



# STARFLEET MEDICAL Handbook

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# Surgeon General's Welcome

We have designed this manual to guide you in your role as a Chief Medical Officer, Nurse, Counsellor or General member of the Medical team aboard your chapter as well as being a point of reference should you need it.

The information contained herein is merely a guide and not the written rule, after all, Starfleet International is all about fun so, please... Make it so!

This handbook is an evolving work that everyone is welcome to contribute to, whether they have taken up a medical role or not. We encourage you and others around you to take up a local or national first aid qualification in the real world, be it in a paid occupation, charity role or your work-based environment.

**This handbook is not and should not be used as a substitute for real-world medical qualifications and training.**

Please remember that it is better to enroll on a local course for first aid and CPR and use your new knowledge to enhance your Starfleet Medical role.

We have endeavoured to cover at least the basic requirements and functions of what each of the Medical roles entails, and as mentioned earlier this is purely a guide; each chapter may do things slightly differently.

You will also find sections on Afflictions & Diseases, Equipment, medications, procedures & treatments. This is not a comprehensive and final list, rather merely a guide resourced from the internet and various Star Trek websites which has been compiled to give you a flavour of what is out there! For a comprehensive resource, please visit: <https://memory-alpha.fandom.com/>

Finally, we have included a section on the Starfleet Academy and Specialist units with which you can further expand your SFI Medical role.

If you feel something should be included within the Handbook please feel free to contact us via the main Starfleet medical website, Facebook page, Discord or email at [medicalops@sfi.org](mailto:medicalops@sfi.org)

Welcome to Starfleet Medical!

Fleet Captain Lynn Harper SFMD

Surgeon General STARFLEET MEDICAL

NOTE: This manual is not intended as a legitimate medical reference. No medical information presented in this book should be interpreted as actual medical advice. This is a work of fiction! You should not attempt to offer any type of first aid or medical treatment based on anything you read in this manual.

# Starfleet Medical

Starfleet Medical was founded shortly after the founding of the United Earth Starfleet in the 2140s. The purpose of this organization was to see to the needs of species other than human and also to treat the personnel of Starfleet. Today, it is one of the quadrant's finest medical institutions and biological research facilities, though some personnel do break their oath to 'do no harm'.



## The History of Starfleet Medical

Starfleet Medical was founded in 2149 as part of the Interspecies Medical Exchange program with the Vulcans, and also to see to the medical needs of Starfleet personnel. As Starfleet discovered more about the galaxy, Starfleet Medical created a medical database for all Starfleet and friendly ships to use. This, along with the Interspecies Medical Exchange program at Starfleet Medical Headquarters, is what drew most alien doctors who came to Starfleet.

In 2151 the Klingon Klaang was brought to Starfleet Medical after being shot with a plasma rifle by a farmer on Earth. While there, he was treated by Doctor Phlox, a Denobulan doctor who came to Earth through the Interspecies Medical Exchange, causing Captain Jonathan Archer to request Phlox to join his crew as Chief Medical Officer.

## The Birth of the Federation

With the birth of the Federation, doctors from the four founding members combined their knowledge into the newly named Federation Starfleet Medical Database, from which all could gain knowledge.

To help reduce problems with the inability to treat patients, the member worlds began teaching doctors, both Starfleet and civilian, on how to treat the member species of the Federation. With the adaptation of Starfleet Academy, those who left its halls after the founding of the Federation consequently learned more than those who had left before 2161.

The peoples of the fledgling republic agreed that just as they were stronger together militarily, they were also stronger together scientifically, including medically. Thus, the idea of Starfleet Medical was born among the people.



## The 2200's

During the 2200s, the Starfleet Medical Database and Starfleet Medical Headquarters learned about more diseases and more physiologies of alien species. As a result, more medications and vaccines were created, as were hyposprays. Tricorders and biobed sensors were also created for use aboard Starfleet ships and starbases.

New illnesses such as Rigellian fever, Irumodic Syndrome, and the hyper-accelerated ageing disease were discovered, and so new medications were needed to combat these conditions. An epidemic of Rigellian fever broke out among some colonists in 2268, causing the USS Intrepid to carry the vaccine and cure to the colonists in the hope that most of them would be saved.

In 2283, a new type of hypospray was introduced, one that was painless compared to its predecessors. The hypospray was no longer very invasive, but rather painless and almost pleasant to some. In 2292, Starfleet Medical began to have their own ships, some of which were sent to assist with the casualties caused by the explosion of the Klingon moon of Praxis. In addition to this, Starfleet Medical was also asked by the Trill to help with the symbiont pools which were starting to fail the symbionts.

## The 2300's

The 2300s saw a new beginning for Starfleet, though not a good one. The Talarians and Cardassians started wars with Starfleet, causing Starfleet medical personnel to work overtime to heal the wounded and see to the dead. Once the wars were over, a new menace came to the Federation, and that was the Borg. Starfleet had never seen anything like this new enemy before, causing some to wonder if they could be defeated since they caused such devastation at Wolf 359.

Starfleet medical officers had a brief respite; however, the following Klingon-Cardassian War caused many injuries which needed to be treated. Nurses and Doctors alike worked tirelessly to make certain that their patients went home to their families, upholding the Hippocratic Oath, the most revered oath that medical personnel can take. Immediately following the end of the Klingon-Cardassian War came the Dominion War, the bloodiest conflict in the history of the quadrant. Now Starfleet doctors were not only treating Federation citizens but also Klingons and Romulans as well. Fighting on the same side for the first time, these efforts built esteem for Starfleet in the eyes of the Romulans.

After the end of the war, the quadrant was changed. Starfleet Medical and Starfleet Operations sent personnel to the destroyed Cardassian homeworld and also to assist not only Federation worlds, but also Romulan and Klingon worlds as well.

# **Starfleet Medical: Administration & Education**

Starfleet Medical (SFM), based at Starfleet Headquarters in San Francisco, is the administrative branch of Starfleet that coordinates and administers medical care and research throughout all of Starfleet's operating branches. The Commanding Officer of Starfleet Medical (usually rear or vice admiral and always an MD) reports directly to the Starfleet Executive Council.

Starfleet Medical has three primary missions, reflected in the three major branches of its organization:

- To provide quality medical care to all personnel within Starfleet and all individuals encountered within and beyond the Federation.
- To further the goals of medicine as a science by fostering research in the medical sciences.
- To educate future medical officers and personnel and provide continuing medical education to them.

The Clinical Department is responsible for providing medical care aboard every Starfleet vessel and at every Starfleet base hospital and is headed by a medical director (usually a fleet captain or commodore and always an MD). It is further divided into three departments: Medical, Nursing and Allied Health, each headed by a Chief of Staff (usually a captain; Medical is headed by an MD, Nursing by an RN, Allied Health by any member of those professions).

Within each department are further divisions and sections, listed by medical specialty (Division of Neurology, Division of Surgery, et al). The Clinical Department is also responsible for supplying medical equipment, supplies and medications to Starfleet's medical facilities and shipboard Sickbays.

The Research Department is responsible for approving, overseeing, and funding all medical research conducted by Starfleet Medical. It evaluates grant proposals, provides Research Review Board (RRB) approval for research on sentient subjects, coordinates the use of research facilities and equipment, and disseminates the results of such research throughout Starfleet and the Federation. It is headed by a Department Chair (usually a fleet captain or commodore, usually an MD, and always a PhD).

Divisions in the Research Department are listed by scientific field (Genetics Division, Xenobiology Division, et al) and are headed by a five-member committee of the senior research scientists in that division. The Research Department coordinates closely with Starfleet's Science Department, as these two branches of the service share many common goals and use many of the same facilities.

The Education Department is responsible for administrating Starfleet Medical's educational systems, both pre- and post-graduate, and providing continuing medical education to Starfleet medical personnel.

It is headed by a Department Chair (usually a fleet captain or commodore).

Like the Clinical Department, it is divided into three departments: Medical, Nursing and Allied Health.

The Chief of Medical Education oversees the medical school and the residency programs; the Chief of Nursing Education oversees the nursing school and the medical technicians' program; and the Chief of Allied Health Education oversees the dentistry, counselling, and veterinary programs. The Education Department is also responsible for administering the licensure and board-certification exams to its students, and for coordinating the CME program for all Starfleet medical officers and personnel. Lastly, the Education Department coordinates with Starfleet Academy and provides the teaching staff for many of its undergraduate-level medical courses.

Most cadets who enter Starfleet Academy to become medical officers pursue their medical education through Starfleet Medical, though a few obtain their medical education elsewhere and later apply to the Academy. The curriculum for the medical school lasts four years and leads to the MD degree and board certification in one specialty; the nursing school lasts two years and leads to the BSN (Bachelor of Science in Nursing) degree and the RN designation. Other programs, such as the dentistry and counselling programs, offer multiple degrees.

## Starfleet Medical within Starfleet International

Within Starfleet International Fan Association, Starfleet Medical (SFM) has its command structure defined similarly. The Surgeon General heads up the department and oversees all functions within Starfleet Medical's remit; all staff, the various health divisions, the quarterly magazine of Starfleet Medical – the Hypospray, and Operations. The Surgeon General is supported in turn by a Deputy Surgeon General who oversees many of the day to day workings within SFM as well as any other tasks assigned to them by the Surgeon General. The third staff member in command is the Chief of Operations, who is responsible for all day to day administration and awards within SFM.

The next level in the command chain is divided between the Committee Chiefs who oversee specific areas of health (Women's Health, Men's Health, Public Health, Disaster & Emergency Response Preparedness and Wellness) and the Assistant Surgeon Generals.

There is one Assistant Surgeon General for each Region within Starfleet and they are responsible for overseeing medical activities within their region.

Assistant Surgeon Generals (ASG's) may or may not have a Deputy Assistant Surgeon General, whose function is to support the Assistant Surgeon General and help to share any workload with. Assistant Surgeon Generals and/or their Deputy are required to contribute towards the Hypospray each quarter.



All Chief Medical Officers within each Region 'report' to their Assistant Surgeon General, though in reality there is no actual reporting required. It is a good idea however for each CMO to let their Regional ASG know if they have been involved in any medical activities of interest so that these can be recognized higher up the chain.

Chief Medical Officers are the Medical officer in charge of medical activities aboard their Chapter and are appointed by the CO of that Chapter. Chief Medical Officers help all crew members who have an interest in Starfleet Medical and lead medical activities aboard the Chapter.

## **Starfleet Medical Academy**

The Starfleet Medical Academy is the proper name for the additional 2-4 years of medical training that the officers in the medical department must go through once graduated from the normal 4-year courses.

These officers have the duty of treating all personnel aboard Starfleet facilities, from engineering burns, cases of flu, pregnant cats to paediatrics.

The Medical Academy has the responsibility of training these physicians for the unique situations starships routinely run into as Starfleet frequently receives requests from member planets and colonies suffering from epidemics or needing medical supplies or even heart surgeries on crewmembers.



## **Educational Pathways**

Some medical cadets have already earned their medical degree on their homeworlds and are proficient in the methods of medicine for their species.

Others have completed premedical studies and obtain their doctor of medicine degree from Starfleet Medical Academy after four years of study.

Either way, because of their lengthy education, most medical cadets do not enter Starfleet Medical Academy until at least the age of 22.

Upon graduation, medical officers complete an internship and then enter the fleet as general medical officers or continue with further residency training.



## Starfleet Medical Ships

Starfleet Medical has a small fleet of hospital ships that are mostly Olympic-class though some are Nebula-class fitted with a medical pod. Their captains are former doctors to ensure the needed compassion on their part, though most of the crew who are not medical personnel on the ship have never been doctors or nurses.



Olympic Class



Nebula Class

## Changes in Medicine

Alongside tremendous technological advancements achieved with the passing of three millennia, the field of medicine has kept pace with equally startling improvements. Life expectancy is 40 per cent longer for humans on earth, a leap from 75 years to 125. Diseases that used to pose a threat to the human race are exterminated and practising medicine is no longer as intrusive as it used to be.

Perhaps owing to a longer lifespan and a broader vision of the universe due to the exploration led by Starfleet vessels, the Terran attitude toward life has developed into an emphasis on non-interference and equality in the treatment of any form of sentience. The age old prejudice against the unknown has largely been conquered by charity and respect for diversity championed by the Federation. The keeping of ancient traditions by taking the Hippocratic Oath at Starfleet Medical is in ways symbolic of the Federation's resolve to relieve suffering and aid worlds torn by violence.

## Medical Tricorders

The Federation is in itself a highly diversified organization, with differing native physiology on each member planet. To attend to the medical needs of its multi-cultural officers as well as those of unfamiliar life forms, Starfleet has developed medical devices that work well with humanoid species. Techniques in the diagnosis of various illnesses have also been refined. Armed with the medical tricorder, a precise scanning tool every cadet is trained to use, Starfleet Officers can analyze alien life forms and identify human medical conditions.



Besides mere identification of problems or conditions, these tricorders are capable of giving a calculated diagnosis of medical problems unknown to have existed before, all of which makes the medical tricorder invaluable to medical officers at the frontier of the universe. The instrument has a range of one meter, but most doctors tend to use them at about 10 centimetres from the patient to eliminate erroneous readings caused by atmospheric interference.

## Hyposprays

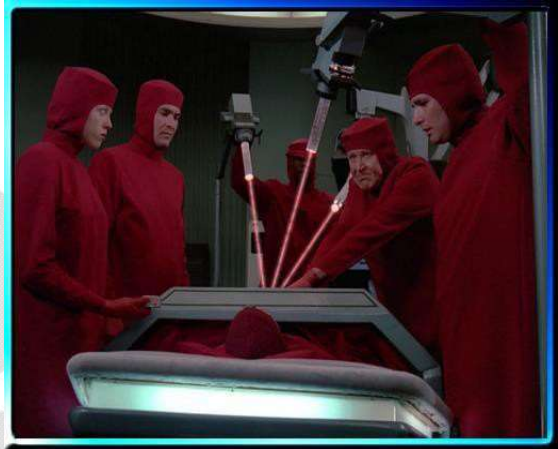
But better than surgical techniques are not having to use them all together. Most minor conditions (and in the 24th century, "minor" means anything short of life-threatening) can be repaired with instruments that accelerate the healing process. Almost all illnesses can be handled by medication injected through the epidermis with a hypospray. A hypospray shoots a high-pressured pinpointed stream of the medication, which penetrates the skin and most clothing without the prick of a needle.





## 24th Century Surgery

Surgery in the 24th century has advanced to become as non-invasive as possible, utilizing Exoscalpels and Sonic Separators to make incisions without relying on a surgeon's hands. Alpha Wave and Somnetic Inducers work as the standard anaesthetic by lowering the patients' state of consciousness while not producing adverse side-effects. Some surgery can circumvent opening the body altogether. Anabolic protoplasers use force-fields and regenerative accelerators to quickly repair small wounds. For cases that require great precision, Nano surgeons, which are microscopic electronic "pores" can be injected into the patient's bloodstream and controlled from the physician through a computer.



## Surgical Procedures

Of the medical specialties, surgery is renowned for both its spectacular successes and its equally astounding failures inpatient care. Surgeons are unique in the medical community in that they must constantly balance the therapeutic benefit of an operation against the trauma caused by that same procedure. The surgeon also has the sole responsibility for a patient's outcome. If the procedure is a success, he or she gets the credit; if the patient deteriorates or dies, the surgeon must answer. For this reason, a good surgeon must have a balance of aggressiveness and caution in assessment, treatment, and management of surgical patients. Because of this "fighter jock" mentality, surgeons often suffer from a reputation for being "blades": they are arrogant, boastful and prideful, take no advice from anyone, are never wrong even if proven wrong, can do any surgical procedure perfectly, and generally perceive themselves as minor deities. This is a dangerous fallacy, for while a certain degree of self-confidence is necessary for a good surgeon, those who suffer from excess hubris tend not to last long in surgery or any other specialty.

In the modern setting, most surgical procedures can be done with minimally invasive techniques, resulting in rapid patient recovery. When considering a surgical procedure, the best approach is usually the least invasive, i.e. that which requires the smallest incisions and the least amount of ancillary damage to the body. Nanite surgery, for example, is a less invasive option than coronary vessel grafting for atherosclerotic disease of the heart. Likewise, laparoscopic surgery, done through a 2-cm incision, is a less invasive option for appendectomy than the 10-cm "open" approach used in the 20th and early 21st centuries. Certain situations, however (trauma surgery is one notable example) require an invasive approach for both evaluation and treatment. Again, the surgeon's best judgment is key.



As in general practice, a thorough history and physical examination is the best defence against "surprise" outcomes. (Indeed, an old medical dictum holds that "surprises only happen when the surgeon isn't paying attention.") In the context of trauma, the ability to thoroughly evaluate a patient in minutes is critical. Of primary importance is the patient's cardiovascular function, respiratory function, neurological function, and renal function. With impairment in any one of these systems, the patient's chances of a good outcome drop drastically.

The surgeon's role does not stop when the incision is closed. Surgeons are also responsible for post-operative care and management, up until the patient can be referred back to his or her primary care physician.

## **Medical Jobs and Roles**

### **Surgeon General**

The Surgeon General is the operational head of Starfleet Medical (SFM) and thus the leading voice on matters of health in Starfleet. The Surgeon General's office and staff are known as the Office of the Surgeon General (OSG) and is overseen by the office of the Director Of Auxiliary Services, Starfleet.

#### **Typical Ranks**

The Surgeon General is a high-level staff position, typically held by a Captain or higher who has an exceptional range of surgical, diagnostic, dental and veterinary knowledge and who has also graduated from command school with distinction. Whilst the Surgeon General typically remains at Starfleet Medical headquarters, they may also frequently inspect the fleet's staff and medical facilities. The SG must have taken the OTS exam or be in the process of taking it.

#### **Specific Duties**

The Surgeon General oversees all departments within SFM so is ultimately responsible for their smooth running. Medical departments may be inspected at regular intervals and SFM policy is made or amended when necessary in coordination with the Director of Auxiliary Services Starfleet and other senior staff at SFM.

## Deputy Surgeon General

The role of the Deputy Surgeon General is to advise and support the work of the Surgeon General within SFM and to provide up to date health information from official sources to the members of SFM.

### Typical Ranks

The Deputy Surgeon General is a high-level staff position, typically held by a Captain or higher who holds a medical degree and has a wide range of medical experience in the medical, surgical, dental, veterinary fields, as well as good administrative skills and who has graduated from Command School.

Whilst the Deputy Surgeon General also typically will spend a significant portion of time at SFM headquarters, they may spend time away on various starships ensuring that all is running well in the field. The DSG must have taken their OTS exam or be in the process of taking it.

### Specific Duties

The Deputy Surgeon General oversees the Hypospray (SFM's quarterly newsletter), the Assistant Surgeon Generals and their regional CMO's, the Research and Development department and office of communications. They also oversee the various Committee Chiefs and their departments and, like other SFM staff, will ensure that health information from reliable and official departments is made available to SFM members.

## Chief of Operations

The Chief of Operations (CofOps) is in charge of day to day administration within Starfleet Medical and is third in charge after the SG and DSG.

### Typical Ranks

The Chief of Operations may be any rank, however, must be 18+ years of age and must have taken their OTS exam or be in the process of taking it. Usually, however, the Chief of Operations will be of Officer rank.

### Specific Duties

The role of the CofOps includes keeping track of the medical and training awards that medical members may earn within SFM and awarding certificates as appropriate, record keeping of appropriate data such as SFM members and whether they have earned the title of SFMD, the SFM website and any other tasks that the SG or DSG may assign to the CofOps on an as-needed basis.

# Assistant Surgeon General

## Specific Duties

The role of the Assistant Surgeon General within any Region is to serve as an information portal for medical topics firstly at that regions national and regional level, so information relevant to your area. Additionally, ASG's are to relay Fleet Medical information and updates. Finally, they are responsible for their Regional ASG page as a place for regional medical members to discuss topics as well as seek support from other members be they from the region or the international group. This is one of the many reasons why international medical members are encouraged to and want to join ASG pages and support each other. We are an international organisation not region-specific.

Starfleet Medical does not subscribe to a Region only members group. Those types of groups are for the Regional Committee. As an ASG you do not work for, are not a member of or contribute in any way to the Regional committee decision-making process unless asked to by the Regional Coordinator. You work alongside them supplying Fleet medical support to members and information to the members of the region with their consent. You are Starfleet Medicals representative for your region only and may be amended at any time at the discretion of the SG / DSG.

## Typical Ranks

Assistant Surgeon Generals may be any rank but are typically officer rank. ASG's must have taken or be in the process of taking their OTS exam.

# Chief Medical Officer

The Chief Medical Officer or ship's surgeon is a mid-level staff position, typically held by a Starfleet Officer who is a doctor of medicine with surgical skills. A nurse could also hold this position if no qualified doctors were available. Chief medical officers were also referred to as the "ship's surgeon" in the 23rd and 24th centuries.

## Specific duties

CMOs aboard a starship or starbase are directly in charge of the sickbay or infirmary, commanding medical department personnel and activities. The CMOs primary duties are the oversight and maintenance of the overall health and physical fitness of crew and passengers. Furthermore, as per standard medical procedure, the CMO has full medical authority over any patient officially admitted into their care in their facility, including superior officers, until they are formally released from care.

Officers likely to be assigned as the CMO over long-duration missions of exploration must have scientific training in disciplines outside of medicine, allowing them to take on major, extended research projects, or to better participate in a wider variety of encounters



## Medical authority

In addition to the normal duties of an officer, Starfleet Order 104 Section C gives CMOs the power to relieve an officer or crewman, including a superior one, of their duties if, in the CMO's professional judgment, the officer in question is medically unfit. The CMO in question would need to officially certify and provide evidence of unfitness at a subsequent board of inquiry. Typically, the CMO is expected to have the support of a senior command officer or detailed medical documentation to justify this course of action. The chief medical officer can impose medical physicals upon crew members if the mission lasts more than two weeks.

The CMO also seemed to have the authority to order officers to do things that would be beneficent to their health, like sleeping. In the 23rd century, chief medical officers certified the health of research personnel on alien planets on a yearly interval.

## Chapter Duties

As the CMO for your Chapter, you will be asked to submit a monthly MSR to your XO or CO detailing any Medical activities aboard the Chapter. These reports are then forwarded onto Starfleet Medical at Fleet level. It is asked of, but not expected, of the CMO to actively promote the Surgeon General and the Region Assistant Surgeon General / Chief Medical Officers goals for the forthcoming year.

You will be expected as per Starfleet regulations to have at least 40% of the crew trained in emergency medical procedures.

## Medical Officer

Medical Officers undertake the majority of the work aboard the ship/facility, examining the crew, and administering medical care under the instruction of the Chief Medical Officer also run the other Medical areas not directly overseen by the Chief Medical Officer.

## Chief Nurse / Nurse

Nurses provide vital patient care within a medical department aboard a starship or starbase. Nurses spend a considerable amount of time with their patients and their approach to patient care is based on the strong historical foundation of nurses serving as patient advocates. Working collaboratively with medical officers and other members of the healthcare team, nurses work every day to help their patients maintain their health or recover from ailments.

Nurses also may have held the position of chief medical officer on a starship if no doctor was available.

## Chapter Duties

As the Chief Nurse or Nurse for your Chapter, you will be asked to submit a report for the CMO's monthly MSR detailing any real-life medical activities that you may have undertaken.

## Counsellor

Counsellors act as general overseers of the crew's mental well-being. They give advice and guidance for personal problems that crewmembers may have. If necessary, they can provide psychiatric and psychological treatment and care. Counsellors can also refer clients to other medical personnel for more conventional treatments. They work closely with the Chief Medical Officer.

Counsellors also work frequently with the command staff of a starship or installation in other roles beyond personal counselling. Counsellors perform crew evaluations and offer career guidance for other Starfleet officers. They are often called on to act as mediators during negotiations and serve as diplomatic officers during contact with other species.

The counsellor:

- Should ensure all crew aboard a starship or starbase maintain adequate mental health.
- Could advise the commanding officer and other senior officers in many situations, such as first contact, cultural awareness and hostile encounter experiences.
- Could relieve any officer or crewmember of duty where sufficient evidence exists that a person is unable to perform their duties due to a mental condition.

### Chapter Duties

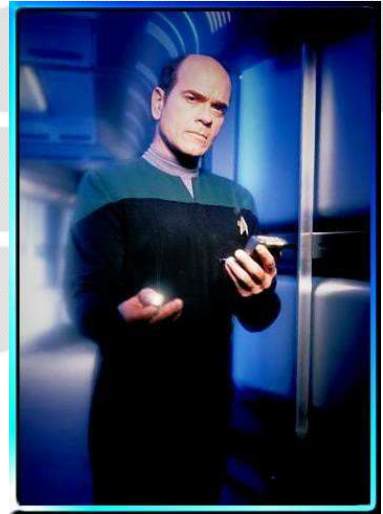
As the Chief Counsellor / Counsellor for your Chapter, you will be asked to submit a report for the CMO's monthly MSR detailing any real-life medical activities you have undertaken.

## Morale Officer

A Morale officer is a term for a person whose job it is to look after the morale of a crew. Often, the duties of a morale officer coincide with those of a counsellor.

## Emergency Medical Hologram

The Emergency Medical Hologram (EMH) system was designed by a team of Starfleet Medical researchers, headed by Dr. Lewis Zimmerman, after several incidents in which medical care aboard ship was unreasonably compromised - for the simple reason that medical officers are mortal, and suffer injury and illness just as much as their patients. In normal use, the EMH serves as an assistant to the ship's medical staff; in emergencies, it can operate completely independently of human supervision.



The earliest versions of the EMH were designed for emergency use only, placing speed and clinical acumen at a premium; these systems, while technically brilliant, had a characteristically abrasive personality that did not endear them to either medical officers or crews. More advanced versions of the EMH include enhanced interaction subroutines, allowing for the development of a “bedside manner.”

Any EMH will develop a unique “personality” with repeated use; a commonly observed trait in the EMH is music appreciation, although the type of music varies widely. (This seems to be influenced by the personalities of the people the EMH interacts with. Left to its own devices, the EMH typically develops a liking for classical music.) Other early signs of personality enhancement in the EMH are alteration of vocal subroutines (the system may not always initiate with “Please state the nature of the medical emergency?”) and desire for a name (although most EMH units prefer simply to be called “Doctor”).

While the core functions of the EMH are hard-written into the computer core and cannot be altered, personality functions can, and many Starfleet medical officers hasten the process of EMH personality enhancement by replacing or revising the system's interaction modules as needed, and officially unsanctioned but popular procedure. Personality can also be enhanced by allowing the EMH more control over its function.

EMH systems, while invulnerable to disease and injury, can be adversely affected by several factors. The most common of these is EMH matrix degradation over extended periods of usage; in extreme cases, the system will develop a memory instability similar to the human neurological disorder Alzheimer's disease, necessitating complete replacement of the EMH system. This can be prevented by regular system maintenance. (Good luck in getting the EMH to comply, though; as,



like any good doctor, the EMH makes a truly rotten patient.) As the EMH develops an integrated personality, it will also learn to form associations with the preferred crew; a display of preference in a clinical setting may lead to a cognitive/ethical feedback loop, which can only be broken by erasing the system's memory of the trigger event. Like any computer system, the EMH is easily affected by computer viruses (note that the system occasionally manifests these as human disease processes). Finally, physical damage to the ship's computer core can cause complete EMH failure.

The EMH, being a hologram, is limited to areas of the ship where holoemitters have been installed; aboard most vessels, this restricts the EMH to Sickbay, the Holodeck and the Engineering Department. Some work has been done on the feasibility of a mobile holoemitter, but as of this writing, such a device remains physically impossible to create.

## Medical Procedures

### Standard Medical Examination

All Starfleet personnel aboard your ship/station/facility must receive a standard medical examination from a member of the Medical staff before they can be cleared for duty. Likewise, all visitors must be cleared by Medical before they are allowed to mix with the general population.

Standard Medical Examinations should be given to crew members at the following times:

1. When the crewmember is first posted to the ship/station/facility.
2. When the crewmember returns from an LOA.
3. When the crewmember returns from an away mission.
4. If the crewmember reports to the sickbay/infirmary with any medical complaints.
5. At six-monthly intervals thereafter.

Standard Medical Examinations should be carried out according to the following procedure:

#### Medical Records

The attending physician should review the patient's medical history before beginning the examination so that they are familiar with any existing medical conditions. For new personnel: Medical histories should be provided by their previous Chief Medical Officer. For existing personnel: Medical histories should be accessed from the ship/station/facility medical database.

## Physical Evaluation

**Cardiovascular:** Heart rate and blood pressure must be within 2% tolerance of the recommended average levels for that species. Blood gas levels and viscosity should be analysed to ensure adequate distribution to internal organs and establish if there is any risk of embolism.

**Pulmonary:** Respiratory rate should be within 3% tolerance of the recommended average level for that species. Oxygen intake should be measured and tracked to ensure no obstruction of the airways.

**Gastroenterological:** Stomach acid levels should be within 0.5% tolerance of the recommended average levels for that species. The digestive tract should be free of obstructions or swelling. Nutritional absorption levels should be tracked and recorded.

**Neurological:** All neurological readings (e.g. engrammatic stability, cerebral activity, neurotransmitter levels) should be within 0.1% tolerance of the recommended average levels for that species. Any variances should be recorded and the patient admitted to Sickbay/Infirmary while further scans are run.

**Hormonal:** All hormones present should be within 5% tolerance of the recommended average levels for that species. Any variances between 5 and 10% should be recorded and monitored for a week. Any variances over 10% should be recorded and the patient admitted to Sickbay/Infirmary while further scans are run.

**Ocular:** All crew are required to pass a basic visual acuity test with a minimum score of 60%. A retinal scan should be taken and filed with the patient's medical history. Scans should be run on all areas of the eyes and optic nerves.

**Auditory:** All crew are required to pass a basic auditory acuity test with a minimum score of 60%. Scans should be run on all areas of the auditory organs and adjacent nerves.

**Psychological:** A crew member may only be cleared for duty if the attending medical officer is satisfied that they are of sound mind and able to make rational judgements.

# Starfleet Medical Protocols

Below are some, but not all, of the protocols and regulations that affect you as a medical practitioner aboard a Starship or Space station.

## Starfleet Medical Regulation 121

Section A: If there is evidence in the actions of the captain that he/she is mentally or emotionally unfit (such as suicidal decisions, threatening or endangering others), and if it is the opinion of the chief medical officer of the starship that the captain's judgment has been impaired, the medical officer is authorized to relieve the captain of their active command. If the Captain, once ordered to stand down, refuses to relinquish command to another he/she risks a General Court Martial.

(Similar to Starfleet Order 104 Section C)

"Lonely Among Us" [TNG], "Year of Hell, part 2" [VOY]

## Medical Emergency on Alien Terrain

(Infectious Agent Containment Protocols)

In the case of a Medical Emergency on Alien Terrain, it is recommended that an open comm channel be kept at all times. "Macrocosm" [VOY]

The transport of unknown infectious agents onto a starship is forbidden without establishing containment and eradication protocols. "Macrocosm" [VOY]

Nothing shall be beamed aboard until danger of contamination has been eliminated. However, beaming down is permitted if the Captain decides that the mission is vital and reasonably free of danger. "The Search for Spock"[ST3]

The Chief Medical Officer outranks the captain in health matters. "Persistence of Vision" [VOY]

Starfleet regulations state that the ship's surgeon will require a full examination of any crew member that he has doubts about, including the captain. "Turnabout Intruder" [TOS].

## Off-world Research Personnel

All research personnel on alien planets are required to have their health certified by a starship surgeon at one-year intervals. "The Man Trap" [TOS]

## Health Matters

Transporting harmful animals from one planet to another is against regulations, as is the breeding of harmful or dangerous animals. "The Trouble with Tribbles" [TOS]

Regulations call for one to hand over their weapons when entering a mental health institution. "Dagger of the Mind" [TOS]

When on medical leave, according to Starfleet regulations, a person gets to choose



their rehabilitation facility, i.e. gets to spend their medical leave anywhere they choose to. "Only a Paper Moon" [DS9].

### Treatment of Patients

Starship Regulations require that a Chief Medical Officer enter any reasonable doubts regarding the treatment of a patient into his medical log. This will require the Captain to initiate an investigation and to answer by a proper report in his/her log. "Dagger of the Mind" [TOS].

### Away Team Protocols

Crew members are required to submit to a physical examination if the mission lasts more than two weeks. "Memorial" [VOY]

"All Starfleet personnel must obtain authorization from their CO as well as clearance from their medical officer before initiating an intimate relationship with an alien species." (VOY episode: "The Disease")

## Commonly used Medications

### Medicines - Stimulants

**ADTH** - A substance which may be pumped through the life support systems of a starship as a fast-acting stimulant. Lieutenant Commander Data used ADTH in the airflow at 5 parts per million to revive the remaining crew from the stun effect of the Paxans' fake wormhole ("Clues" [TNG]).

**Animazine** - Animazine was used in 2374 onboard the starship Voyager to prevent crew members from falling prey to the neurogenic field generated by the dream species, although, like any such medication, its effectiveness was limited. ("Waking Moments" [VOY])

**Chloromydride** - A cardio-stimulatory drug used where Inaprovaline is ineffective or may cause allergic reactions. It is usually used in concert with cardiac and neural stimulators for additional benefits ("Ethics" [TNG]).

**Cordafin** - Pharmaceutical. Cadet Tim Watters abused cordafin in 2374 while serving as captain of the U.S.S. Valiant, possibly contributing to errors in judgment that led to the death of his crew and the destruction of the spacecraft. ("Valiant" [DS9])

**Cordrazine** - A powerful stimulant that will usually revive a stunned or unconscious patient completely. Cordrazine is "tricky stuff" - overdose can lead to delusional paranoia, and the drug is addictive.

**Delactovine** - A common stimulant with few side effects. It is mildly addictive.

**Formazine** - A common stimulant that can cause irritability with prolonged use (more than three days). Otherwise, it has the same effects as Delactovine.

**Hyperzine** - Cardiac stimulant. Dr. Julian Bashir ordered hyperzine when Garak suffered a cardiac arrest due to the stress related to the cranial implant in 2370. ("The Wire" [DS9])

**Inaprovaline** - A stimulant commonly used in Starfleet. Dr. Crusher injected it by hypospray at Worf's neck at the first sign of problems after his post-operative release from life support in 2368; a fluctuation in his isocortex was met with a 20cc dose, then 40 ccs and finally 75 ccs before she switched to 15 ccs of chlormydride. In 2366, Crusher ordered 60 ccs along with cardio stimulation as among the first treatments for the badly wounded "John Doe" to help raise his autonomic response. The same dose was given to Captain Picard when his cardiac implant was fused; a 20-cc dose was given to Dr. Reyga in vain after his sabotaged metaphasic shield test.

**Masiform D** - Powerful injectable stimulant.

**Netinaline** - Pharmaceutical stimulant. Used to waken a patient from unconsciousness. ("Emanations" [VOY])

**Stokaline** - Used to revive an unconscious or stunned patient. Extended use decreases its effectiveness. The medication was given to Spock after he put himself into a deep trance in an attempt to regain control of the Enterprise from the Kelvans in 2268 ("By Any Other Name..." [TOS]).

**Tricordrazine** - A refined version of Cordrazine that lacks the delusional paranoia side effects, but will not revive as well. It is still addictive. Tricordrazine treatment was successfully used by Dr. Pulaski to stimulate neural activity in Commander Riker when he had suffered a neural injury on an away mission on the planet Surata IV. ("Shades of Grey" [TNG]). Tricordrazine was based on cordrazine, the drug that sent McCoy on a paranoid flight in ("The City on the Edge of Forever" [TOS])

## Medicines - Burns

**Dermalplast** - Medical preparation used to treat chemical burns ("Demon" [VOY]).

**Dermoline Gel** - Medicinal material used in the treatment of burns. ("Deadlock" [VOY])

**Kelotane** - Medical drug used to treat radiation burns and sickness. ("State of Flux" [VOY])

## Medicines - Narcotics

**Felicism** - A narcotic substance produced from plants on the planet Brekka. Felicism has other medicinal properties and was used, centuries ago, to cure a deadly plague on neighbouring planet Ornara. Once the plague was ended, all the people on Ornara were addicted to the drug, and the people of Brekka continued to provide it, for a significant price. ("Symbiosis" [TNG])

**Ketracel White** - An addictive isogenic enzyme also known simply as white, a drug used by the Dominion to control the Jem'Hadar. Absence of regular white dosage resulted in severe withdrawal symptoms, including anxiety and severely violent behaviour.

**Rhuludian Crystals** - Induces a narcotic effect made from dried and ground herbs ("Fair Trade" [VOY]).

**Maraji Crystals** - A controlled substance that was illegal to possess or sell in the Cardassian Union. Captain Livara, a Romulan spy who posed as a Talavian smuggler, visited Terok Nor in 2367 and tried to interest Quark in some maraji crystals ("Things Past" [DS9]).

## Medicines - Poisons

**Cytotoxin** - Biochemical substance, a poisonous by-product of cellular metabolism. Excessive levels of cytotoxins can lead to cytotoxic shock ("Nothing Human" [VOY]).

**Cyalodin** - The adult members of the Starnes Expedition used cyalodin in their mass suicide on planet Triacus in 2268. It kills with great pain and leaves the victim with blue splotches ("And the Children Shall Lead" [TOS]).

**Dylamadon** - Drug used in euthanasia for humanoid patients (Man of the People" [TNG]).

**Nogatch** - Hemlock Substance poisonous to humans. In 2372 there was no known cure for Nogatch Hemlock poisoning ("Death Wish" [VOY]).

**Strychnine** - A Terran alkaloid poison that acts as a stimulant for the central nervous system, and causes death ("Ship in a Bottle" [TNG]).

**Tricyanate** - Naturally occurring. A toxic, inorganic substance which forms pink crystals. It is difficult and expensive to synthesize. Decontamination of tricyanate requires the highly volatile hytritium.

**Veridium Six**- A slow-acting, cumulative poison that has no antidote.

**Voraxna** - Dukat sent a bottle of kanar, laced with enough of this to kill a dozen Cardassians, to Ghemor's quarters. The bottle was intercepted; Sisko offered a glass to Dukat and Weyoun. Dukat refused, but Weyoun cheerfully gulped it down. ("Ties of Blood and Water" [DS9])

## Medicines - Restorative

**Analeptic** - The Malon use analeptic compound injections to counter the freighter blight, but while the treatment keeps them alive it does not prevent skin scarring ("Rise" [VOY]).

**Netinaline** - Used to waken a patient from unconsciousness. Stimulant used in a 2-cc dose when reviving the Vhnori Ptera from her "afterlife" ("Emanations" [VOY]).



## Medicine - Pain Relievers

**Asinolyathin** - This substance is used as a pain-killer for muscle spasms ("Visionary" [DS9]).

**Hydrocortilene** - Analgesic medicine used to alleviate pain, such as headaches ("The Swarm" [VOY]).

**Morphenolog** - Used to ease pain and stop convulsions. Used by Doctor Bashir in a 2-cc dose when Bareil lashed out violent pain as his left parietal lobe suffered damage from the ongoing Vasokil treatments ("Life Support" [DS9]).

**Neuroelectrical Suppressors** - Medical instrument used to suppress pain. The device that Verad preferred over the delta wave inducer ("Invasive Procedures" [DS9]).

**Terakine** - Analgesic medication. Terakine was administered to Commander William Riker following an accident in bat'leth practice where he fractured a rib ("The Pegasus" [TNG]).

**Triptacedrin** - A narcotic used to relieve pain. It is noted that 30cc's would anaesthetize an Algorian Mammoth, but it hardly dents the Cardassian physiology.

## Medicine - Sedatives

**Anesthezine** - This is an inhalant (gas) that can be used as a general anaesthetic, but is more often used by Security as an intruder control measure. A concentration of 70 parts per million is more than enough to render humanoids unconscious. It has also been used as a crowd control agent and to subdue dangerous persons ("The Hunted" [TNG]).

**Improvoline** - Medicine used as a calmative. Not to be confused with inaprovaline, which is a cardio-stimulant. ("Basics, Part II" [VOY]).

**Kayolane** - This pharmaceutical causes immediate unconsciousness and the patient will remain asleep for 1-6 hours. Artificially generated by aliens. Beverly Crusher inoculates Leijten with kayolane after the latter's blood chemistry changes and after she exhibits strange behaviour ("Identity Crisis" [TNG]).

**Melorazine** - This pharmaceutical causes immediate unconsciousness. The patient will remain asleep for 3-8 hours ("Man of the People" [TNG]).

**Merfadon** - A Cardassian sedative that was given to Kira by Silaran Prin, but counteracted by the makara herbs she had taken ("The Darkness and the Light" [DS9]).

**Hvroxilated Quintethyl Metacetamine** - Quark tried to use some of the stuff to drug Dr. Julian Bashir to "fix" a racquetball match between Bashir and Miles O'Brien in 2370 ("Rivals" [DS9]).

## Medicine - Anesthetics

**Anesthazine** - This is an inhalant (gas) that can be used as a general anaesthetic, but is more often used by Security as an intruder control measure. A concentration of 70 parts per million is more than enough to render humanoids unconscious. It has also been used as a crowd control agent and to subdue dangerous persons ("The Hunted" [TNG]).

**Axonol** - Axonol was among the emergency crowd control anaesthetics on board the starship Prometheus. Aerosol-based ("Message in a Bottle" [VOY]).

**Neurozine** - Neurozine was among the emergency crowd-control anaesthetics onboard the Prometheus and was used to incapacitate Romulans who had commandeered the ship in 2374. Aerosol-based ("Message in a Bottle" [VOY]).

## Medicine - Cardiac

**Benjisidrine** - An anti-arrhythmic used to regulate some heart conditions. Vulcan physicians prescribed benjisidrine for treatment of Ambassador Sarek's heart condition ("Journey to Babel" [TOS]).

**Hyperzine** - Stimulant used in Starfleet practice that was administered in at least two 20cc doses for Garak's seizures in 2370 when his shut-down cranial implant stopped triggering the endorphin flow that his body had grown dependent on ("The Wire" [DS9]).

**Impedrezene** - Cardiac medication used to follow up use of an osteogenic stimulator ("Alliances", "Investigations" [VOY]).

**Inaprovaline** - Cardiostimulatory pharmaceutical in use by Starfleet medical personnel. Dr. Beverly Crusher ordered inaprovaline to the Zalkonian named John Doe to help stabilize his condition. ("Transfigurations" [TNG]). Usually administered intravenously by hypospray. ("Ethics" [TNG]). In 2371, Dr. Julian Bashir administered inaprovaline to his patient Vedek Bareil in the course of his treatment for radiation-induced injuries. ("Life Support" [DS9]). In high doses, inaprovaline can also be used to stimulate cell regeneration. ("Lifesigns" [VOY]).

**Lectrazine** - Lectrazine was used to stabilize cardiovascular and renal systems in humanoid patients. ("Lifesigns" [VGR], "Sacred Ground" [VGR], "Warlord" [VGR]).

**Metabolic Reduction Injection** - Henoah synthesized a metabolic reduction compound so that Kirk, Spock, and Dr. Ann Mulhall's bodies could carry the intellects of Sargon, Henoah, and Thalassa. The drug reduced heart rate and all bodily functions to normal, allowing the three to occupy the humanoid bodies without permanent damage to those bodies. Henoah secretly prepared a different compound for Sargon in an attempt to destroy his ancient enemy. ("Return to Tomorrow" [TOS]).

**Metrazene** - Cardiac antiarrhythmic medication, used aboard the Enterprise-D. ("The Host" [TNG]).

## Medicine - Resuscitative

**Borathium** - An experimental rybothery medication developed by Dr. Toby Russell as a potential replacement for leporazine and morathial. The drug was still in an experimental stage in 2368 when Russell used it unsuccessfully to treat a crash victim from the transport ship Denver. Dr. Beverly Crusher believed that Russell's use of borathium, in that case, was a violation of medical ethics, since conventional leporazine therapy might have been effective. ("Ethics" [TNG]).

**Cortolin** - Used on station Deep Space 9. Used to treat a wound inflicted by a compressor beam weapon ("Necessary Evil" [DS9]).

**Leporazine** - A resuscitative drug; used aboard Federation starships ("Ethics" [TNG]).

**Morathial** - Series A drug used to treat neural metaphasic shock when a patient's blood pressure is too low to use the standard remedy, leporazine. But Dr. Russell assumed a severely injured U.S.S. Denver survivor in triage aboard the U.S.S. Enterprise was a lost cause and tried borathium, her new rybothery -- incensing Dr. Crusher when the patient inevitably died ("Ethics" [TNG]).

## Medicine - Respiratory

**Dexaline** - Useful in the treatment of oxygen deprivation and life support systems failure. Dr. Crusher used an unspecified dosage of this drug on two J'naii survivors of the lost shuttle Taris Murn ("The Outcast" [TNG]).

**Pulmozine** - Pharmaceutical used to stimulate breathing in a patient having respiratory difficulties. ("Favourite Son" [VOY]). Administered to treat conditions caused by inhalation of noxious fumes. ("Basics, Part I" [VOY]).

**Tri-Ox Compound** - Medication used to help a humanoid patient breathe more easily in a thin or oxygen-deprived atmosphere. When Kirk faced hand-to-hand combat with Spock on Vulcan in 2267, McCoy said he would administer tri-ox to Kirk to help him compensate for the thin Vulcan atmosphere. However, McCoy gave Kirk a neural paralyzer. ("Amok Time" [TOS]). McCoy also administered tri-ox in "The Tholian Web" (TOS). Lieutenant Tuvok administered a tri-ox compound in 2373 to the passengers of an orbital tether carriage. ("Rise" [VOY]).

## Medicine - Alien

**Benzocyatizine** - Medication used to adjust the levels of isoboramine in joined Trill. A benzocyatic regimen generally involves frequent doses of benzocyatizine. ("Equilibrium" [DS9]).

**Desegranine** - A Cardassian (Obsidian Order) drug used to reverse memory loss and/or allow blocked memories to resurface ("Second Skin" [DS9]).



**Deuridium** - Rare substance used by the Kobliad people to stabilize their cell structures to prolong their lives. A shipment of deuridium from the Gamma Quadrant was delivered to Deep Space 9 in 2369. ("The Passenger" [DS9]).

**Makara Herb** - Bajoran herbs, recommended during pregnancy; they help maintain progesterone levels, though they taste horrible. They also act as a counteragent against sedatives ("Looking for par'Mach in All the Wrong Places", "The Darkness and the Light" [DS9]).

## Medicines - Cures to Illness

**Hexadrin** - Medication used in the treatment of Yarim Fel syndrome ("Ties of Blood and Water" [DS9]).

**Peridaxon** - Palliative treatment for Irumodic Syndrome ("All Good Things..." [TNG]).

**Ryetalyn** - A mineral substance needed to cure the deadly disease, Rigelian fever, that infected the crew of the Enterprise in 2269. A deposit of ryetalyn was found on a small planetoid in the Omega system which belonged to the very ancient humanoid named Flint ("Requiem for Methuselah" [TOS]).

### Medicines - Soldiers

**Cryptobiolin** - Artificially generated by aliens. An alien equivalent of steroids. During a check-up on Roga Danar, Beverly discovered high levels of cryptobiolin and other drugs in Danar's body ("The Hunted" [TNG]).

**Macrospentol** - One of several chemicals used by the Angosians during the Tarsian War to improve their soldiers, making them more effective in combat. Unfortunately, the effects of many of these drugs were irreversible ("The Hunted" [TNG]).

**Triclenidil** - One of several chemicals used by the Angosians to "improve" their "super soldiers" ("The Hunted" [TNG]).

## Medicines - Miscellaneous

**Acetylcholine** - Biochemical substance, a neurotransmitter that promotes the propagation of electrical impulses from one nerve cell to another in carbon-based life. Julian Bashir used a medication designed to increase acetylcholine absorption to increase Melora's tensile muscular strength, thus enabling her to walk ("Melora" [DS9]). Increased amounts of acetylcholine in Harry Kim's nervous system caused him (and others in the prison camp) to exhibit erratic behaviour ("The Chute" [VOY]).

**Anetrizine** - Pharmaceutical used to anaesthetize cranial nerves, such as when Voyager's EMH treated Seven of Nine. Sometimes given to patients in the throes of hallucination to give them more control over their fantasies ("The Gift" [VOY]).

**Alizine** - Used to counter an allergic reaction ("Darkling" [VOY]).

**Anticoagulant** - Chemical that prevents the clotting of blood. Jem'Hadar weapons are designed to leave anticoagulants in the wounds they cause so that even grazing hits can result in massive blood loss ("Change of Heart" [DS9]).

**Anti-intoxicant** - Medicine that is taken to allow one to drink alcoholic beverages without becoming inebriated ("Apocalypse Rising" [DS9]).

**Antipsychotic** - Psychotropic pharmaceutical used to reduce psychotic tendencies in sentient humanoid patients ("One" [VOY]).

**Arithrazine** - Powerful pharmaceutical used to treat theta radiation poisoning. Starfleet regulations stipulate that a physician must be present whenever arithrazine is administered. In her preparations for executing the Omega Directive on stardate 51781, Captain Janeway required 20 milligrams of arithrazine to inoculate against theta radiation. ("The Omega Directive" [VOY])

**Cateline** - Cateline simulates anaphylactic shock. ("Darkling" [VOY]).

**Cervaline** - Antirejection drug. In 2372, the Emergency Medical Hologram ordered cervaline to be administered to Danara Pel to fend off rejection of Klingon tissue implanted into her brain. ("Lifesigns" [VOY]).

**Corophizine Antibiotic** - Corophizine was prescribed to Miles O'Brien to prevent secondary infection when he was critically ill due to the aphasia virus in 2369. ("Babel" [DS9]).

**Cortical Analeptic** - Pharmaceutical used to reinvigorate the tissues of the cerebral cortex. ("The Swarm" [VOY]).

**Deoxyribose Suspension** - A fluid derived from deoxyribonucleic acid (DNA). J'Dan used deoxyribose suspensions to encode stolen Enterprise-D schematics into amino acid sequences, and injected them into his bloodstream, making his body an undetectable carrier of the secret information ("The Drumhead" [TNG]).

**Dermatiraelian Plastiscine** - Medication used to maintain the effects of cosmetic surgery. Amin Marritza took it for five years after altering his face to that of Gul Darhe'el. ("Duet" [DS9]).

**Genetic Resequencing Vector** - Medical suspension formulated to shut down Borg nanoprobes as they emerge from dormancy ("The Raven" [VOY]).

**Glucogen** - Pharmaceutical used on Earth in the 21st century as a treatment for hypoglycaemia. ("Past Tense, Part II" [DS9]).

**Hyronalin** - The standard treatment for radiation since the late 2100s. Even so, it was discarded in a special case when Dr. Leonard McCoy discovered a cure for a hyper ageing syndrome on Gamma Hydra IV in 2267. In 2368, the drug was replicated to treat expected radiation illnesses on Gamelan V and was pumped through the shipboard ventilation system of the U.S.S. Enterprise itself when radiation levels rose while towing a leaky, radioactive garbage scow. Even then, at the rate of radiation increase, it was effective for less than an hour. Later that year, up to four hours of radiation from a cargo bay plasma fire after the Enterprise's quantum filament collision caused only temporary physical damage but still required a few days of hyronalin treatments for those affected ("Final Mission").

**Immuno-Suppressant** - Any of several pharmaceuticals designed to limit immune response in humanoids. Dr. Crusher used immunosuppressants in 2367 to help William Riker successfully carry the Trill symbiote, Ambassador Odan, within his body ("The Host" [TNG]).

**Intraspinal inhibitor** - Intraspinal inhibitor induces paralysis. ("Darkling" [VOY]).

**Kironide** - Artificially generated by aliens. Induces telekinetic powers. Platonians used it to hold Enterprise crew captive and force them to perform for their amusement. McCoy synthesized the chemical so the crew could escape ("Plato's Stepchildren" [TOS]).

**Lexorin** - A neurotransmitter inhibitor. This drug temporarily diminishes intelligence, but each dose also makes psychic and psionic intrusions harder. Lexorin can also calm excited or agitated patients. In greater dosages than 3 in 24 hours, the patient also begins to lose manual dexterity, as the Central Nervous System begins to lose control of voluntary functions. Lexorin is mildly addictive and causes the patient to feel overconfident and happy.

**Metorapan** - Treatments Regenerative treatment for fracture patients. Wesley Crusher was allergic to metorapan. ("The First Duty" [TNG]).

**Neodextraline Solution** - Liquid medication administered intravenously for the treatment of severe dehydration. ("Ex Post Facto" [VOY]).

**Neural Paralyzer** - Medication that can cause a cessation of heartbeat and breathing in a humanoid patient, creating the appearance of death. If such a patient receives medical treatment in time, a full recovery is possible. McCoy injected Kirk with neural paralyzer during Spock's Pon Farr in 2267, making it possible for Spock to win his fight with Kirk without actually killing his commanding officer. ("Amok Time" [TOS]).

**Norepinephrine** - Hormone produced by the adrenal glands. Norepinephrine is chemically similar to adrenaline and is used medicinally to treat shock. ("The Thaw" [VOY]).

**Ovarian Resequencing Enzymes** - Complex organic compounds used in medical fertility treatments. In 2374, Dr. Julian Bashir used ovarian resequencing enzyme therapy to make it possible for Jadzia Dax and Worf to have a child ("Tears of the Prophets" [DS9]).



**Psilosynine** - Neurotransmitter chemical used for telepathy by the brains of telepathic species, such as Betazoids. While working with the Cairn diplomatic delegation in 2370, the telepathic demands on Ambassador Lwaxana Troi were so great that her psilosynine level was depleted. ("Dark Page" [TNG]) U.S.S. Enterprise D Chief Medical Officer Beverly Crusher manufactured a psilosynine inhibitor for Deanna Troi in 2370 during her investigation into Daniel Kwan's death. The inhibitor lessened the number of telepathic images Deanna received. ("Eye of the Beholder" [TNG]). The drug was given to Troi during her prolonged hallucination in that episode. It may or may not "really" exist.

**Psychotropic Drug** - A Cardassian drug used to improve their soldiers by enhancing their natural xenophobic fears ("Empok Nor" [DS9]).

**Polyadrenaline** - Synthetic pharmaceutical based on the humanoid hormone epinephrine. ("Ethics" [TNG]).

**Polynutrient Solution** - Restorative formula given to patients suffering from malnutrition. ("The Ascent" [DS9]).

**Quadroline** - An emergency drug used on planet Malcor III. ("First Contact" [TNG]).

**Retinax V** - Medication sometimes prescribed to near-sighted patients in the 23rd century ([STII: TWOK]).

**Retroviral Vaccine** - Attenuated retroviral compounds, used for preventative inoculation. These vaccines can be combined with other components to create a biogenic weapon. ("Pre-emptive Strike" [TNG]).

**Serotonin** - Biochemical substance that serves as a central neurotransmitter in humanoid nervous systems. The addictive Ktaran game initiated a serotonin cascade in the frontal lobe of the brain. ("The Game" [TNG]).

**Stenophyl** - Powerful anti-allergen. Primary treatment of Anaphylactic Shock ("Nothing Human" [VOY]).

**Tesokine** - Dr. Julian Bashir gave Kira Nerys tesokine in 2372 so that the O'Brien's baby that she carried could metabolize Bajoran nutrients. ("Body Parts" [DS9]).

**Theragen** - Biochemical weapon used by the Klingon military, a nerve gas that is instantly lethal if used in pure form. Dr. McCoy prepared a diluted form of theragen mixed with alcohol to deaden certain nerve inputs to the brain to prevent madness in the Enterprise crew caused by exposure to spatial interphase in 2268. ("The Tholian Web" [TOS]).

**Trianoline** - Pharmaceutical sometimes prescribed for percussive injuries. ("Caretaker" [VOY]).

**Trioxin** - A drug used to treat a patient with damaged lungs or oxygen deficiency ("Year of Hell, Part 2" [VOY]).

**Tripamine** - Biochemical substance which can sometimes be detected as a residue in the cerebral cortex following a temporal shift. ("All Good Things..." [TNG]).

**Tryptophan** - Dr. Katherine Pulaski prescribed tryptophan-lysine distillates for the treatment of a flu virus. ("The Icarus Factor" [TNG]).

**Vasokin** - Experimental drug that can increase blood flow to a humanoid patient's organs. In 22 percent of cases on record as of 2371, vasokin had the side effect of causing severe damage to the subject's lungs, kidneys, heart, and even brain. In 2371 it was used to prolong the life of Vedek Bareil so he could continue peace negotiations with the Cardassians. ("Life Support" [DS9]).

**Vertazine** - Medication used by Federation medical personnel to combat vertigo. ("Cause and Effect" [TNG], "Parallels" [TNG]).

**Yridium Bicantizine** - Active ingredient in Ketracel-White ("Statistical Probabilities" [DS9]).

## Common Illnesses and Diseases

**Anaprolean fever** - Illness which affects Xindi primates. It could cause a pregnant female to lose her child.

**Anchilles Fever** - Disease which spreads rapidly and is often fatal. Styris IV was hit by the fever in 2364.

**Andronesian encephalitis** - A disease transmitted by airborne particles. An Enterprise-D crewmember was treated for this disease in 2365.

**Aphasia virus** - A Bajoran-created virus that disrupts the brain's ability to process audio and visual stimuli.

**Balt'masor syndrome** - A disease which Klingons suffer from. Treatment involves regular injections.

**Barclay's Protomorphosis Syndrome** - An airborne disease created by a synthetic T-cell that mutated and caused victims to de-evolve into primitive versions of their respective species.

**Bendii syndrome** - Illness which sometimes affects Vulcans over the age of 200. It causes a total loss of emotional control, which can be telepathically projected onto others.

**Cartalian fever** - A deadly viral plague.

**Coleibric haemorrhage** - A fatal condition in Cardassian physiology.

**Correllium fever** - Disease that broke out on planet Nahmi IV in 2366.

**Darnay's disease** - A deadly ailment that attacks the brain and nervous system of its victims.

**Dorek syndrome** - A rare and incurable disease which affects 1 in 5 million Ferengi.

**Forrester-Trent syndrome** - A rare degenerative neurological disorder. If left untreated can result in paralysis and even death. Usually hereditary but can be activated by a random mutation. A neurostabilization regimen can stabilize or reverse the disease.

**Fostossa virus** - Disease organism epidemic on Bajor during the Cardassian occupation, killing thousands of Bajorans. A cure for the disease was developed by Doctor Crell Moset, but only after extensive experimentation on Bajoran prisoners, resulting in the painful death of many of those unwilling subjects.

**Haemocythemia** - A medical condition in which intercellular pressures are unstable. This condition was also called haemocythemic imbalance and could be treated with osmotic pressure therapy.

**Hesperan Thumping Cough** - A flu-like infection.

**Holodiction** - Contraction for holodeck addiction. A psychological condition where an individual becomes so caught up in holographic simulations that the real world becomes unimportant.

**Holotransference Dementia Syndrome** - A medical condition in which a person becomes so disoriented within a holographic simulation that they lose their sense of identity and start to think that they are part of the program.

**Hyperacceleration** - Biochemical condition that plagued the people of planet Scalos due to radiation permeating their water supply. Hyper acceleration of biological processes caused an individual so affected to experience one second as if it were an entire hour. Outsiders who were accelerated, quickly burned out, dying in a very short period to time due to cell damage.

**Iresine syndrome** - A rare neurological disease which results in a peculiar electropathic signature in the thalamus and a severely decreased histamine count.

**Irumodic syndrome** - Disorder which results in progressive degeneration of the synaptic pathways. It can be treated with peridaxon, though this is the only palliative and no cure exists.

**Iverson's syndrome** - Disease which causes fatal degeneration in muscle function while leaving mental functions intact. There is no known cure.

**Kalla-Nohra syndrome** - Chronic pulmonary disease found only in those who survived a specific mining accident at Gallitep.

**Kamaraazite flu** - Disease which can make its victim sneeze so violently that they could nearly regurgitate their pineal gland.

**Larosian virus** - A mild disorder.

**Levodian flu** - Disease which normally lasts for 29 hours. Symptoms are similar to Earth flu.

**Micro virus** - A genetically engineered virus designed to kill only people with a specific DNA sequence.



**Neural metaphasic shock** - A failure of the neurological system in Humanoids. Potentially fatal.

**Neurochemical imbalance 26** - A serious condition which arises in Vulcans during Pon Farr.

**Neuroleptic shock** - Form of neurological disturbance in which cortical functions of the brain's synaptic pathways are disrupted. This could result in a state similar to a coma, but without the usual biochemical markers.

**Orkett's Disease** - Viral sickness which swept through the Bajoran work camps during the Cardassian occupation, killing thousands of children.

**Pa'nar syndrome** - Vulcan disease spread through mind melds. It was very similar to thymic sclerosis. It was incurable in 2152 and caused degradation of the synaptic pathways and affected the endocrine and immune systems.

**Phyrox plague** - Disease. The population of planet Cor Caroli V suffered an outbreak of Phyrox plague in 2366. Starfleet Command classified the incident as secret.

**Plasma plague** - Virtually indestructible and highly dangerous set of diseases. Plasma plague threatened the Rachelis system in 2365.

**Pottrik syndrome** - Disease which afflicts Cardassians. Very similar to Kalla-Nohra syndrome.

**Progeria** - A rare genetic disorder which causes Humanoid children to age extremely fast. It was eradicated by medical science around 2374.

**PSI-2000 virus** - A long chain of water molecules formed under variable gravity conditions, which acts on the body like alcohol.

**Rigelian fever** - Deadly disease similar to bubonic plague. Rigelian fever can be cured by Ryetalyn.

**Rigelian Kassaba Fever** - A disease.

**Rop'ngor** - A disease which affects Klingon children. It is somewhat similar to measles.

**Rudellian brain fever** - A disease native to Bajor that affects the brain.

**Rudellian plague** - Disease which the Cardassian colony on Pentath III suffered from in 2372.

**Rugalan fever** - A deadly disease.

**Rushton infection** - A deadly disease.

**Sakuro's disease** - Rare disease which can cause an intense fever, weakness, and even death.

**Symbalene Blood Burn** - Virulent disease which is capable of killing an entire planetary population in short order.

**Synthococcus novae** - Bacillus strain organism, a by-product of modern technology. Although treatable, the deadly bacillus was regarded as a significant health hazard.

**T'lokan schism** - The breakdown of mental synapses in Vulcans caused by the surfacing of repressed memories.

**Telurian plague** - Disease which was still incurable in the 2360s.

**Temecklian virus** - Virus which broke out on Bajor in 2372.

**Teplan blight** - Viral disease which was endemic to a planet in the Teplan system, located in the Gamma Quadrant. It was introduced in 2371 by the Jem'Hadar as punishment for the planet having resisted Dominion control.

**Terellian Death Syndrome** - Disease which causes dizziness, blurred vision, palpitations, and a stinging in the lower spine. It causes cellular decay which can be reversed if caught early enough.

**Terellian plague** - A dangerous disease.

**Thelusian flu** – A harmless rhinovirus.

**Thymic sclerosis** - A nonfatal Denobulan illness whose pathology is quite similar to Vulcan Pa'nar syndrome.

**Transporter psychosis** - Rare disorder caused by the breakdown of neurochemical molecules during transport. First diagnosed in 2209.

**Tuvan syndrome** - A disease which affects both Romulans and Vulcans.

**Uridian flu** - Disease treated with a synthetic T-cell.

**Vegan choriomeningitis** - Rare and deadly disease, which even if cured remains dormant in the patient's body.

**Xenopolycythemia** - Disease characterised by an abnormal proliferation of red blood cells. Symptoms include weakness, fatigue, enlarged spleen, and pain in the extremities.

**Yarmin Fel syndrome** - Disease treated by the use of Hexadrin. It affects Cardassians and can be terminal. Sufferers experience great pain.

**Zanthi fever** - Virus which affects the empathic abilities of Betazoids. Sufferers project their emotions onto others.

## Medical Database – Common Non-Human Species

These pages are a guide to assisting those who wish to become Medical Officers and/or Nurses in the fleet. In this section, we have compiled the most common of all the races currently serving or have more than just a passing interaction with Starfleet for a look at how their bodies work to assist in learning the basics of Starfleet medicine and the most common diseases for each race. For further details, please contact Starfleet Medical. Some, though not all, of this material, was found in the wiki Memory Alpha, Memory Beta and free internet sources.

### The Aenar

The Aenar are an offshoot of the Andorian race and as such have many similarities. As they evolved in a colder climate, they prefer the colder temperatures, unlike their Andorian cousins who can exist in many different environments. Aenar blood is cobalt-based and thus is blue when exposed to the air, making Aenar body chemistry similar to many other species, including Andorian, Bolian, and to an extent, Benzite. The Aenar are incapable of receiving blood transfusions or cellular donations from Vulcanoids or other species with copper-based blood; doing so could kill the patient.



The Aenar also have an additional circulatory system in addition to the standard one of veins and arteries. It consists of lymph-based osmosis where the blood can 'seep' through their bodies through chemically regulated osmosis. This helps combat fatigue and damage from cold; however, it also requires more food for the higher metabolism and makes Aenar very vulnerable to infection in wounds from energy weapons. The Aenar are not very muscular like their Andorian cousins, and have the same strength as a Human would who conducts similar activities.

Aenar skeletons are a blend of bone and cartilage strongly favouring the latter and including large amounts of a secondary blend of the two, an almost chitin-like substance that is bone-hard but cartilage-flexible. Because of this, it takes twice the amount of blunt force to break an Aenar bone as it does to break a comparable Human bone. Inside an Aenar's skeleton are complimentary compartments separating some internal areas from others by a system of cartilage. The heart, located under the middle of the sternum, is contained with the lungs in one compartment while the stomach and intestines are located on the right side of the individual. The kidneys, liver, gall bladder and pancreas are located on the left side while the uterus and ovaries are located in the lower abdomen. In addition to the internal skeleton, the Aenar have an exoskeleton covering much of their bodies. It consists of the same chitin-like blend that makes up many of their bones and covers their limbs and torsos. In the case of the females, it does not extend over the lower abdomen to allow for foetal growth. Their eyes are sightless, and thus they have a type of bioelectrical radar that allows them to move without injuring themselves.



They are also telepathic, and some are telekinetic, allowing for ease of communication. This has led to several neurological diseases and lends to being susceptible to Betazoid diseases such as Zanthi Fever. Their antennae are crucial to these functions and also to their audio senses. Cutting off an antenna would incapacitate an Aenar until it regrew, though this can be accelerated by cranial massage therapy and electrical stimulation. Also, crucial to the telepathy of the Aenar are certain biochemical compounds found in the brain, mainly metabiixin, divalactin, and lamproezine. These are found in telepathic species with higher abilities, however, metabiixin is found in nearly all species

with esper abilities. The metabiixin and divalactin are chemically active when the individual is using their telepathy, however, the lamproezine is active when they are using their radar. The reproductive system of Aenar is similar to most humanoids in that they have male and female organs. The babies are born in singular births, twins being very rare. Aenar women carry their children for five months, due to the circulatory system unique to them and their Andorian cousins.

Andorian Shingles affects Aenar as well as Andorians simply because of their similar physiologies. Among the symptoms are bleeding from the eyeballs and tongue. The exoskeleton becomes brittle and begins to fall off, creating sores.

## Andorians

Andorians and their subspecies the Aenar have many similarities. As they evolved in a colder climate, Andorians prefer the colder temperatures, unlike their Aenar cousins, can exist in many different environments. Andorian blood is cobalt-based and thus is dark blue when exposed to the air, making Andorian body chemistry similar to many other species, including Aenar, Bolian, and to an extent, Benzite. A blood transfusion or cellular donation from a Vulcan or other race with copper-based blood would kill an Andorian patient, though a blood transfusion from a Bolian or Aenar is possible with certain preparations.



Andorians have an additional circulatory system in addition to the standard one of veins and arteries that consists of lymph-based osmosis where the blood can 'seep' through their bodies through chemically regulated osmosis. This secondary circulatory system helps combat fatigue and damage from cold to prevent frostbite; however, it also requires more food for the higher metabolism and makes them very vulnerable to infection in wounds from energy weapons. Andorians are not as strong as a Vulcan or Klingon, but at the same time stronger than a human or Betazoid.

Andorians have skeletons which are a blend of bone and cartilage strongly favouring the latter and including large amounts of a secondary blend of the two, an almost chitin-like substance that is bone-hard but cartilage-flexible. Because of this, it takes twice the amount of blunt force to break an Andorian bone as it does to break a comparable Human bone. Inside an Andorian's skeleton are complimentary compartments separating some internal areas from others by a system of the chitin-like blend of cartilage and bone. The heart, located under the middle of the sternum, is contained with the lungs in one compartment while the stomach and intestines are located on the right side of the individual. The kidneys, liver, gall bladder and pancreas are located on the left side while the uterus and ovaries are located in the lower abdomen. In addition to the internal skeleton, Andorians have an exoskeleton covering much of their bodies and consists of the same chitin-like blend that makes up many of their bones and covers their limbs and torsos. In the case of the females, it does not extend over the lower abdomen to allow for foetal growth.

Their eyes are colour-blind, and their antenna allows them to see more of the spectrum such as infrared and ultraviolet, and also balance and assists their audio senses. Cutting off an antenna would incapacitate an Andorian for 24 hours, though they would be able to adjust within a couple of days. Still, this can be accelerated by cranial massage therapy and electrical stimulation. The reproductive system of Andorian is similar to most humanoids in that they have male and female organs. The babies are born in multiple births of twins or triplets, single births being very rare. Andorian women carry their children for five months, due to the circulatory system unique to them and their Aenar cousins.

## Bajorans

Bajorans have iron-based or red blood and thus their body chemistry is extremely similar to humans and have similar characteristics in where their organs are placed. However, in a Bajoran, the kidneys are placed higher in favour of the larger intestines. The nose ridges are not just aesthetic, but also are functional in the olfactory senses in both men and women; the more defined the ridges, the sharper the sense of smell. The sense of smell is stronger in Bajoran women and when pregnant, they are prone to fits of sneezing. Bajoran women carry their children for six months due to an intricate vascular network between mother and child. Bajoran women must be relaxed to give birth; else the baby will not be born without medical assistance.



The Bajoran heart is located at the same place as in a human; however, it is mirrored on a horizontal axis where the human heart is mirrored on a vertical axis. Because of this, the Bajoran sternum and backbones are wider than the average humanoid to protect it.



Bajoran bones are somewhat less dense than the average humanoid skeleton, making them lighter than many species. However, this is also a weakness as illnesses tend to affect Bajorans more easily than other species such as Klingons or Vulcans.

Kalla-Nohra Syndrome - Kalla-Nohra Syndrome is a terminal illness caused by a mining accident at the Gallitep labour camp. Symptoms include weakness, shortness of breath, coughing, and sneezing and, in the final stages, loss of bone density. It can also affect Cardassians.

Orkett's Disease is a viral disease of the blood that affects Bajorans who live in unclean living conditions. It is usually fatal unless a suitable bone marrow transplant took place, usually with a Bajoran, though it was possible for another race to donate marrow.

Pottrik Syndrome is an illness whose symptoms are similar to Kalla-Nohra Syndrome. The two diseases are so similar that the treatment is the same for both, though a doctor can tell the difference between them using a blood screen.

Rogath blight is a disease that affects plants, most notably farm crops. The only way to get rid of it is to burn the crops at the first sign and then let the land lie fallow (without any plants) for a year.

The Temecklian virus is a contagious disease that occasionally will break out on Bajor. It is caused by unclean living conditions and causes vomiting, diarrhoea, sweating, chills, and coughing.

## Benzites

The blood of the Benzite race cobalt-based and so their body chemistry is similar to that of Andorians, Aenar, and Bolians, however, it halts after a while due to their dependency on certain gases for survival such as hydrogen and others. Their body temperature normally runs around 31 C (87.8 F) which is much lower than most species. They have three lungs, the third being called the anterior lung in that it is located in the rear-most compartment of the ribs. They have three intestines and two stomachs called the primary and secondary stomachs and also the primary, secondary, and tertiary intestines. This allows them to retain more nutrients from their food on their watery homeworld.



Benzite skeletons are on the lighter side, while both men and women are more muscular than most humanoids due to their ancestry as fish. Benzites have two thumbs on each hand, which are called the anterior and posterior thumbs. Women carry their children for around 32 weeks (8 months) and are generally 50cm (20 in) down the middle of their abdomens due to the size of their children. Benzite children are normally around 5.4kg (12 lb) at birth.



## Betazoids

Betazoids have iron-based blood and body chemistry very similar to Bajorans and humans. Betazoid physiology is similar to human physiology except for a few differences and so indeed Betazoids are capable of interbreeding with humans without medical intervention. However, their neural system is remarkably different in the fact that Betazoids are telepathic. The telepathy is developed during adolescence when the paracortex in the brain when it begins to secrete the neurotransmitters metabiixin and psilosynine, both being chemically active when the individual is using their telepathy.



How powerful a Betazoid is determined by the level of neurotransmitters in the brain which in turn is determined by their genes. Betazoid women carry their children for 10 months, the vascular system being slightly less dense than a human's. Their strength, for both men and women, is comparable to a human, as is the density of their bones. They are capable of eating a wide variety of food, though some Andorian spices can give them indigestion.

The Betazoid phase is a physical phase that all Betazoid and half-Betazoid females enter when they reach their 40s or 50s, similar to human menopause. Unlike menopause, however, during the phase, a Betazoid's sex-drive quadruples or more. This can also cause troubles with the woman's telepathic abilities.

Zanthi Fever is an illness that affects the empathic abilities of Betazoids, usually those in mid-life or later. Instead of sensing others' emotions, the Betazoid will project their own emotions onto others but only those where there is a possibility of that emotion occurring on its own. A simple wide-spectrum anti-viral agent is enough to cure the condition in all crewmembers.

## Cardassians

Cardassians display both reptilian and mammalian traits in that they are exothermic in that they prefer and to some extent need a hotter environment and they give birth to live young and nurse said young. Their blood is dark brown and though the physics of their body's make up are similar to other races, their body chemistry is not similar due to the chemistry of their blood. Some medications that are usable in Cardassians cannot be administered to any other race. Cardassians are similar to Andorians and Aenar in that they have an exoskeleton save that it is composed entirely of cartilage and they also have thicker skin than most other humanoids.



Their bodies are somewhat thicker than most humanoids, and their tongues and digestive systems are adapted to eating foods more to the taste of reptiles such as snails, fish, and eggs. Their hearts are located higher than in a human's body and they have three kidneys to assist in the removal of wastes from the types of food they generally consume. Their bodies are denser than other humanoids as their skeletons are more solid and their muscle more highly developed than some other humanoids.

Rudellian Plague is an infectious Cardassian illness. It can be spread to other races if the person's immune system response is low.

Yarim Fel Syndrome is a fatal disease in Cardassians through the patient's life can be prolonged by hexadrin therapy or neuro-regeneration procedures, though not for longer than 2 years. The disease would spread throughout the body and cause shooting pains throughout the person or in certain parts of the body. Once in the digestive tract, cartilage tissue, and respiratory system, the patient is thought to have about a week to live. Eventually, the disease would cause brain death, resulting in the death of the patient.

## The Ferengi

The Ferengi are mostly known for their extremely large ears, larger in the men than in the women. Because of this, their hearing is excellent, most likely the best of any humanoid species. Their eyesight is average, though their olfactory senses are somewhat more highly developed due to the ridging, allowing for greater concentration in the olfactory nerves. Their blood is iron-based and their body chemistry is compatible with species such as Deltan, human, El-Aurian, though a blood transfusion to or from a Betazoid would need several steps of preparation due to levels of the hormones in each species.



The Ferengi are completely hairless due to the constant rain of their homeworld. Their teeth and digestive system are adapted to eating such food as slugs, crabs, beetles, and other insects and such animals. Their bodies are also capable of digesting Klingon food such as gagh and bregit lung. The women carry their children for 8 months, and the children reach adulthood around age 17. Their bones are less dense than most humanoids, as is their muscle mass as they are generally among the weakest of the humanoid races. The brain has four lobes, which what is theorized that is responsible for the disability of Betazoids to read their thoughts. Some Betazoid hybrids can read their emotions.

Dorek Syndrome is a rare, terminal Ferengi illness. Very few Ferengi can catch it and once diagnosed, one has only a few days to live.



## Klingons

Klingons are one of the most well-documented races in Federation history. Their most recognized feature is their cartilaginous exoskeleton, the most visible of which starts at the forehead and continues over the skull and down the spine. The exoskeleton also appears on the chest and feet of a Klingon.

On average, Klingons are larger and stronger than most other humanoids and have a much lower tolerance for colder climates. Their blood is violet and magnesium-based, alone among the known species. It can contain ribosomes that are compatible for transfusion with a Romulan.



Internally, Klingon anatomy is distinct in its redundancy, a principle called brak'lul. This allows them to survive severe injuries in battle. They possess twenty-three ribs on either side, two livers, an eight-chambered heart, three lungs, and multiple stomachs and have redundant neural functions. This is believed to give them greater stamina on the battlefield. Klingons have very similar nutritional requirements to humans though Klingons have a digestive system capable of using both raw and live food. Usually, a toxin that would kill a human would kill a Klingon.

Women carry their children for 30 weeks, though with mixed-species the gestation period is shorter. Klingons are not able to conceive children with many other species without medical intervention, though Klingon hybrids can have children with full Klingons. When a conception between a Klingon and another species takes place, the metabolism sometimes clashes especially with humans, causing biochemical fluctuations in the mother which may lead to fainting.

Klingon ridges remain dominant for several generations, even with a single ancestor. A child even 1/4 Klingon still possess the forehead ridges if he or she carries the gene, though most probably not the ones on the chest and feet.

Klingon children mature far quicker than most other species and at the age of one year, a Klingon child appears to be the same age as a human four-year-old. By the age of eight, a Klingon has the maturity level of a human of sixteen. When the child begins to grow into an adult, they go through a form of Klingon form of puberty called jak'tahla.

Klingons live for over 150 years but even into advanced old age, they are still strong enough for combat. Klingons emit a natural musk that some races find repugnant. They also have excellent battlefield instincts, as evidenced by the ability to look into the eyes of their opponent and sense the decision to kill.



Ba'ltmasor Syndrome is a Klingon illness that requires weekly injections. Among the symptoms are numbness in the hands and feet.

A gorch is a large and unsightly skin blemish that Klingon adolescents develop, similar to acne in human teenagers.

Rop'ngor is a childhood disease in Klingons that is characterized by a fever, pain in the joints, weakness, and fatigue.

## The Romulans

Due to their pointed ears, Romulans possess better hearing than a human or Deltan yet their sight is similar. Their blood is copper-based, and thus they can have blood transfusions with species such as Orions and Vulcans and can be prescribed the same medications. Their brains have a part called the mesiofrontal cortex which, in their ancestors, the Vulcans, is used to suppress emotions yet has no known purpose in Romulans.



Romulan skeletons are less dense than that of a Vulcan but denser than that of a human. Their skulls have two prominent brow ridges above the bridge of the nose, forming a V-shape on the forehead, though a minority of Romulans lack these ridges.

Romulans differ from their Vulcan cousins in several ways; for example, the heart is grey and the subtle internal physiological differences between them distinguish a single Romulan from among a Vulcan crew.

Other physical differences include ribosomes in the blood and synapses. Romulans carry their children for 6 months and can mate successfully with other species such as human, Klingon, and Vulcan.

The Romulan heart is where a human's liver would be, in the right side, and the liver is where the stomach would be, putting the stomach higher in the chest where it is protected by the ribs.

Terothka virus is a highly-contagious Romulan illness which has several different varieties though the symptoms of them are all similar: fever, stomach cramps and a debilitating rash of the skin.

Tuvan Syndrome is a disease of the central nervous system that infects Romulans, Vulcans, Hefestians, and other Vulcanoids. It typically worsens over time and is incurable. In 10 to 15 years of contracting the disease, the patient would begin losing control of their motor controls and could expect to die between 20 to 25 years of contracting the disease.

## Tellarites

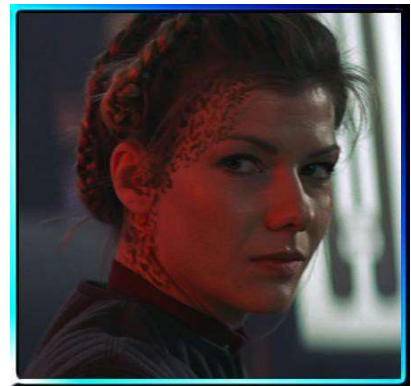
Tellarites are a porcine race and thus are similar to pigs, boars, and other pig-like animals in some ways. Their legs have both knees and hocks, and they walk on two toes which have the hoof-like nails. Their hands have three thick fingers which have very thick fingernails, and they have one intestine. Their stomachs make additional bacteria, enabling them to digest nearly any food and have a lining on their tongues that allows their mouths to chew said food and find a much wider array of food palatable than most humanoids do.



Their bowels are also much sturdier than those of other species to accommodate the wide variety of food they eat. They require quite a lot of food and are very stout though they are stronger on average than the human norm. Their bones are quite a bit denser than most humanoids and they have 17 ribs on either side. Their skin is thicker and thus less sensitive than most humanoids, though their senses of hearing and smell are quite better than other species. Their eyesight, however, is less developed than that of humans. Their blood is iron-based and doctors tend to administer some of the same medications as they would for a Caitian, Betazoid, or Deltan.

## Trill

Most Trill are distinguished by two rows of dark spots going down each side of their body, from forehead to toe though the colour of most of their skin could vary greatly. These spots will itch when the body comes in contact with an allergen, thus signalling a need for an antihistamine. Joined Trill are particularly allergic to insect bites as the venom reacts with the isoboramine between host and symbiont. It is this ability to host a symbiont that the Trill species is most known for, made possible by the large quantities of the neurotransmitter isoboramine. When the level of this biochemical falls below the needed levels, the joining of host and symbiont dissolves, resulting in the death of both unless each is reimplanted with another host/symbiont as they are dependent upon each other 93 hours into the joining.



Their digestive tract is similar to a human's or Bajoran's, though they have much more mass due to their denser skeletons and stronger muscles. The skeleton of a Trill woman could weigh as much as the entire body of a Bajoran woman. Trill women carry their children for 11 months, and their children reach maturity around 34 years. Trill have four teeth more than the average thirty-two, and have somewhat thicker enamel than most humanoids, meaning it is harder to get cavities, though they still need to have sealant on their teeth.



## Vulcans

Vulcan physiology is similar to three other species since these peoples had migrated from Vulcan in the distant past. Vulcan brains have a feature called the mesiofrontal cortex which is the part of the brain that aids in suppressing emotions. They are also capable of limited telepathy, primarily touch telepathy, as they have moderate amounts of metabiastin in their neurochemistry, though less than other species.



Some Vulcans have higher levels of this neurotransmitter and thus can communicate with Betazoids, Aenar, and other telepathic species. This transmitter is absent in most other Vulcanoids. The heart is located where a human's liver would be and beats several hundred times a minute, the liver where the stomach would be, putting the stomach higher to be protected by the rib cage. Vulcans are fully capable of digesting meat, though they do not consume it.

The Vulcan digestive system is highly adaptable as it can quickly adapt to more fully digest the food that initially disagrees with them. Their metabolism is much faster and more efficient than a human's and caffeine and sapotoxins have little to no effect on them. However, unlike an Andorian or Tellarite, they are capable of surviving without food or sleep for long periods and without water for several days.

Under stress, a Vulcan could go without sleep for over a week, some for as long as three weeks. However, this faster metabolism makes them very sensitive to anesthizine, nitrous oxide, and other anaesthetic gases. Vulcan body chemistry contains less sodium chloride than that of humans, meaning they need to eat less salt. Their blood is green and copper-based, similar to other Vulcanoids and Orions. This causes the slight greenish tint to their skin.

They have three sets of additional teeth which most humanoids do not and the enamel is thinner, though not as thin as Romulans. This increases the need to have sealant put on their teeth to prevent decay.

The Vulcan respiratory system is highly efficient as it is needed to extract oxygen from their home world's thin atmosphere and they are most comfortable in the higher temperatures, and Vulcans in extreme old age are more sensitive to lower temperatures.

Vulcans have two sets of eyelids, the standard set that covers the eyeball and the inner eyelids, that protect the cornea from harsh light. They have very sharp hearing and the women have a heightened sense of smell, creating the need for olfactory anaesthetics to numb since Vulcan women find a human's natural scent repulsive. Vulcans have a good deal more mass than humans and other species, due to their superior strength and their denser skeletons and they also have considerably faster reflexes.



Bendii Syndrome is an illness that affects the brain of a few elderly Vulcans that worsens over time. The initial symptoms are being wasteful, weakness, fatigue, fever, and a gradual but increasing loss of emotional control, with patients prone to sudden bursts of emotion. Diagnosis is made by culturing tissue samples from the patient's metathalamus. There is no treatment, but there is ongoing research into it. A side effect of the disease is that the loss of emotional control can be telepathically projected onto others. While Vulcans can resist these outbursts, other races can become violent when in the presence of a patient.

Pa'nar Syndrome is a Vulcan disease that results in the breakdown in neural pathways in the brain. It also affects the endocrine and immune systems by causing them to fail. The cause is a mind-meld performed by someone who was not trained the right way. It can be cured by a meld performed by an experienced melder and through medicine found on Vulcan.

Tuvan Syndrome is an incurable disease in Vulcanoids that worsens over time. The patient will lose control of motor functions within 10 to 15 years and can expect to die within 20 to 25 years.

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- SPECIALIST Medical Training program

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For more information please refer to <https://medical.sfi.org/training/training-manual/>

The Starfleet Marine Corps also offer some medical subjects that focus on combat medicine: <https://es.sfi.org/academy/course/index.php?categoryid=695>

# Starfleet Medical Awards

The idea of an award and recognition scheme is intended to be a subtle way to build a spirit of community and service among the members of Starfleet Medical.

The awards are divided into three categories: Occupation, Training and Staff Awards.

## Occupation Awards:

- Medical Star
- EMT / Paramedic Star
- Nursing Star
- Allied Health Star
- Auxiliary Star
- Carer Star

## Training Awards:

- Dr Crusher Award for CPR Training
- Nurse Chapel Award for Basic First Aid Training
- Counsellor Troi Awards for Mental First Aid Training
- CORE Medical Training Program Graduate
- SPECIALIST Medical Program Graduate

## Staff Awards:

- Letter of Commendation
- Surgeon General's Commendation (Bronze, Silver and Gold)
- Surgeon General's Distinguished Service Medal
- Phlox Award for Group Effort
- Starfleet Medical Service Award (Bronze, Silver and Gold, 1-3 bars)

Any member of SFI who affiliates with Starfleet Medical may apply to receive these awards.

For more information, please refer to <https://medical.sfi.org/sfm-awards/awards-manual/>



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Starfleet Medical website: <http://medical.sfi.org/>

Starfleet Medical Facebook Page:

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Starfleet Medical Discord: <https://discord.gg/D46a3pgVxY>

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