MEDICAL ASPECTS OF LIVING AND WORKING IN ANTARCTICA.
Purpose

This booklet is intended to be a brief guide for anyone who wishes to work for or in association with the British Antarctic Survey (BAS) in Antarctica, including those who are from other organisations but who will come under the care of the BAS medical system while in the South. It introduces some of the medical aspects of Antarctic life. It is not intended as a fully comprehensive guide. More details can be made available at a later stage if appropriate.

Please read the guide carefully before completing the Medical Examination forms which have been sent with it. Your understanding of the philosophy of the BASMU approach to medical matters will help you to supply the necessary information so that your medical fitness can be realistically and fairly assessed.

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The British Antarctic Survey Medical Unit (BASMU)

The British Antarctic Survey recognises that the health and welfare of its employees and visitors are vital to the success of operations in the UK, in transit and in the South. As a result, BAS has contracted with a major healthcare provider to ensure a comprehensive medical service.

The British Antarctic Survey Medical Unit (BASMU) is based in Plymouth Hospitals NHS Trust. Permanent staff include Accident & Emergency Consultants with a special interest in medicine in remote areas, an experienced nursing sister, and a manager with extensive Antarctic experience. There are experts, throughout the specialities in the trust, ready to give advice and support, and partnership with the Diving Diseases Research Centre (adjacent to the hospital), Westcountry Ambulance Service, and the Peninsula Medical School ensures that all aspects of healthcare expertise are immediately available.

BASMU staff, in close consultation with BAS, identify the healthcare requirements of the Survey, and work out the most effective means of providing the necessary resources and expertise. Your first contact with BASMU is likely to be around the time of your initial Medical Examination. This may be undertaken by a member of BASMU staff, by a doctor at BAS headquarters contracted to BASMU, or by your own General Practitioner at the request of BASMU (if travelling would be difficult). BASMU staff are always willing to advise you or your own doctor if there are any potential problems or other queries. The results of all medical examinations are scrutinised by senior BASMU staff who may then ask you or your doctor for more information.

At the BAS conference in Cambridge prior to deployment you will have the chance to meet some of the BASMU personnel who will be happy to tell you more about the Medical Unit. Many of you will also participate in a specialised first aid course, designed by BASMU to meet your needs in the field and in Antarctic Bases. First Aid training continues during your deployment for everyone, and a few BAS personnel will have the opportunity to extend their skills at a course run in Plymouth to prepare a proportion of people to help the doctor in the larger bases or to cope with medical problems in the field.

While you are in Antarctica (or on passage in a BAS ship) you will be looked after by one of the BASMU doctors (occasionally by a nurse or paramedic) who have undergone special training to enable them to provide good quality healthcare in difficult situations. Within the Accident and Emergency department of the Derriford Hospital, the Trust’s main centre, are highly trained and motivated doctors who provide 24 hour emergency support for our doctors in Antarctica using up to date communication methods including telemedicine.

During your time with BAS it is essential that you remain registered with a General Practitioner (GP) in the UK (or your country of origin if not UK). This requirement may seem strange given that you will be thousands of miles away, but if something does go wrong medically and you have to return home, it is much easier for BASMU to arrange appropriate care in advance of your return if we have a point of contact with local medical services near your permanent home.

BASMU does not provide private health care for BAS personnel in the UK and, although there are times when we can help to expedite treatment, you must not expect us to be able to arrange investigations or surgery for you at short notice. You will be expected to use the NHS or to make your own alternative arrangements. Very occasionally BASMU, if treatment suddenly becomes necessary without which you would not be able to work in the Antarctic, BASMU will try to help to arrange urgent treatment.
You may be asked to participate in medical research being undertaken by the BASMU doctor in Antarctica. Like all BAS research this has to be relevant to the Antarctic regions and those who work there. BASMU tries to choose projects that are likely to benefit future generations of BAS personnel and to add to the wider knowledge of the medical community. Every attempt is made to keep medical research as unobtrusive and uninvasive as possible, but at times we do have to ask for a little blood or other specimen.

BASMU advises BAS on the type and quantity of medical supplies for bases, ships, aircraft and field parties. We will always consider suggestions from staff about improvements.

**Medical Facilities in Antarctica.**

The principal research stations and ships have resident medical and / or paramedical staff who have undergone special training. They have at their disposal a comprehensive supply of medical equipment and drugs so that they are equipped to provide emergency care. A dental officer, employed by BAS, travels on board one of the ships in the summer season to provide expert dental treatment and to advise those who are staying on for the winter. The over-wintering bases (except Bird Island) have a doctor on the complement all year round.

The medical staff undergo a training course tailored to their requirements and previous experience, so that they can undertake tasks which might in the UK be done by another healthcare professional. The doctors for example, learn how to take and develop X-rays, deal with a broken tooth, and provide basic physiotherapy for minor injuries.

Field parties, who are away from the base for prolonged periods can usually contact the base doctor for advice. Some members of field parties will be given further advanced first aid training by BASMU.

BAS and BASMU do as much as possible to provide good healthcare for all personnel. Facilities are of necessity however somewhat limited. BAS cannot hope to provide all the facilities of a District Hospital in UK. For this amongst other reasons it is important that everyone who goes south is medically fit for the job and the environment in which they are going to live and work. The prediction of ill health is an inexact science, and in many cases impossible. We do need to identify those people who have a demonstrable medical problem that may prove to be a risk to themselves or others. In many cases we can work with the person involved to provide some additional care for them while in the Antarctic, although clearly this is not always going to be possible.

If you have a medical problem, no matter how minor, which becomes apparent in the run up to your deployment, you must try to get this sorted out before you travel south. BASMU doctors are not a replacement for your own GP in this respect. Do not wait until you get to the base to mention a problem that you have had for weeks, see your GP in good time.
Medical Requirements for Antarctic Service.

Living and working in a hostile environment demands a certain level of physical fitness. The Antarctic bases, especially during the austral winter, are isolated in the extreme. It is frequently simply impossible to gain access to these bases. Sudden illness and injury cannot at times be avoided, but to allow someone whose illness is potentially predictable to serve in Antarctica would be foolhardy, endangering perhaps not only the person himself but also his companions. At the same time if we know about certain conditions in advance, we can suggest ways in which Antarctic service may still be possible.

The aim of the medical screening process is therefore to try to identify any pre-existing condition, and to assess whether this makes a difference to the individual’s ability to serve in Antarctica. This does not mean that anyone with an existing medical condition will automatically be excluded. Different levels of medical “fitness” apply depending on whether your proposed trip is in summer or winter, its duration, the proximity of medical care, the environment in which you will be working, and the nature of the work involved. BASMU will always try to work with you to allow you to go to the Antarctic where this is considered safe for you and for other people around you. We try to do everything in our power to facilitate medical clearance. Inevitably however, because of the severe conditions in the Antarctic and the limited medical facilities available, a few people will not be medically fit to go to the Antarctic.

You should already have seen a guide as to which conditions may cause a problem (sent with your initial medical form). In case you have forgotten, the information is repeated below. None of these is inevitably going to preclude service, and individuals are welcome to discuss problems with BASMU doctors at any time. A brief discussion prior to your application for a post may be of mutual benefit.

### Conditions that will usually preclude service
- Angina & Heart Attacks.
- Leaky Heart valves & Rheumatic Fever
- Uncontrolled High Blood Pressure
- Sudden attacks of Heart Rhythm Abnormalities
- Heart Failure
- Arterial Disease

### Conditions which may preclude service
- Heart disease as an infant (treated)
- Previous Heart Surgery
- Treated High Blood Pressure
- Treated abnormal rhythms
- Severe varicose veins
- Previous Frostbite
- Severe Reynaud’s disease
- Previous leg thrombosis
- Previous clot on the lung

### Respiratory (chest) problems
- Recurrent “burst” lung (pneumothorax)
- Asthma requiring continual medication
- Cold induced asthma
- Respiratory Failure
- Chronic Bronchitis or emphysema

### Gastrointestinal problems
- Active stomach ulcer
- Liver Disease
- Inflammation of Pancreas
- Hernia
- Recurrent appendicitis

### Genito- urinary problems
- Recurrent Kidney Stones
- Kidney failure
- Active syphilis
-Untreated twisted testicle (torsion)

### Neurological Conditions

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- **Cardiac (Heart) and circulation problems**
- **Respiratory (chest) problems**
- **Gastrointestinal problems**
- **Genito- urinary problems**
- **Neurological Conditions**

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- **Conditions that will usually preclude service**
- **Conditions which may preclude service**
Epilepsy or fits (on treatment)  Previous fits clear for > 3 years*
Brain Haemorrhage in past* (non traumatic)  Previous brain surgery*
Unexplained episodes of loss of consciousness  Severe Head Injury*
Paraplegia or severe paralysis  Severe Spinal injury*
Multiple Sclerosis*  Severe ME*
Muscular Dystrophy*

Metabolic Conditions
Most diabetes  Mild diet / tablet controlled diabetes if well controlled (exceptional)*
Most thyroid disease  Other "endocrine disorder"**
Cushing’s Disease  
Addison’s Disease  
Obesity (severe)  
Collagen Disorders

Musculoskeletal conditions
Slipped disc*  Recurrent back pain*
Lower Limb Amputation*  Severe knee problems*
Recurrent dislocations*  Unstable joint*
Rheumatoid Arthritis*  Frequent Gout*
Ankylosing Spondylitis*  Other arthritis*

Infections
Malaria  Hepatitis C*
Recurrent Meningitis or Encephalitis  
Active Hepatitis B  
AIDS/ HIV**

Cancer and Haematological Disorders
Most cancers  Treated cancer with low risk of recurrence*
Clotting or bleeding disorders  Treated leukaemia*
Warfarin Medication  Treated Hodgkin’s disease*
Bone marrow disease  Recurrent anaemia*

Gynaecological conditions
Severe Gynaecological problems*  Pelvic inflammatory Disease*
Recurrent severe herpes infection  Ovarian disease.*
Current Pregnancy  

Dermatological conditions
Blistering Skin diseases  Severe skin disease*
Severe psoriasis*

Mental Health Problems
Current psychiatric Illness  
Previous severe mental illness  Previous drug / alcohol problems*
Schizophrenia  
Manic depression  
Personality Disorder  
Current Drug or alcohol abuse 

* The decision will depend on many different factors and will be made on an individual basis. With all of these conditions it is much more likely that you would be able to go to the Antarctic for a short summer trip than to overwinter.

** There are very strong medical reasons why someone who is HIV positive should not go to the Antarctic. Full details can be obtained from BASMU.

This list is not exhaustive. We would like to invite YOU to share the responsibility for this assessment by declaring ANY medical problem you think may be important. BASMU staff will always be happy to discuss any medical condition with you.
The Medical Examination

This examination will often take place at Cambridge at the time of your interview, unless it is more convenient to arrange examination through your own doctor. If we ask another doctor to undertake the examination, he or she will be briefed about the requirements by BASMU. Some of you, seafarers, pilots and divers for example, have specific occupational medicals as laid down by various statutory requirements. These may need to be done by a specially approved doctor and may require some additional tests. In most cases passing a specialist medical will show that you are fit, but you must remember that Antarctic Service is different from that anywhere else in the world, and your fitness will still need to be assessed by BASMU. Usually this can be done by scrutiny of the documents from your medical, perhaps with some clarification from you or your doctor.

Every individual doctor has his or her own way of undertaking an examination, and the examination required varies from individual to individual depending on their symptoms and certain findings at examination. There will therefore be variations in the detail of the examination. These notes describe the broad principles we expect to apply. The examination does inevitably involve asking you to undress to some extent and may be a source of potential embarrassment.

Examining members of the opposite sex can be as much of an embarrassment for the doctor as the patient. Please remember this as well!

Please think beforehand about what you wear. Make sure your clothing is comfortable. Loose fitting clothing which allows easy “access” to the parts of the body the doctor needs to examine may reduce the need to strip off. All in one underclothing on the other hand makes the preservation of decency and modesty rather difficult.

Remember that you will be requested to provide a urine sample, so don’t visit the loo just before the examination.

Men should self examine their testicles, and women their breasts prior to the examination. The doctor will want to know that all is well in these areas but only needs to examine them if you have found something you are worried about. Please don’t be embarrassed however. It is very important that you do tell us if you find any change or abnormality.

The doctor will go through your answers to the questionnaire, seeking to amplify any unclear points. You will have your pulse and blood pressure checked, and your height and weight measured accurately. To ensure this you will be weighed in your underclothes and your have your height measured in bare feet.

For the rest of the examination, it is generally possible to wear a light loose garment which allows the doctor to examine the chest and abdomen. Examining your chest involves palpating the chest wall, tapping the chest with fingers and listening with a stethoscope. Abdominal examination includes feeling for internal organs through the abdominal wall. Hernias occur in both men and women although much more common in men. They can only be detected by examination of the groin, and checking for a cough impulse. The doctor will usually undertake these checks. Your modesty will be protected as much as possible.

Sometimes it is necessary to watch how a particular joint or group of joints moves. This may mean asking you to undertake some movement or task while dressed in your underclothes. As a general rule, breast, rectal (back passage) or genital examinations will only be undertaken if there is a particular indication. For example, a history of bleeding from the back passage will make an examination of the rectum necessary. If the doctor considers that you should have such intimate examination, the reasons will be fully explained to you and your consent requested. It is possible to have a chaperone in the room if you so desire. If you do not wish this examination to be undertaken by the BASMU doctor, you can make other arrangements with your GP who can then let us know the results.

At no point should it be necessary for you to be completely naked during a medical examination. If your own clothes are unsuitable, gowns can be provided.
If at any point you feel uncomfortable about the examination, please tell the doctor at the time. We want you to feel safe in our “hands” and will always try to make things easier for you if you are concerned.

Depending on your job, age, or clinical findings, you may require additional tests and examination. The ECG (heart tracing) requires electrodes to be placed in certain places across the chest wall. They have to be in the right place to obtain an accurate tracing, which may mean that the breast has to be moved. It is difficult to obtain an ECG with the chest covered as this tends to interfere with the machine.

Access to medical Reports.
The initial detailed questionnaire (Form BASMU3) informs you of your rights under the Access to Medical Reports Act 1988, whereby you may see any report before it is communicated by your doctor to an occupational health agency such as BASMU. Please read this and complete the consent form that allows BASMU to contact your doctor for further information. You will be told if your doctor is to be contacted before such contact is made.

After the examination.
The provisional result of your medical will be available to you at the end of the examination. Confirmation of your medical fitness will not be made until the results of any additional tests are available, or information sought from other doctors has been received. Sometimes the doctor undertaking the examination will wish to refer your case to the BASMU Senior Medical Officer to make the final decision. This may happen in cases where your fitness is borderline, where a previous problem needs to be considered, or when unusual further investigations or specialist appointment is considered sensible.
You also have the right to ask that the BASMU senior medical officer considers your case if you disagree with the doctor’s decision. The BASMU senior medical officer will take into account the relative risks to yourself and others, the nature of the duties you will be required to undertake and all other relevant factors. His decision is final.

Before you leave for Antarctica you will need to make some other medical preparations:

- A thorough examination by your own dentist. If your work involves over-wintering or deep field work, you will also be required to see the BAS Dental Officer so that any necessary preventative or remedial work can be undertaken before you go.
- Vaccinations are an essential way of preventing illness. Although there are no natural severe diseases in Antarctica many of you will visit South America en route. There is also a requirement for vaccination against yellow fever for anyone flying to the Falklands. You will, if selected, be given an explanation of BASMU vaccination policy and a record card for your personal use.

Blood Grouping.

In UK we are used to hospitals, which have a store of blood constantly available. Blood products have a very short shelf life, and it is impossible for us to provide such a facility in Antarctica. Therefore, we depend on BAS personnel being ready and willing to donate blood
for a colleague in an emergency situation. Our blood bank is “on the Hoof” rather than in the fridge.

As a result we need to know everyone’s blood group, so that we know where to start when looking for a donor to give them blood in an emergency, and we need to know that your blood is safe to give to someone else. Blood donors in UK are screened in this way to ensure that their blood is safe. Our test profile is the same as the Blood Transfusion Service (BTS).

We test for Hepatitis B & C, Syphilis, HTLV and HIV (AIDS). People often ask if they need to declare these tests on life insurance proposal forms. Since the tests are being done for routine blood donor screening and are not specifically required because you are considered to be at increased risk of any of these problems, you do not specifically have to declare the test. You should simply state on the life insurance form that you have been “screened as a blood donor”.

In this as in all medical matters BASMU will adhere to the usual requirements for confidentiality in dealing with medical matters. Your informed consent is required before the blood is taken for testing. If you have any questions feel free to ask them before you sign the consent form. You must be aware however, that this test is a REQUIREMENT for Antarctic Service.

You will be asked whether you have been the recipient of a blood transfusion in UK in the last 25 years. This is in keeping with recent UKBTS policy that, because of the very small risk of transmission of CJD, such people should not be used as blood donors. However we still need to know your blood group as you may need blood.

You will be asked to give a small sample of your blood (either at your initial medical, at the BAS conference in Cambridge in September, or by arrangement with your own doctor). The Blood Transfusion Service in Cambridge will test this. The results will be sent to BASMU directly from the laboratory. You should receive a card with details of your blood group on it, which you should carry with you at all times. This can be collected from BAS personnel department. If anything untoward is discovered by the test, you will be contacted by a doctor from BASMU and appropriate follow up will be arranged.

**Confidentiality and Your Medical Records.**

All information about you and your health held by BASMU is confidential (as you would expect with any health records). Because of the nature of Antarctic service, it is sometimes necessary to involve non-medical senior staff in BAS in the care and evacuation of personnel. This is only done when logistics demand it for the safety of you or your colleagues. Information is then passed to a very limited number of people in the BAS Directorate, Personnel or Operations departments on a strictly “need to know” basis, to assist with planning. All the individuals who may be involved sign an undertaking to respect the confidentiality of such medical information. There are mechanisms whereby the doctors in the South can contact BASMU direct in strictest confidence. A comprehensive policy on medical confidentiality has been agreed and is available on request.

**Access to Medical Reports and Records.**

All medical information is subject to various laws in respect of your rights of access to your personal details.
You have the right under the Access to Medical Reports Act 1988 to see any report supplied by your General Practitioner to BASMU, before it is despatched. The doctor will let you know it is ready and you then have 21 days in which to arrange with the doctor to see the report. The consent form for release of this information is part of Form BASMU 3. You can refuse to give permission for BASMU to approach your doctor, but we hope you will not feel the need to do so. You are asked to indicate on this form whether you wish to see the report. You also have the right to see all medical records held by BASMU relating to your healthcare since 1991. BASMU office can supply the necessary application forms. A statutory charge of £10 is made for copies of this information, which must be supplied to you within a set period. BASMU personnel will always be happy to discuss any problems you may have in respect of your medical records. While in the UK you should be registered with a General Practitioner.

Your doctor can request copies of all (or relevant parts) of your BASMU medical record. This will be forwarded to your doctor directly by either fax or mail as appropriate.

**Lifestyle, Antarctica and Your Health.**

Living in Antarctica whether over winter or for a shorter time can be physically and psychologically demanding. As well as the obvious problems of cold, dangerous terrain and physical isolation, there are some other problems of which you need to be aware.

- Strenuous activity requires a reasonable level of physical fitness. Working in the cold or at altitude increases this need. Be sure you are fit enough to cope.
- Food on BAS ship’s and bases is of generous quantity and generally very good quality. The diet is as well balanced as is possible although the choice of what you eat is of course your own. It is important to eat a balanced diet, to perhaps exercise some restraint if your weight is increasing, and to take the vitamin supplements that are freely supplied. The doctor will be happy to advise on weight control. Serious obesity is considered to preclude Antarctic Service. To monitor weight we use a measurement called the Body Mass Index (BMI). A BMI of greater than 35 is considered to be too high, so if yours starts to creep up over 30 you need to take action!
- Alcohol is available on ships and bases, and its value in social interaction is recognised. You need however also to be aware of the very real dangers of excessive drinking in Antarctica. Getting drunk poses risks to yourself and others. Alcohol is a poison. Alcohol causes vomiting and increases the risk of asphyxiation from inhaled vomit. Alcohol increases the risk of injury and hypothermia. Alcohol may lead to disruptive behaviour that is unacceptable in a small closed community. Alcohol causes careless behaviour, which may risk the safety of the whole community. Last but by no means least, excess alcohol is linked with several major causes of illness. BAS requires that you adopt a sensible approach to drinking, keeping within safe limits, avoiding binge drinking, as guided by the BAS Policy on Drugs and Alcohol. The responsibility is yours and sometimes may require considerable self discipline.
- Smoking is severely restricted in BAS bases. This is largely due to the nature of the base construction, which coupled with the very dry Antarctic atmosphere leads to fire risk. However, as everyone is aware, smoking is bad for your health and the most important lifestyle decision you can ever make is to stop (or never to start) smoking. Your colleagues will also appreciate any efforts you may make to stop smoking as this will increase their comfort and well-being. Base doctors have aids available to help you stop smoking and can offer support and advice.
- Isolation especially in winter means very close contact in a small space with your companions. The environment is unique, and can be stressful. Please try to adopt a
mature approach to relationships. When others get to you try to talk it through without rancour. The BASMU doctor or Base Commander can sometimes help when there is a problem in relationships within the group.

- If you stop off en route to or from Antarctica, be careful if tempted to casual sexual contact. The dangers of sexually transmitted diseases are very real. If you must, then practise safe sex. There are some very unpleasant tropical sexually transmitted diseases, which are freely available in South America.

In every respect, in a small community such as the one you will be in, each individual can contribute much both constructively and destructively within the group. Be prepared to take responsibility for your health and your actions at all times. Try to make a positive effort to enhance the well being of the whole community.

Lifestyle issues will be addressed more fully in briefing conferences prior to departure, and the BASMU team will try to give individual guidance on any lifestyle problems you may identify.

And Finally…………
Good Health, Good Luck and enjoy your time with BAS. Moderation in all things is a good motto!

We hope this guide has been helpful. If you have any queries, suggestions or comments feel free to contact + 44 (0) 1752 315220 and talk to someone in BASMU

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