drug used on unconscious or stunned patients.

NAME: Cordrazine

CATAGORIES: burns, resuscitative, stimulant

NOTE: Cordrazine is a powerful and addic-

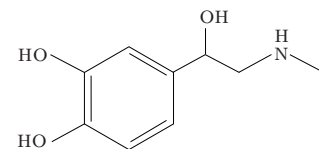


Figure A.1 Adrenalin. Its use in medicine is surpassed by hyronalin

tive stimulant used to treat serious electrical burns, And also known to revive a stunned or unconscious patient. Overdose treatment: kayolene can be administered to sedate the patient, till the overdose diffuses out of the bodies system naturally(6 hours). Overdose can be diagnosed from episodes of delusional paranoia.

ALTERNATIVE: [Tricordrazine](#), [Kelotane](#)

NAME: Corophizine

CATAGORIES: antibiotic

NOTE: is an antibiotic given to patience to prevent secondary infection from critical illnesses due to the aphasia virus

NAME: Delactovine

CATAGORIES: stimulant

NOTE: systemic stimulant drug, used to stimulate the nervous system of the patient.

ALTERNATIVE: [Formazine](#)

NAME: Dexalin

CATAGORIES: cardiovascular

NOTE: medication used to treat oxygen deprivation.

NAME: Dylamadon

CATAGORIES: neurological, sedative

NOTE: euthanasia drug used by some humanoid patients. Deadly and painless.

NAME: Formazine

CATAGORIES: stimulant

NOTE: stimulant drug similar to delactovine

ALTERNATIVE: [Delactovine](#)

NAME: Felicium

CATAGORIES: narcotic

NOTE: narcotic, once used to cure a lethal plague, but addictive side effects continue long Afterwards.

NAME: Hyronalyn

CATAGORIES: radiation

NOTE: medication used for the treatment of radiation sickness. Can be administered ship wide, through the environmental control systems as an airborne solution. One dose halves the effective amount of radiation received, and a second dose further halves that, and so on. Each dosage beyond the first risks Hyronalyn poisoning, which could lead to permanent damage.

ALTERNATIVE: [Kelotane](#)

NAME: Immunosuppressant

CATAGORIES: –

NOTE: drugs used to suppress the immunity system in a subject, thus reducing organ rejection. Handy for that trill emergency operation.

NAME: Inaprovaline

CATAGORIES: cardiovascular,stimulant

NOTE: cardio stimulatory drug used to stabilize a patient's condition.

NAME: Kayolene

CATAGORIES: sedative

NOTE: medical drug used as a sedative.

NAME: Kelotane

CATAGORIES: burns, radiation

NOTE: medical drug used to treat radiation burns and sickness

ALTERNATIVE: [Tricordrazine](#), [Hyronalin](#)

NAME: Leporazine

CATAGORIES: resuscitative

NOTE: general resuscitative drug.

ALTERNATIVE: [Stokaline](#), [Morathial series](#)

NAME: Lexorin

CATAGORIES: neurological

NOTE: medication used to counteract mental disorientation resulting as a side effect of carrying a vulcan's katra, and other mind- meld conditions.

NAME: Medicillan

CATAGORIES: antibiotic

NOTE: broad based antibiotic series.

ALTERNATIVE: [Phetetalin](#), [Tryptophan lysine](#)

NAME: Melorazine

CATAGORIES: sedative

NOTE: Causes 38 hours sleep.

NAME: Metrazene

CATAGORIES: cardiovascular

NOTE: cardiac antiarrhythmic medication

NAME: Morathial series

CATAGORIES: resuscitative

NOTE: group of resuscitative drugs used to resuscitate an unconscious patient.

ALTERNATIVE: [Leporazine](#), [Stokaline](#)

NAME: Neural-paralyzer

CATAGORIES: neurological

NOTE: Neural paralyzer is medication that can cause a cessation of heartbeat and breath-

ing in a humanoid patient, creating the appearance of death. If such a patient receives medical treatment in time, a full recovery is possible.

NAME: Phetetalin

CATAGORIES: antibiotic

NOTE: strong antibiotic.

ALTERNATIVE: [Medicillan](#), [Tryptophan lysine](#)

NAME: Polyadrenaline

CATAGORIES: radiation, stimulant

NOTE: synthetic drug based on humanoid hormone epinephrine.

NAME: Rexlin

CATAGORIES: analgesic, anesthetic, sedative

NOTE: This drug can be used as a tranquilizer, a pain killer and a sedative. All is depending on the dose administered.

ALTERNATIVE: [Acinolyathin](#)

NAME: Stokaline

CATAGORIES: resuscitative, stimulant

NOTE: medication stimulant used to revive an unconscious or stunned patient. Extended use decreases its effectiveness.

ALTERNATIVE: [Leporzine](#), [Morathial series](#)

NAME: Tricordrazine

CATAGORIES: burns, stimulant

NOTE: A powerful neurostimulant drug-administered subcutaneously by hypospray. Used For treating neural injury. It is still addictive.

ALTERNATIVE: [Cordrazine](#)

NAME: Tri-ox compound

CATAGORIES: cardiovascular

NOTE: is medication used to help a patient breathe more easily in a thin or oxygen-deprived atmosphere. This is administered by hypospray into the blood-stream.

NAME: Tryptophan lysine

CATAGORIES: antibiotic

NOTE: distillates tld series used as an antibiotic series.

ALTERNATIVE: [Medicillan](#), [Phetetalin](#)

NAME: Vertazine

CATAGORIES: neurological

NOTE: medication used to combat the effects of vertigo.

NAME: TCS

CATAGORIES: –

NOTE: if all else fails, try Tom's Chicken Soup. (taken from PCS – Pulaski's Chicken Soup)

A P P E N D I X



Standard Equipment

Just like other star trek equipment have had an impact on the way real like objects like cell phones look like, the medical equipment have also been used as inspirations in real life research. See [Hickey \(2007\)](#). It may also not be a surprise that the hypospray have a real life counterpart as well.

ALPHA WAVE INDUCER: The Alpha Wave Inducer is a device meant to induce sleep in most humanoids. It is not meant to replace natural sleep, and cannot be used frequently. It is an electronic version of an anesthetic. Subject enters a deep dreamless sleep during which surgical procedures can be carried out without causing pain to the subject.

ANABOLIC PROTOPLASERS: These devices are used to heal internal and external body damage without the need of opening the body cavity of the patient to effect repairs. This device will not repair incidental damage resulting from the original injury.

AUTOSUTURE: An Autosuture is used to close wounds in patients. It has the same function as 20th-century sutures. It is similar to the Anabolic Protoplaser.

BANDAGES: Starfleet's Medical department has a wide variety of bandage options. Simple bandages made of sterile, inert materials that do not bind with clotting wounds are common. Dermapatch is available in a spray applicator, or in larger pre-formed pieces.

BIOBED: This is an orthopedically-designed hospital bed which has an array of biofunction sensors that monitor all bodily systems. The bed is raised to allow the doctor to comfortably examine the patient. It has a graphic display at the head which gives the patient's current status. Restraining fields are available on some models.

BIOREGENERATIVE FIELD: A Bioregenerative Field is an energy field used to accelerate cellular growth. It temporarily confers the advantage of Regeneration on the patient. A sterility unit is typically used during this procedure to keep infection from being multiplied by the Bioregenerative Field.

CARDIOSTIMULATORS: This is a defibrillator that can also restart a stopped heart. Unlike current defibrillators, this device will not damage surface tissues.

CORTICAL INHIBITOR: This is a device used to control the theta wave activity in the brain.

Specifically it can be configured to block telepathic contact.

CORTICAL STIMULATOR: The Cortical Stimulator provides a method of resuscitation for patients. It is particularly effective for head injuries and comatose patients. It is an electronic version of [cordrazine](#).

DERMAL REGENERATOR: Hand held device that utilizes a Biogenerative field to accelerate tissue growth. The device will promote a chemical balance which supports the growth of normal skin tissue over scar tissue.

Wounds of up to moderate severity can be healed through a dermal regenerator, but use of the device must take into account foreign material in the wound site, depth of the wound, type of tissue, and several other factors. Except for minor wounds, dermal regeneration often serves only as a stopgap for the most critical wounds, which require hospitalization.

EXOSCALPEL: An electronic relative of a 20th-century scalpel. It is essentially an electronic knife.

HYOSPRAY: The Hypospray is a hand-held device used for subcutaneous and intravenous administration of carefully-controlled dosages of medication on a subject. The Hypospray injects the subject by use of a pinpoint, high-pressure, low-volume, microscopic, aerosuspension stream. It allows medication to be given through the skin or clothing without mechanical penetration.

It takes one second to remove and one to replace a medicine vial. The air cartridge is good for 100 injections. It takes one second to remove and one second to replace the air cartridge. Weight is 1/2 lb.

MEDICAL TRICORDERS: The Medical Tricorder is a modified TR-580 with an extra external medical probe and scanner attachment. This peripheral contains over 100 sensors, and the Tricorder contains a specialized medical database that provides detailed medical diagnostic tools in the field including tomographic and micrographic imaging. A small diagnosis wand fits into the top of the peripheral and is occasionally used by the physician to provide close high-resolution scans.

The Medical Tricorder has an external hand-held sensing device. This peripheral contains over 100 sensors, and the Tricorder contains a specialized medical database that provides detailed medical diagnostic tools in the field including tomographic and micrographic imaging. A small diagnosis wand fits into the top of the peripheral and is occasionally used by the physician to provide close high-resolution scans.

Together, these sensors allow the Medical Tricorder to make very detailed diagnosis on known species. On unknown species, it is limited to telling if the life-form is sick or dying. A detailed analysis is not possible in such a situation. Effective range is about three yards.

MOTOR ASSIST BANDS: An electronic strap attached to damaged limbs of patients which increase the neurological impulses provided by the patient to the damaged limb. Useful for rehabilitation.

NANOSURGEONS: A suspension of nanotechnological assemblies that are typically used to survey cellular genetic damage and effect repairs. They report to, and are monitored by, the attending physician. Nanosurgeons are useful to repair additional damage that drugs (for example) cannot affect.

NEURALSTIMULATOR: This device “jumpstarts” the Central Nervous System of patients who has suffered some form of neuro-synaptic failure. This is particularly useful to treat a patient who has suffered CNS shock from the higher settings of a Phaser.

NEURAL STIMULATORS: An instrument used to stimulate the Central Nervous System of a



Figure B.1 Dermal Regenerator.



Figure B.2 Hypospray.



Figure B.3 Medical Tricorder.

patient. They are frequently used to help in attempts to revive unconscious and/or comatose patients.

NEURAL TRANSDUCER: Medical devices that provide the same function as the Motor Assist Bands above, but are temporarily and/or permanently implanted in patients to increase transmission of neural impulses from the brain to whatever area of the body the Transducers are attached to. They are frequently used for spinal cord damage patients.

NEUROLINK: Allows a healthy “donor” to take over autonomic functions for a patient suffering from brain stem damage. One link is attached to the head of the “donor” and the other on the head of the patient. Upon activation, the autonomic functions of the donor control the patient’s heart rate, blood pressure, respiration, etc.

OSTEOTRACTORS: These are medical tractor fields used to set and immobilize a broken bone prior to treatment with a Protoplaser. They act as a temporary cast during treatment.

PHYSICIAN’S MEDKIT: The Physician’s Medikit is a small, strap-on case designed to carry emergency medical supplies. A Full Standard kit would include:

- 1 Anabolic Protoplaser
- 1 Bandage assortment
- 1 Cardiostimulator
- 2 Hyposprays
- 1 Medical Tricorder
- 1 Neural Stimulator
- 1 Respirator

and the following medications:

- 5 Vials of Delactovine (Stimulant)
- 5 Vials of Tricordrazine (Stimulant)
- 3 Vials of Rexlin (Painkiller)
- 4 Vials of Hyronalyn (Radiation)
- 3 Vials of Phetetalin (antibiotic)

The standard kit may be altered to suit missions or situations.

PHYSIOSTIMULATORS: Used to increase metabolic functions in patients that show a decrease of those functions.

PLASMA INFUSION UNIT: An instrument used for transfusions of blood, blood plasma, and/or electrolytes into patients that need them. It is used the same way blood transfusions in the 20th-century. The Plasma Infusion Unit also provides filtration of the material to be delivered. See figure 3.4 on page 14.

PROTODYNOPLASER: A device used to help in patient condition stabilization.

SCALPELS: Laser scalpels help the surgeon because of bloodlessness, but can dazzle anyone unwary enough to look into the beam, even though the scalpel can only cut within its focal length.

SICKBAY OVERHEAD SENSOR CLUSTER: This is a circular arrangement of sensors located above the primary Bio-Bed in sickbay. It augments the sensors of the Bio-Bed, and also provides an emergency containment field to prevent contamination.

STASIS FIELD GENERATOR: This device is used in emergencies when a patient cannot be stabilized and requires treatment that is not immediately available. It significantly slows all biological activity within the perimeter of the field, placing the patient in a sort of suspended animation. The patient will not be aware of any passage of time while under the influence of a stasis unit, since the biochemical activity of the patient’s brain is effectively halted.

SURGICAL SUPPORT FRAME: Surgical Support Frames attach to Bio-Beds providing aid and assistance during surgery and emergency life support. Littered with biosensors, the SSF has a large display of the surgical area.



Figure B.4 medkit.

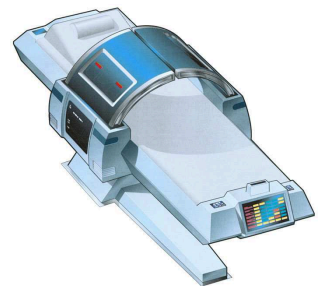


Figure B.5 Biobed with surgical support frame.



Medical Conditions & Procedures

This chapter seeks to sum up the most important or interesting conditions and procedures you may encounter when you're not making one up yourself.

C.1 Conditions

ALTARIAN ENCEPHALITIS: A retrovirus that integrates itself into the hosts DNA, lying dormant for years and can activate at any time without warning. Symptoms include a pyrexia and comatose state, long term memory loss and a gradual synaptic degradation

APHASIA: A dysfunction of certain brain centers affecting the ability to communicate in a coherent manner. Different forms of aphasia exist.

ANDRONIAN ENCEPHALITIS: An Influenza like disease transmitted by airborne articles. Can be deadly if left uncontrolled.

EOSINOPHILIA: This is an abnormally high count of cerum eosinophils, a type of white blood cell in humanoids.

Barclay's Protomorphic Syndrome Resultant from the activation of dormant T- Cells upon the redundant DNA codes of every humanoid. As a result patients de-evolve, via a spread of the altered DNA through the immune system.

BENDII SYNDROME: Rare illness that affects Vulcans over 200 yrs of age. Symptoms include gradual loss of emotional control, bursts of emotion and anger (which may be telepathically transferred to others). Diagnosis is achieved by taking a tissue sample of the hypothalamus.

DOREK SYNDROME: A rare, incurable, fatal disease which strikes, one out of every five million Ferengi.

HOLODICTION: Psychological condition, recognized by the patient's addiction to holodeck simulation.

IRELINE SYNDROME: A very rare neurological disorder in humanoids characterized by a peculiar electropathic signature in the thalamus, and a severely decreased histamine count.

Victim's first disorder would fall suddenly into a coma for approx 72 hours. Diagnosis could be confused by the presence of any of 22 different substances that left electropathic residue resembling that of this disorder.

IVERSON'S DISEASE: Chronic disease, causing fatal degradation of muscular functions in humans. No cure exists.

NEURAL DEPLETION: The complete loss of electrochemical energy of a human brain, resulting in the death of a victim. Some species actually derive this energy to digest.

NEURAL METAPHASIC SHOCK: Potentially fatal failure of the neurological system in humanoids.

NITROGEN NARCOSIS: A hazard of deep-sea diving. It is a cause of the replacement of oxygen in oxy-haemoglobin with nitrogen. The resultant anoxia produced disorientation, hallucination and lack of judgment in the victims. This phenomenon is similar to temporal narcosis.

ORKETT'S SYNDROME: Childhood hematopathogenic common throughout Bajoran refugee. Among the symptoms was an alteration of erythrocytic marker factors. Thousands of Bajoran children died. The preferred treatment often involved bone marrow transplantation procedures. The disease was common enough to be well-documented.

RUGELAN FEVER: A disease which causes a deep coma in Trills.

SOMATOPHYSICAL FAILURE: in humanoid physiology, is the collapse of all bodily systems. I'm afraid, to my knowledge, there is little one can do besides [Cordrazine](#) and hope. In nearly all cases, the subject dies.

TAHITI SYNDROME: A term for human longing for a peaceful, idyllic natural setting when suffering from the stresses of modern StarShip life. This is common's experienced by Starship Captains, send them into a holodeck every now and then.

TUVAN SYNDROME: A degenerative, incurable neurological disease which affects mainly Vulcans, Romulans, and Riggelians. In the very early stages, the patient's eyelids are slightly displaced, facial muscles are weakened, and respiration is irregular. Loss of motor skills occurs in 10-15 years; life expectancy is 20-25 years. In less than 5 percent of the cases, the disease can accelerate without warning.

ZANTHI FEVER: A condition specific to Betazoids which causes them to project their own emotions onto others. A simple wide-stead anti-viral agent is the prescribed cure.

YARIM-FEL SYNDROME: A terminal illness affecting Cardassians; it attacks the digestive tract, circulatory and respiratory systems, and cartilaginous tissues. It can be treated with hexagen therapy or neuro-regeneration procedures. There is no cure.

C.2 Procedures

ACCELERATED CRITICAL NEURAL PATHWAY FORMATION: Procedure involving increasing growth of the neural networks in the cerebral cortex.

CARDIAC REPLACEMENT: Surgical procedure where a diseased or damaged heart is replaced by an artificial heart.

CPK ENZYMATIC THERAPY: Treatment for limiting the extent of spinal injury.

DIRECT RETICULAR STIMULATION: Medical treatment, whereby electrical energy is directly applied via a neural stimulator to the nervous system, in an attempt revive neural activity

in a patient.

DNA REFERENCE SCAN: Medical test used to assess a patients identify, by matching DNA samples, from a previous sample.

DNA RESQUENCING: A procedure in which a subject is genetically engineered for specific traits. It is illegal, except to correct severe birth defects.

ELECTROPHORETIC ANALYSIS: Standardized medical test used to analyze cellular components, to determine their origin.

METORAPAN TREATMENTS: Treatment that regenerates bone tissue in fracture patients.

NEURAL IMAGING SCAN: Medical scan to test a patient's visual cortex.

NEURAL PATHWAY INDUCTION: Medical procedure to treat severe neural pathway damage.

NEURAL POLARIC INDUCTION: Serious operation to repolarize neural sheaths. Depolarization will cause heightened neural activity, reported causing visions by patients. A patient has 50 percent chance to loss his vision.

SYNAPTIC INDUCTION: Medical technique used for neurotherapy for patients suffering from traumatic memory loss.

SYNAPTIC RECONSTRUCTION: Is surgery which neutralizes the synaptic pathways responsible for deviant behavior. What it basically comes down to is "correcting" a persons "psychotic personality" through the means of surgery. This should not be performed on board a Federation starship, only particular starbases spread out across the quadrant are equipped for such a procedure.

RESONANCE TISSUE SCAN: Medical diagnostic scan used to screen for infection.

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Index

A

- AMO, *see* Medical Officer
- Analgesics
 - Acinolyathin, 29
 - Rexlin, 31
- Anesthetics
 - Anesthezine, 29
 - Rexlin, 31
- Antibiotics
 - Corophizine, 30
 - Medicillan, 30
 - Phetetalin, 31
 - Tryptophan lysine, 31
- Assistant Medical Officer, *see* Medical Officer
- Away Team, 3

B

- Bajorans, 19
- Betazoids, 15, 19
- Bioelectric energy field, 27
- Biohazard protocol, 4, 15
- Bioregenerative field, 18, 33
- Birth, 14
- Burn Classification, 17
- Burns
 - First Degree Burns, 17
 - Forth Degree Burns, 17
 - Second Degree Burns, 17
 - Third Degree Burns, 17
 - Treatment
 - Cordrazine, 17, 30
 - Kelotane, 17, 30
 - Tricordrazine, 17, 31

C

- Cardiovascular
 - Benjusidrine, 29
 - Chloromydride, 29
 - Dexalin, 30
 - Inaprovaline, 30
 - Metrazene, 30
 - Tri-ox compound, 31

- Chief Medical Officer, 4, 6, 8, 11, 16
 - Relation to CO, 4, 16
 - CMO, *see* Chief Medical Officer
 - Condition Blue, 7
 - Condition Green, 7
 - Condition White, 8
 - Conditions
 - Altarian encephalitis, 37
 - Andronian encephalitis, 37
 - Aphasia, 37
 - Bendii syndrome, 37
 - Dorek Syndrome, 37
 - Eosinophilia, 37
 - Holodiction, 37
 - Iresine syndrome, 37
 - Iverson's disease, 38
 - Neural depletion, 38
 - Neural metaphasic shock, 38
 - Nitrogen narcosis, 38
 - Orkett's Syndrome, 38
 - Rugelan Fever, 38
 - Somatophysical failure, 38
 - Tahiti syndrome, 38
 - Tuvan Syndrome, 38
 - Yarim-Fel Syndrome, 38
 - Zanthi Fever, 38
 - Cordrazine, 17, 30
 - Counselling Duties, 5
 - Advisory Position, 7
 - Away Missions, 6
 - Crew Member Counselling, 5
 - Crew Member Evaluation, 5
 - Crew Member Orientation, 5
 - First Contact Procedures, 6
 - Middle Person Role, 7
 - Morale Officer, 6
 - Counsellor, 5, 9, 12, 15
 - Cross-trained personnel, 11, 15, 17
- ## D
- Department Protocols, 7
 - Biohazard protocol, 4

- Condition Blue, 7
 - Condition Green, 7
 - Condition White, 8
 - Red Alert, 8
 - Yellow Alert, 8
 - Dermal Regenerator, 18, 34
 - Doctor, *see* Medical Officer
- E**
- Ego Defence Mechanisms, 25
 - Emergency doctors, 14
 - Emergency Medical Hologram, 12, 17
 - Emergency Medical Operations, 15
 - Triage, 16
 - Emergency medicine, 14
 - Emergency Nurse Hologram, 17
 - EMH, *see* Emergency Medical Hologram
 - Empathy, 9, 28
 - empathy, 20
 - ENH, *see* Emergency Nurse Hologram
 - Equipment
 - Alpha Wave Inducer, 33
 - Anabolic Protoplasers, 33
 - Autosuture, 33
 - Bandages, 33
 - Biobed, 33
 - Bioregenerative Field, 33
 - Bioregenerative field, 18
 - Cardiostimulators, 33
 - Cortical inhibitor, 33
 - Cortical Stimulator, 34
 - Dermal Regenerator, 18, 34
 - Exoscalpel, 34
 - Hypospray, 34
 - Medical Tricorders, 34
 - Motor Assist Bands, 34
 - Nanosurgeons, 34
 - Neural Stimulators, 34
 - Neural Transducer, 35
 - Neuralstimulator, 34
 - Neurolink, 35
 - Osteotracors, 35
 - Physician's Medkit, 35
 - Physiostimulators, 35
 - Plasma Infusion Unit, 35
 - Protodynoplaser, 35
 - Scalpels, 35
 - Sickbay Overhead Sensor Cluster, 35
 - Stasis Field Generator, 35
 - Surgical Support Frame, 35
 - Ethics, 9
- F**
- Ferengies, 20
 - First Contact, 6
 - First Degree Burns, 17
 - Forth Degree Burns, 17
- G**
- General Practitioner, 12
- H**
- Head Nurse, 4
 - Hippocratic Oath, 9
 - Humans, 20
 - Hybrids, 14
 - Hypospray, 34
 - Hyronalyn, 17
- I**
- Immunosuppressant, 30
 - Infirmery, 18
- K**
- Kelotane, 17, 30
 - Klingons, 20
- L**
- LMH, *see* Log-term Nurse Hologram
 - Log-term Nurse Hologram, 17
- M**
- Medical Officer, 3, 9, 14, 16
 - Medical Override Security Access Code, 4
 - Medical research, 12, 15
 - Medical Tricorders, 34
 - MO, *see* Medical Officer
- N**
- Narcotics
 - Felicitium, 30
 - Neurological
 - Dylamadon, 30
 - Lexorin, 30
 - Neural paralyzer, 31
 - Vertazine, 31
 - NPCs, 5, 18
 - Nurse, 4
- P**
- Paediatrics, 14
 - Paracortex, 19, 27
 - Phaser, 18
 - Physicals, 12
 - Plasma Infusion Unit, 14
 - Pregnancy, 14

- Betazoids, 20
- Inter-species pregnancies, 14
- Klingons, 21
- Primary duty
 - Counsellors, 5
 - Medical officers, 3
 - Nurses, 5
- Procedures
 - Accelerated Critical Neural Pathway Formation, 38
 - Cardiac Replacement, 38
 - CPK Enzymatic Therapy, 38
 - Direct Reticular Stimulation, 38
 - DNA Reference Scan, 39
 - DNA Resequencing, 39
 - Electrophoretic Analysis, 39
 - Metorapan Treatments, 39
 - Neural Imaging Scan, 39
 - Neural Pathway Induction, 39
 - Neural Polaric Induction, 39
 - Resonance Tissue Scan, 39
 - Synaptic Induction, 39
 - Synaptic Reconstruction, 39
- Psionic Field, 27
- R**
- Radiation Treatment
 - Hyronalyn, 17, 30
 - Kelotane, 17, 30
 - Polyadrenaline, 31
- Red Alert, 8, 15
- Researchers, 15
- Resuscitative
 - Cordrazine, 17, 30
 - Leporazine, 30
 - Morathial series, 30
 - Stokaline, 31
- Rexlin, 31
- Romulans, 21
- S**
- Science Officer, 12
- Second Degree Burns, 17
- Security department, 18
- Sedatives
 - Dylamadon, 30
 - Kayolene, 30
 - Melorazine, 30
 - Rexlin, 31
- Sickbay, 11
- Site-to-site transport, 4, 16, 17
- Species
 - Betazoids, 15
 - Hybrids, 14
 - Vulcans, 14
- Staff numbers, 11, 18
- Stimulants
 - Cordrazine, 17, 30
 - Delactovine, 30
 - Formazine, 30
 - Inaprovaline, 30
 - Polyadrenaline, 31
 - Stokaline, 31
 - Tricordrazine, 17, 31
- Sub departments, 12, 18
- Surgeon, 14
- T**
- Telepathy, 9, 19, 28
- Third Degree Burns, 17
- Transport bio filters, 4, 12
- Triage, 16
- Trills, 21
- V**
- Vulcans, 14, 22
- W**
- Weapon damage, 18
- Y**
- Yellow Alert, 8, 15