Managing health for field operations in oil and gas activities

A guide for managers and supervisors in the oil and gas industry

Health
2011




The global oil and gas industry association for environmental and social issues

5th Floor, 209–215 Blackfriars Road, London SE1 8NL, United Kingdom
Telephone: +44 (0)20 7633 2388 Facsimile: +44 (0)20 7633 2389
E-mail: info@ipieca.org Internet: www.ipieca.org

International Association of Oil & Gas Producers

London office
5th Floor, 209–215 Blackfriars Road, London SE1 8NL, United Kingdom
Telephone: +44 (0)20 7633 0272 Facsimile: +44 (0)20 7633 2350
E-mail: reception@ogp.org.uk Internet: www.ogp.org.uk

Brussels office
Boulevard du Souverain 165, 4th Floor, B-1160 Brussels, Belgium
Telephone: +32 (0)2 566 9150 Facsimile: +32 (0)2 566 9159
E-mail: reception@ogp.org.uk Internet: www.ogp.org.uk

OGP Report Number 343 (Revision – Version 1 / October 2011)

Managing health for field operations in oil and gas activities

A guide for managers and supervisors in the oil and gas industry

Photographs reproduced courtesy of the following: cover, upper left: Shutterstock.com; upper centre and bottom: iStockphoto.com; upper right: Photos.com pages 12, 13, 14 and 34: Shutterstock.com; pages 4, 6, 9, 11, 15, 16, 19, 20, 21: iStockphoto.com; page 18: Corbis.

Contents

Introduction

All companies, whether operators or contractors, have a commitment to protect and promote the health of those affected, either directly or indirectly, by field operations in the oil and gas industry. This is best achieved by establishing an effective health management system. The purpose of this document is to assist companies working within this sector to achieve and maintain high standards of health management for all people associated with field operations.

This document supersedes the previous edition published by OGP in May 2003. The aim has been to simplify and integrate into one document the recommendations that the OGP/IPIECA Health Subcommittee considers essential for optimal health management, from conception and throughout the entire duration of a field operation.

The following section on *Health management systems* provides a basis for the establishment of an effective health management system. The subsequent sections provide guidance on the specific occupational health aspects of such a system which should be applied during field operations in oil and gas activities, as described in the OGP/IPIECA report number 393, *Health performance indicators: a guide for the oil and gas industry*.

Health management systems

A health management system enables an organization to control its health risks and to achieve higher standards of performance by means of continuous improvement.

The system should convey the company's structure, responsibilities, practices, procedures and resources for implementing health management, including processes to identify root causes of poor performance, prevent recurrences and drive continuous improvement.

The benefits of effective health management include:

- ensuring patient safety;
- eliminating illness related to work;
- managing medical care;
- maintaining a healthy workforce;
- optimizing business performance and reputation;
- meeting legal requirements; and
- ensuring cost-effectiveness.

The system should be designed to complement national and international standards and regulatory requirements as necessary, as well as individual corporate health guidelines within which companies and contractors conduct their business. For further guidance on how contractors and subcontractors should be incorporated into the health management system of contracted field operations, see OGP report number 423[1]. The key outcome of a successful health management system is that health performance meets both company and statutory requirements and demonstrates continual improvement.

The key components of any health management system are similar and should include the following (E&P Forum, 1994)[2]:

- leadership and commitment;
- policy and strategic objectives;
- organization, responsibilities, resources, standards and documentation;

[1] OGP, 2010. *HSE Management—guidelines for working together in a contract environment.* (OGP report number 423)

[2] E&P Forum (now OGP), 1994. *Guidelines for the development and application of health, safety and environmental management systems.* E&P Forum report number 210.

- risk management;
- planning and procedures;
- implementation and performance monitoring; and
- audit and management review.

Examples of health management systems that are utilized within the industry have been published by OGP[1], API[3] and the OHS Group[4].

An example of a health self-audit template for use by managers can be found in Annex 1.

Occupational health

Occupational health is an integral part of the health management system. It is concerned with the interrelationship between work and health, i.e. the effects of work on health and the effects of people's health on their capacity to work.

The purpose of an occupational health service is to:

- protect, promote and maintain the health, safety and welfare of people at work;
- advise on the provision of safe and healthy conditions by informed assessment of the physical and psychological aspects of the working environment;
- identify and advise management on the causes of occupational disease and injury and the means of their prevention;
- advise on the rehabilitation and placement in suitable work of those temporarily or permanently incapacitated by illness or injury; and
- assist in the planning and preparedness of emergency response plans.

To achieve these aims, a team approach should be taken by occupational physicians, occupational nurses, industrial hygienists, other occupational health professionals, and administrative and other staff.

The business case

Field operations present unique challenges, and the people involved are an important asset. To protect that asset, an occupational health service integrated into the operation can yield important benefits:

- Leaner company profiles mean that there are now fewer employees in organizations: it is therefore crucial that employees are not incapacitated or lost through preventable ill health.
- Taking positive steps to improve employees' health will help to increase productivity, recruit and retain staff, reduce staff turnover and enhance company standing.
- Sound advice on compliance with legislation will reduce the risk of costly litigation and loss of image.
- Increasingly, employees and former employees claim compensation for work-related illness and injury, whether or not a particular hazard is covered by legislation; these losses are preventable.
- Employers' liability insurers insist that employers demonstrate adequate protection of employee health; involvement of an occupational health service can help to control the premiums.

---

3 API, 1998. *Model environmental, health and safety (EHS) management system and guidance document.* (API Publication 9100)

4 The Occupational Health and Safety Group. *OHSAS 18000 Occupational Health and Safety Toolkit*: www.ohsas-18001-occupational-health-and-safety.com/ohsas-18001-kit.htm

Figure 1 *The business benefits of assuring a healthy workforce*

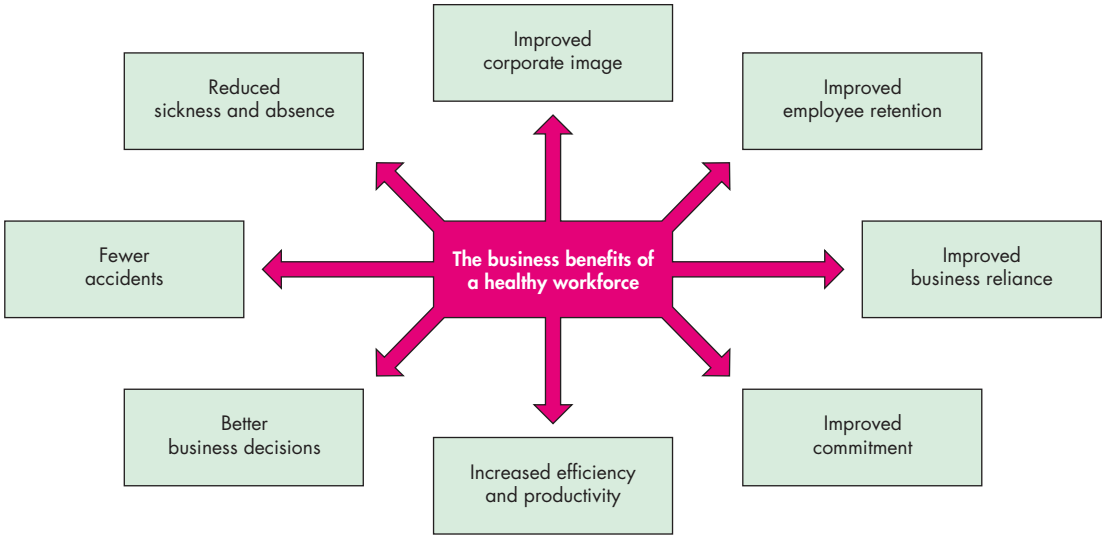


Figure 1 illustrates the range of benefits that businesses enjoy in return for assuring a healthy workforce.

(courtesy of The Work Foundation)

The occupational health aspects of a health management system, which should be applied to field operations in oil and gas activities, include activity in all of the following:

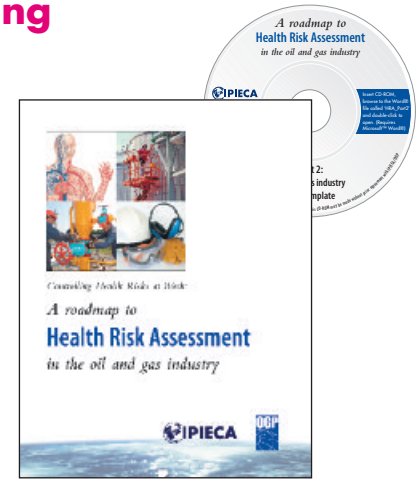
- health risk assessment and planning;
- industrial hygiene and control of workplace exposures;
- medical emergency management;
- management of ill-health in the workplace;
- fitness for task assessment and health surveillance;
- health impact assessment;
- health reporting and record management;
- public health interface and promotion of good health; and
- control of food, water and sanitation issues.

The requirements of each of these activities are discussed in the following sections.

Health risk assessment and planning

The aim of a health risk assessment is to identify health hazards, evaluate their risks to health and determine appropriate mitigation, control and recovery measures. A guidance document entitled *A roadmap to health risk assessment in the oil and gas industry* was published by OGP and IPIECA in 2006 (see right).

This document covers all the basic activities required for a successful health risk assessment process, and includes a CD-ROM with detailed information for those who need a deeper understanding.



The OGP-IPIECA 'Roadmap to health risk assessment' (left) provides an introduction to health risk assessment processes, as well as a CD-based template giving examples of HRA-specific implementation.

Industrial hygiene and control of workplace exposures

Industrial or occupational hygiene is defined as 'the science devoted to the anticipation, recognition, evaluation and control of those workplace environmental health hazards/stressors which may cause sickness, impaired health and well-being, or significant discomfort among workers or members of the community'.

The focus is on identification and control of occupational health hazards. Industrial hygiene programme components include: (1) hazard identification; (2) risk evaluation relative to hazard exposure; (3) hazard monitoring; (4) control plan development; (5) employee training and control plan implementation; and (6) evaluation of the effectiveness of controls.

Workplace environmental health hazards include:

- **Chemical:** dusts/fibres, fumes, mists/aerosols, gases, vapours, smokes.
- **Physical:** noise, vibration, radiation (ionizing and non-ionizing), temperature (heat or cold stress), illumination, pressure, ventilation, NORM, asbestos.
- **Biological:** bacteria, viruses, fungi, moulds, parasites, insects, and animals.
- **Ergonomic/human factors:** repetitive motions, manual handling, fatigue, work station design/operations, shift work.
- **Psychosocial:** workplace stress related to workload, organizational changes, conflict management, job satisfaction, employee-job fit, fatigue, aging workforce.

The identification and control of occupational health hazards in the field is key to maintaining appropriate standards of industrial hygiene.

Occupational health programmes should complement industrial hygiene risk assessments to identify health hazards, control worker exposure, protect the health of employees, and prevent occupational illnesses and injuries.

Infection control measures in field medical operations

The focus of the general principles outlined here is on reducing the risk of disease transmission in the health-care setting, rather than in the wider community

Prevention strategies in the health-care setting

The core prevention strategies include:

a) Standard precautions:

- Hand hygiene—wash hands thoroughly with soap and water or use an alcohol-based rub. Hand hygiene is required for 'standard' precautions (previously called universal precautions, and assumes blood and body fluid of ANY patient could be infectious) and 'expanded' precautions (to include contact precautions, droplet precautions and airborne infection isolation).
- Respiratory hygiene and cough etiquette.
- Sterilization and disinfection of medical materials.
- Prevention and management of injuries from medical instruments.

b) Early detection of disease and isolation precautions:
   - worker placement in relation to activities; and
   - use of PPE.

   Isolation precautions can be categorized as 'standard' precautions (which assumes that blood and body fluids of ANY person could be infectious), or 'expanded' precautions (to include contact precautions, droplet precautions, and airborne infection isolation.

c) Environmental and engineering infection control measures. The basic issues related to health-care workers' health include:
   - pre- and post-employment screening to identify conditions that may put workers at risk; and
   - vaccinations.

d) Personal protective equipment (PPE):
   The types of PPE which should be utilized by health professionals, dependent on the identified hazard, include:
   - gloves for hand protection;
   - masks and respirators for mouth and nose protection;
   - goggles for eye protection;
   - face shields for face, mouth, nose and eye protection; and
   - gowns or aprons for skin and/or clothing protection.

   Contact precautions require the use of gown and gloves for contact with persons or environment of care (i.e. medical equipment, environmental surfaces). Droplet precautions require the use of surgical masks within three feet of the person. Airborne infection isolation requires a particulate respirator.

Medical emergency management

A medical emergency is a situation in which, due to an acute illness or injury, there is an immediate risk to a person's life or long-term health.

To manage medical emergencies, each location should develop a site-specific medical emergency response plan (MERP), taking into account the potential for individual and multiple casualties, describing the response to various medical emergency scenarios based on the health risk and impact assessments, and utilizing available resources. The MERP should consider specific needs of the work activities and the general situation of the country in which these activities are carried out, as well as any collaboration with local authorities.

Resources required for the implementation of the MERP

Resources required for the successful implementation of a MERP are discussed below, and include:

- effective means of communications;
- first responders and trained competent health-care professionals, e.g. doctors, nurses, paramedics, emergency medical technicians;
- adequate means of transportation (ground, water, air); and
- adequate medical structures (primary, secondary and tertiary health-care units).

Effective means of communication

Commonality of language is critical to effective emergency response. The ability to transmit and exchange information clearly and efficiently between the field, designated medical facilities and support structures is essential to minimize adverse impact and assure a successful outcome. See *Communication* on page 14 for further details.

First responders and trained competent health-care professionals

Basic (Level 1) and Advanced (Level 2) first aid

First aid is the immediate application of first line treatment following an injury or sudden illness, using facilities and materials available at the time, to sustain life, prevent deterioration in an existing condition and promote recovery.

The content and duration of training courses and the titles given to trained first-aiders vary widely from country to country and even between training institutes within the same country. Assessment of a first-aider's qualifications will require scrutiny of their training, experience and references. First-aiders should carry a valid recognized certificate of first-aid training which should at least meet national requirements.

There are two levels of first-aiders: basic first-aiders (Level 1 health-care providers) and advanced first aiders (Level 2 health-care providers). Emergency medical technicians (EMTs) used in some countries may come under Level 2.

Health-care personnel range from trained first-aiders to medical specialists capable of diagnosing and treating complex medical conditions.

The number of first-aiders and their level of competence will depend on both the size of the workforce exposed and the degree of risk. Thus, a two-man team operating in a remote or dangerous locality may require one member to have basic first-aid capability and the other to have more advanced skills, while a team of 25 operating close to high-quality medical facilities with good means of communication and evacuation may require only one basic first-aider. In addition, certain countries may have national guidelines stipulating the numbers of first-aiders required for given numbers of workers.

Level 3 health-care professionals

These are individuals with specialized training in emergency care; they are accredited by various professional organizations around the world, and are usually employed in field operations to manage medical emergencies with remote support from a Level 4 health professional.

Level 4 health-care professionals

The designated primary health-care unit (HCU) should be staffed by registered and licenced health professionals. These could be doctors, nurses, physician assistants or other trained personnel with experience in emergency and primary care. They would be expected to provide advanced emergency medical care to resuscitate a patient, and to participate in the MERP in case the patient is to be transferred to the secondary or tertiary HCU.

Level 5 health-care professionals

The designated secondary HCU (usually a hospital) and tertiary HCU (usually a critical care centre) would ideally be staffed by medical specialists—medical personnel who have undertaken postgraduate medical training and obtained further medical qualifications, and whose competence has been certified by a diploma granted by an appropriate specialist medical college. They would be expected to assess, diagnose and treat specialized and complex medical conditions.

Table 1 *Guidance on response times for provision of basic life support and immediate first aid*

Response time	Responder	Site of health care
< 4 minutes	Level 1 health-care provider	Site of the incident
< 20 minutes	Level 2 health-care provider or Level 3 health-care professional	Site of the incident (Level 2) or field first-aid station (Level 3)
< 1 hour	Level 4 health-care professional	Designated primary health-care unit
< 6 hours	Level 5 health-care professional	Secondary and tertiary health-care unit

The response time for provision of basic life support and immediate aid should be less than 4 minutes, and for advanced life support (Levels 2 and 3) less than 20 minutes. Access to more advanced level health-care units should be based on the results of the site-specific health risk assessment. Prescriptive timings should be as short as reasonably practicable. See Table 1 for guidance.

Adequate means of transportation

Evacuation procedures will need to take into account the available resources, the urgency of the transfer and the medical condition of the casualty.

Transportation could be by ground, by water or by air. The casualty escort could be a doctor, nurse or paramedic and in some cases a certified first-aider, dependent upon the severity of the condition. All should be trained and familiar with the equipment that they are expected to use.

In certain circumstances, the use of a specialist medical evacuation organization may be desirable. In this case, a contract with the assistance company or specialist transport company must be part of the emergency plan.

All components of the medical evacuation process (personnel, vehicles, equipment, training, communications, etc.) should be audited at regular intervals by the company.

See the Annexes for further details.

Adequate medical structures

The medical emergency chain includes primary, secondary and tertiary HCUs:

- The primary HCU is the local unit covering the entire workforce involved in the operations. It could be the worksite clinic or a designated third-party clinic nearby. Its key functions are:
  - the provision of emergency response and medical care to resuscitate a casualty; and
  - participation in the MERP in case the patient is to be transferred to the secondary or tertiary HCU.
- The secondary HCU is usually a hospital, and is used when the capabilities of the primary HCU are exceeded. Its key functions are:
  - the management of inpatient medical and surgical cases requiring investigation and/or treatment;
  - the emergency resuscitation and stabilization of casualties, in preparation for their referral to a tertiary HCU if necessary; and
  - participation in the MERP in case the casualty is to be transferred to the tertiary HCU.
- The tertiary HCU shall be able to handle critical conditions that exceed the capabilities of the secondary HCU. Such conditions include, but are not limited to: major trauma; neurosurgery; severe burns; cardiac surgery; high-risk pregnancy; complex tropical diseases; organ failure and transplant; oncology; and major psychoses. This advanced tertiary HCU may not be available in some countries, in which case it is desirable to identify such a

facility in another country or in the country of origin of the casualty.

Medical emergency response plan (MERP)

The medical emergency response plan should:

- be risk and scenario based (e.g. pandemic, food-borne illness outbreak, infectious diseases such as varicella and influenza-like illnesses), and should include mass casualty planning;
- identify the designated health/medical provider(s) involved in the plan, together with their capabilities and limitations (these providers could be under the direct control of the company or a third party; if the latter, a formal agreement on the level of medical support should be made);
- determine the likely evacuation route(s) and means of transport from the incident location to the place(s) of medical care—particular attention is required regarding transportation limitations (e.g. distances, mode of transport, weather limitations, etc.) and consideration should be given to requirements for local authority/government authorization prior to evacuation out of the country;
- include contact details for key personnel; and
- include contact information for all individuals who are covered by the MERP—such persons should be advised that they must have a valid passport and appropriate visa in case evacuation out of the country is required.

Effectiveness of a MERP

To be effective, the MERP should be:

- developed systematically before the start of any activity;
- communicated effectively and well understood;
- designed so that important actions are taken in parallel (different actions should be taken at the same time) and not in series (actions should not be taken one after the other);
- integrated into the company's more general emergency response plans;
- under the responsibility of line management;
- organized in collaboration with both company and client health-care professionals where subcontractors are involved; and
- tested and reviewed regularly through structured drills.

Drills, review and revision

Drills

Once the MERP has been developed it should be practised regularly and should include testing of all logistical support required, e.g. communications, transport. The results of drills should be reviewed and the plan revised if necessary.

The extent of resource deployment during drills should be predetermined by management and company-designated health-care professionals. This should include scenario planning, as well as simulated events addressing triage for multiple cases, followed by a thorough debriefing.

Review following medical emergency

A debriefing should be conducted after each use of the MERP so that the company can make improvements if necessary.

Regular revision

The MERP should be audited and revised if necessary, at least annually and following any significant change in circumstances, e.g. type of operation, location or health-care resources.

Contractors

Where suitable, contractor companies should develop their own MERP, compatible with that of the client company. Alternatively, the company may include contractors in its own MERP but this must be formally established prior to the start of operations.

Management of ill health in the workplace

A system should be established which provides access to primary, secondary and emergency medical facilities, as well as to occupational health expertise where appropriate, and which is underpinned by a systematic approach to maintaining and improving the quality of care within the health system.

Governance

This approach to improving the quality of health-care is described in some countries as 'clinical governance'. The important elements of this governance system that are applicable to oil and gas field medical activities are described below, and include:

- managing clinical effectiveness;
- managing risk;
- patient safety and incident reporting; and
- using evidence.

Managing clinical effectiveness

Clinical effectiveness can be described as the right person doing:

- the right thing (evidence-based practice);
- in the right way (skills and competence);
- at the right time (providing treatment/services when the patient needs them);
- in the right place (location of treatment/services); and
- with the right result (clinical effectiveness/ maximizing health gain).

Evidence that clinical effectiveness is being utilized in a health-care system includes the following important activities:

- Clinical or medical audit to critically review current practice.
- The identification of treatment outcome measures.
- The presence of protocols/processes in support of clinical governance.

Managing risk

There are various day-to-day risks involved in the running of field medical operations. Things that could, and can, go wrong include: slips, trips and falls involving medical staff, patients and the public; administrative errors that impact on patient care; and clinical incidents that have a direct effect on the outcome of patient care.

Risk management is a standardized process used in industry to reduce occupational injuries, errors, faults and accidents, and at the same time improve quality. Companies need to manage risk at two overlapping levels:

- the strategic/management level; and
- the day-to-day staff/patient operational level.

Risk management is seen as an essential component in the delivery of safe and effective care. The development of a risk management matrix will be influenced by a mix of local legislative and regulatory requirements as well as by specific standard-based company guidance.

Evidence that risk management is being utilized in a health-care system includes the following important activities:

- Availability of risk management documents, e.g. risk assessment protocols, logs, register, action plans, etc.
- Identifying and learning from risks across the company; this could involve coordinating and communicating information from different sources.

Risk management is an essential component in the delivery of safe and effective care; creating a culture that values complaints and the reporting of incidents is an essential part of risk management.

- Incident reporting of errors and near misses.
- Clinical effectiveness and audit projects that may impact or influence risk.
- Complaints and claims management that identify risks.
- Clinical outcome indicators that tell you whether you have achieved what you want from an intervention.

Company health-care professionals need to know that they will be supported in the identification, reporting and management of risks in their work area. Creating a culture that values complaints and the reporting of incidents is an essential part of risk management.

Patient safety and incident reporting

Research indicates that, in developed health management systems, around 10% of patient contacts result in harm to patients or staff. It is estimated that half of these harmful or adverse incidents are preventable. Clinical incidents and near misses, where there is no harm to the patient, highlight the need for appropriate action to be taken to reduce or manage risks. Reporting and learning from such events is part of the risk management process to protect the safety of patients and health-care staff.

Evidence that patient safety and incident reporting are being utilized in a health-care system includes:

- Procedures for reporting and analysis of clinical errors and incidents.

For further information on patient safety see Scally and Donaldson 1998[5], IoM 1999[6] and DH 2000[7].

Using evidence

Clinical decisions about treatments and services should be made on the basis of the best available evidence to make sure care is safe and effective. Health professionals need to have the correct skills to identify and assess information from a variety of evidence sources to help them make decisions about care. Health-care professional development involves keeping up to date and reviewing practice on a regular basis.

Activity in the following important areas demonstrates that evidence is being used in a health-care system:

- Use of evidence-based practice.
- Development of clinical guidelines.
- Procedure for continuing professional development (CPD) of health-care staff.

Medical facilities at location

Strategic health management (SHM) principles should be applied wherever needed and practicable[8]. SHM involves systematic, cooperative planning in each phase of the lifecycle of a project to protect the health of the workforce and promote lasting improvements in the health of the host community.

Primary care facility

In some locations it may be sufficient to appoint a local doctor as a general practitioner to provide for the workforce. In other locations it may be necessary to develop a company clinic, which could include bringing in expatriate medical staff to provide care or work alongside local medical staff.

---

5 Scally, G. and Donaldson, L. J., 1998. Clinical governance and the drive for quality improvement in the new NHS in England. In *BMJ (British Medical Journal)* 317:61, pp. 61–65. Published 4 July 1998.

6 IoM, 1999. *To Err is Human: Building a safer health system.* Institute of Medicine of the National Academies. Washington DC, USA.

7 DH, 2000. *An organisation with a memory: Report of an expert group on learning from adverse events in the NHS.* Department of Health, London, UK.

8 OGP, 2000. *Strategic health management: principles and guidelines for the oil & gas industry.* OGP report number 6.88/307.

Secondary care facility

In most locations the company will identify approved local clinics or hospitals for further care.

Emergency medical care

The requirements for provision of emergency medical care are described on pages 5 to 8.

Annex 3 provides further information about the knowledge and skill requirements for health professionals, and the medical equipment requirements for primary, secondary and emergency medical facilities.

An example of a template to assist with auditing a local medical facility can be found in Annex 4.

Occupational health-care facility

An occupational health-care facility may be set up to provide the following:

- clinical health surveillance of employees hired locally or from outside the region;
- immunizations;
- evaluation of health aspects of catering, living accommodation, waste disposal and water testing;
- support for evaluation and management of occupational health risks;
- arrangements for first-aid and training;
- conforming to local occupational health legislation;
- briefing new arrivals on local health risks;
- fitness for task, rehabilitation and return to work assessments[9]; and
- support for human resources employment policies and procedures.

In some locations it may be sufficient to appoint a local doctor as an occupational health practitioner for the workforce, whilst in other locations it may

An occupational health-care facility may be established to provide a range of services including, for example, fitness to work assessments, health surveillance of the workforce, briefing new arrivals on site, first-aid training, vaccinations, and more.

be necessary to bring in expatriate medical staff to provide occupational health support.

Clinical health surveillance should be the responsibility of a doctor who has knowledge of preventative health care, ideally in the relevant occupational health setting. A nurse working directly under the supervision of such a doctor can carry out some of the procedures.

Legislation regarding immunizations and their administration varies from country to country. Usually, a nurse may give immunizations provided that she is acting under the written direction of a doctor who has assessed the nurse's competence to immunize and deal competently with any adverse reactions.

Evaluation of the health and hygiene aspects of catering, living accommodation, waste disposal and water testing should only be done by a doctor, nurse or other health professional who has sufficient knowledge and experience to perform the task in a competent manner.

Support for the evaluation and management of occupational health risks should only be performed by a health professional that has sufficient knowledge and experience to perform the task in a competent manner.

[9] OGP-IPIECA, 2011. *Fitness to work: Guidance for company and contractor health, HSE and HR professionals.*

First-aid training should only be given by a health professional competent and certified to give such training.

Pharmaceutical and inventory management

Pharmaceutical and inventory management is, in principle, no different at field locations than at medical facilities in more accessible locations, though logistics and cold chain management may be more challenging.

A cold chain[10] is a temperature-controlled supply chain, which aims at maintaining the product at a given temperature range, thus extending and assuring the shelf life of pharmaceutical drugs. One common temperature range for a cold chain in the pharmaceutical industry is from 2° to 8°C, but the specific temperature (and time at temperature) tolerances depend on the actual drug or vaccine being transported. Remoteness, hot climate and customs delays pose well-known risks in relation to keeping the cold chain unbroken. Some common ways to achieve an unbroken cold chain include the use of refrigerator trucks, specialized packaging and temperature data loggers, as well as carrying out a thorough analysis, including taking measurements and maintaining documentation.

At some geographical locations, the type and availability of controlled drugs, as well as the definition of what constitutes a 'controlled drug', may vary. However, whilst this is 'business as usual' for most companies, local legislation relating to controlled drugs must be respected to ensure that the correct procedures are in place for the receipt, storage, record keeping and disposal of such drugs.

Companies operating in remote locations have typically learnt to 'inspect not expect', and such an approach applies also to the need for pharmaceuticals and related inventory.

It is important to ensure that labelling, instruction leaflets and procedures relating to pharmaceuticals match the language competence of the staff handling the medication. All pharmaceuticals on site should be stored securely with regular periodic checks of stock. It may be better to have a good standard inventory which is well known to staff than to add on a number of more advanced drugs with which staff are unfamiliar.

Medical field services are often supplied by medical service providers or seismic contractor companies. Where this is the case, the operator company must include pharmaceutical-related issues in their risk assessment and follow-up.

Management of pharmaceutical inventory may prove challenging in some locations for a number of reasons, including climate, culture and local legislation.

Medical equipment management and maintenance

Medical equipment management includes the business processes (e.g. procurement, installation and commissioning, training, maintenance and repair, record keeping, inventory management, decontamination and disposal) used in the interaction and oversight of the medical equipment involved in the diagnosis, treatment and monitoring of patients. It is a recognized profession within the medical logistics domain.

[10] Adapted from Wikipedia: http://en.wikipedia.org/wiki/Cold_chain

A systematic approach to the management of medical equipment should be taken to minimize the risks associated with its use. This should include the purchasing, deployment, maintenance, repair and disposal of medical equipment. It is essential that whenever an item of medical equipment is used, it is:

- suitable for (and only used for) its intended purpose;
- used in accordance with manufacturers' instructions;
- properly understood by the professional user, i.e. staff should be appropriately trained and competent;
- maintained in a safe and reliable condition;
- recorded on a database;
- selected and acquired in accordance with the company's recommendations; and
- disposed of appropriately at the end of its useful life.

A complete description of the requirements of a comprehensive medical equipment management system is beyond the scope of this guideline document. See MHRA 2006[11] for more information on this subject.

The health and welfare of the local workforce

Globalization has had an impact on the health, safety, well-being and culture of populations worldwide, as have new technologies, workplace organization, work practices, mobility and demographic trends. All of this has been associated with new types of diseases and health concerns among the working population and their families, together with an increased awareness of health issues.

The workforce may consist of a combination of local, national and international staff; management should be sensitive to the diversity and requirements of its workforce and their dependants.

A workforce may consist of a combination of local, national and international staff, and short- and long-term contractors and rotators. Their terms of contract will be equally diverse but, as a guideline, the health-care provisions should follow the principles set out in this document.

Management has a duty of care and must be sensitive to the diversity and individual requirements of its workforce and their dependants. Elements that should be considered by management and, in particular, by health-care personnel include:

- occupation;
- literacy, education and training;
- culture;
- language;
- religion;
- tradition;
- superstition;
- gender;
- family;
- dietary habits;
- sanitation;
- hygiene standards;

[11] MHRA, 2006. *Managing medical devices: guidance for health-care and social services organisations.* Medicines and Health-care products Regulatory Agency, report number DB2006(05), November 2006. Available from the MHRA website at: www.mhra.gov.uk/Publications/Safetyguidance/DeviceBulletins/CON2025142

The importance of familiarity with cultural norms of the workforce cannot be overemphasized.

- public health;
- endemic conditions;
- medical and health briefs;
- alternative and traditional medicine;
- local law and political climate; and
- safety culture (fatalism and education).

The importance of familiarity with cultural norms of the workforce cannot be overemphasized.

Medical aspects of health care in a local environment

There should be close cooperation between:
- national health-care workers;
- company health representatives;
- local health-care authorities; and
- relevant stakeholders.

Health-care personnel should take into account the diversity of the population they serve. In some countries, distance and access to certain specialities should be taken into account, as should racial, cultural and religious aspects, for example:
- all individuals being treated with equal respect;
- women's needs to be treated by female health-care personnel;
- fasting periods required by religious practices;
- requirement for the provision of interpreters;
- the impact of religion and culture on health education programmes; and
- the complementary benefits of traditional and western medical practices.

Communication

Effective communication is essential for any operation and, in particular, for the management of health-related problems.

Communication can be performed by:
- telephone (fixed phone, mobile, satellite);
- radio;
- fax;
- computers (e-mail, Internet);
- video transmission; and
- telemedicine (see below).

Communication is necessary to enable the health professional in the field to contact company health professionals, approved specialists, relevant authorities, medical evacuation companies and managers. It enables health professionals to obtain advice, provide appropriate medical care, obtain necessary medication and material, and access medical websites and online medical journals to update their knowledge, organize medical evacuations and keep management informed of relevant medical decisions.

Telemedicine

Telemedicine can be defined as the use of telecommunication technologies to deliver medical information and services to locations at a distance from the care giver or educator.

Telemedicine may be as simple as two health professionals discussing a case over the telephone, or as complex as using satellite technology and videoconferencing equipment to conduct a real-time consultation between medical specialists in two

different countries. It can be used to provide medical consultations (routine or emergency), advice and assistance in diagnosis and treatment by providing a second opinion with a specialist. It can be used to coordinate and interpret diagnostic procedures and to transmit laboratory and radiological results (electrocardiogram, medical imaging, etc.). Telemedicine can also help the isolated health professional by providing on-site education.

Telemedicine can be broken into three main categories:

- store-and-forward;
- remote monitoring; and
- interactive services.

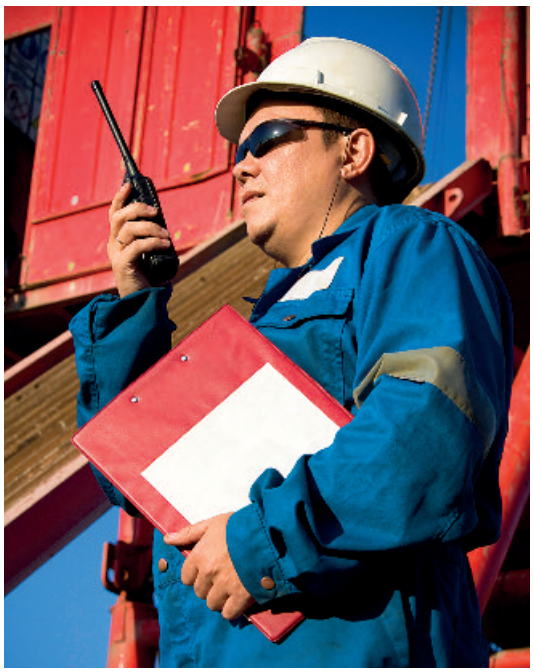
Store-and-forward telemedicine: involves acquiring medical data (like medical images, biosignals etc.) and then transmitting these data to another health-care professional at a convenient time for assessment offline. It does not require the presence of both parties at the same time. The store-and-forward process requires the clinician to rely on a history report and audio/video information in lieu of a physical examination.

Remote monitoring: also known as self-monitoring or self-testing, enables medical professionals to monitor a patient remotely using various technological devices. This method is used primarily for managing chronic diseases or specific conditions, such as heart disease, diabetes mellitus or asthma. This service can provide health outcomes comparable to traditional in-person patient encounters, supply greater satisfaction to patients, and may be cost-effective.

Interactive telemedicine services: provide real-time interactions between patient and provider, and include telephone conversations, online communication and home visits. Many activities, such as history review, physical examination, psychiatric evaluations and ophthalmology assessments, can be conducted comparably to those done in traditional face-to-face visits. In addition, 'clinician-interactive' telemedicine services may be less costly than in-person clinical visits.

Ideally, telemedicine requires a computer, a digital camera, diverse adapted diagnostic equipment, acceptable communication systems (sufficient bandwidth) and an agreement with specialized health-care providers. However, a basic telephone call or e-mail with a scanned or digital picture or X-ray attached can suffice in many cases.

A number of problems remain to be solved concerning telemedicine, including privacy, confidentiality and security, as well as medico-legal responsibility and payment.



Well-established communication systems are essential for the effective management of health-related issues and emergencies.

Fitness for task assessment and health surveillance

The purpose of a fitness for task assessment is to ensure proper placement of prospective employees in job positions that will match their capabilities without risk to themselves or co-workers.

The employee's health status should be compatible with their job position and confirmed by fitness for task assessments as required[12].

The fitness for task assessment is to be conducted by an appropriately qualified health-care professional, who will determine the extent of the assessment, dependent on the essential/required job position functions and country legal requirements. Typical components include a comprehensive health history, routine blood work and urinalysis, audiometric and pulmonary function tests, and visual acuity testing. More specific medical examinations may be required for specific workplace exposures. Other tests such as functional capacity evaluation or trade testing may be required for particular job groups.

The fitness for task assessment should:

- use appropriate methods to detect relevant health issues that could impact future work capabilities;
- cover both physical and mental health;
- maintain employee confidentiality;
- comply with local regulatory agencies and industry standards;
- reduce employer liability and be cost-effective;
- have reasonable accommodation where appropriate/required;
- assess the employee's compatibility with the demands of the job without risk to the employee or co-workers; and
- ensure proper placement of prospective employees in jobs that will match their capabilities.

The frequency and content of a fitness for task assessment will be dependent on:

- the type of job tasks and inherent health risks;
- the type, amount, duration and frequency of workplace exposure; and
- local regulatory legislation and industry standards.

Other factors that may influence the frequency and content of an assessment include the employee's age, past medical history and current health status.

Health surveillance is the specific examination of certain aspects of health which may be affected by identified workplace health hazards. While this process may include some similar testing to routine fitness for task assessments, the purpose is different. The health surveillance process monitors the potential effect of the job on the individual, not suitability for task. Health surveillance is also an ongoing process, although periodicity may be different from a fitness for task assessment. It may be conducted in conjunction with fitness for task assessments where convenient and appropriate.

Where pre-placement health assessments are considered necessary, they should be conducted after an offer of employment is made. They should be designed to verify the suitability of new employees for their job positions in accordance with their physical and mental capacities and the physical, psychosocial and environmental demands of the job, and should accommodate individuals with medical conditions or disabilities where possible. The assessments aim to ensure that the new employee does not have any health-related condition that may be aggravated by the job duties or that may affect the health and safety of co-workers. Pre-placement assessments also provide baseline data against which future evaluative data can be measured.

[12] OGP-IPIECA, 2007. *Health performance indicators: A guide for the oil and gas industry*. OGP report number 393.

Health impact assessment

Industrial development projects can give rise to health impacts, both positive and negative, and the oil and gas industry is no different. A health impact assessment (HIA) is a combination of procedures, methods and tools by which a project may be judged according to its potential effects on the health of a population and the distribution of those effects within that population. This applies 'outside the fence', i.e. to the local community population and other stakeholders who may be impacted by activities at the company's field operational site.

The intent of an HIA is to predict potential positive and negative community health impacts from a project and to facilitate either avoidance or reduction of the negative impacts on human health. HIA is complementary to environmental and social impact assessment and, in many cases, can be carried out at the same time using shared core information. The jointly published OGP-IPIECA *Guide to health impact assessments*[13] contains in-depth information and practical tools for application 'on the ground'.

Health reporting and record management

Reporting of health information will normally be required or requested from an operation by several different organizations. There will likely be a legal requirement for reporting, either by host or home country legislation which must be complied with. Internal reporting to both local and corporate management is normally a routine requirement. Industry representative bodies may also request information.

Legislative reporting

Legislative reporting is normally non-negotiable. The information requested, and the form of presentation, will be governed by the relevant health and safety laws applicable to the operation. There is wide variation between countries as to the nature and amount of this information but, in general, this will normally relate to occupational illness and infectious disease. This information may not be anonymous and could require the identification of individual employees, in which case circulation of reporting documents should be restricted, ideally to the health department only, where possible.

Internal reporting

All companies should require internal reporting of health information. Occupational and work-related illness should be treated with the same importance as an accident or incident, using much of the same process as that utilized for investigating the cause, and for improvement, of controls. Occupational illness is poorly reported industry wide, and specific efforts should be made to ensure that instances are identified. The long latent period for the development of occupational illness means that many cases are reported a considerable period after the onset of exposure, possibly after the individual has changed jobs or locations. Good health record keeping is therefore essential. Records of all cases of occupational illness should be maintained, although only new cases are normally reported.

Anonymous reporting of grouped health data will identify areas where targeted intervention may produce cost-effective health improvements. These can be related to key performance indicators which are important to quantify effectiveness of health programmes, justify health expenditure and plan

[13] OGP-IPIECA, 2005. *A guide to health impact assessments in the oil and gas industry.*

Occupational illness is often poorly reported, but should be given the same importance as reporting an accident or incident occurring at the work site.

health provision. For guidance on the identification of appropriate health performance indicators see OGP-IPIECA 2007[14].

Company corporate functions will normally require anonymous reporting of health data in order to map illness trends at a global level to allow strategic planning of health services. This information may be different from that required locally.

Industry reporting

Industry representative bodies may request health information that relates to initiatives that they are involved in. These may be ongoing projects (e.g. HSE statistics) which can be useful tools for industry benchmarking, or may be a targeted piece of research. Participation in this type of reporting is essentially optional but may be a requirement of membership of the body.

Record management

Good health records are essential not only for reporting but for the protection of patient, health professional and company. Companies should develop standards for health record management which comply with appropriate legislation, corporate standards and international best practice.

Health records are defined as any information pertaining to the medical or occupational assessment, care, treatment, surveillance or other intervention related to the health of the individual.

Health records must be kept for each employee and should detail each medical contact, intervention or communication. They should be identifiable as belonging to a specific individual and must be accurate, contemporaneous and legible. They may be physical or electronic records.

Records must be kept secure and accessible only to health department staff who must have signed a confidentiality agreement. Identifiable health data may be shared with other health professionals if either implied or expressed consent is obtained from the individual.

In order to service the various requirements for health reporting, relevant data sufficient for reporting requirements should be maintained in the health records. To ensure uniformity, a health coding system such as ICD 9[15] will enable standardization across different areas of the business.

[14] OGP-IPIECA, 2007. *Health performance indicators: a guide for the oil and gas industry*. OGP report number 393.

[15] ICD 9: International Classification of Diseases, 9th Edition: a widely used classification system employed to codify diseases and medical conditions.

Public health interface and promotion of good health

Corporate social responsibility

Entering into sustainable partnerships with governments and host communities in order to facilitate improvements in health may form part of a company's corporate social responsibility programme. Such effective partnerships with stakeholders, based on consultation and respect for host culture, can take many forms but does not necessarily involve building expensive facilities or infrastructure. Increasingly, corporate social responsibility health projects are related to preventive health care and may build on existing government or community health programmes involving local capacity building (see OGP 2000[16]). Good social responsibility programmes will necessitate professional risk assessment, extensive dialogue and management of expectations and a good understanding of local context. Ultimately, corporate social responsibility may be seen as mitigation of social risk, as well as forming the basis of the industry's licence to operate. To most companies it is just the right way of doing business.

The International Standard ISO 26000:2010, 'Guidance on Social Responsibility', provides globally relevant guidance for organizations of all types based on international consensus among expert representatives of the main stakeholder groups. The ISO 26000:2010 Standard only contains voluntary guidance on social responsibility and is therefore not used as a certification standard.

Integrating health projects into a company's corporate social responsibility programme can complement existing government or community health programmes and support local capacity building.

Food and water safety standards

Food and water safety presents unique challenges in field operations in extremely remote settings, but needs to be actively managed even in urban areas. During construction phases, groups of workers live in temporary, mobile camps where kitchen facilities are continuously built and dismantled and there is significant risk to workers of both morbidity and mortality from microbial, chemical and physical contamination of the food and water supply. In addition, there is substantial company reputational risk associated with insufficient food and water safety planning. Food- and water-related illnesses could, potentially, cause an operation to be shut down.

For guidance on how to organize a food and water safety management programme see OGP-IPIECA 2009[17]. Requirements and standards for food and water safety need to be included in tenders from all suppliers of goods and services pertaining to food

[16] OGP, 2000. *Strategic health management: principles and guidance for the oil and gas industry*. OGP report number 6.88/307, June 2000.

[17] OGP-IPIECA 2009. *A guide to food and water safety for the oil and gas industry*. OGP report number 397.

and water. The standards should benefit all personnel on site, including all contractors.

Sewage and sanitation

Sanitation

Disease-causing organisms, including viruses, bacteria and eggs or larvae of parasites may all be present in human faeces. These microorganisms may enter the body through faecally-contaminated food, water, and eating and cooking utensils, and by contact with other contaminated objects. Diarrhoea, cholera and typhoid are spread in this way and are major causes of sickness and death. Some fly species and cockroaches are attracted to, or breed, in faeces. High fly densities will increase the risk of transmission of trachoma and *Shigella* dysentery. Intestinal worm infections (hookworm, whipworm and others) are transmitted through contact with soil that has been contaminated with faeces, and may spread rapidly where open defecation occurs and people walk barefoot.

Facilities for disposing of excreta must be designed and built to avoid contamination of water sources that will be used for drinking-water. Any successful measure for managing human excreta includes the principles of separation, containment and destruction. Whatever form of toilet is designed and built, it must fulfil these three functions to minimize health risks.

Toilet facilities should be appropriately located and maintained at a high level of cleanliness; sewage disposal measures should be carefully designed and built to avoid contamination of drinking water sources.

To ensure a sustainable solution, it is important to take into account local custom as well as the availability of water. Some field operations may need to have several solutions in the same camp, e.g. simple screened cubicles with concrete slabs and pour-flush toilets, as well as Western-style water closets. Hand washing facilities should always include hot and cold water, liquid soap, disposable towels and foot-pedal operated or other non-touch, lidded disposal units. Stickers or other information on the importance of hand washing should be available.

Communal facilities should be of a sufficient number and be regularly cleaned by staff who are adequately trained and equipped. Clean latrines help to encourage proper use of the facilities; dirty latrines inevitably lead to carelessness and unsanitary defecation practices in and around them. Routine inspection by supervisors is necessary to ensure that cleaning standards are maintained.

Latrines should be sited no more than 50 metres from users' living quarters, to encourage their use, but sufficiently far away (at least 6 metres) to reduce problems from odours and pests.

Sullage

Wastewater from kitchens, bathrooms and laundries is called sullage. It can contain disease-causing organisms, particularly from soiled clothing, but its main health hazard occurs when it collects in poorly drained places and causes pools of organically polluted water that may serve as breeding places for *Culex* mosquitoes. This genus of mosquitoes transmits some viruses as well as the parasitic disease lymphatic filariasis. Mosquitoes that transmit malaria do not breed in polluted water.

Solid waste

Rats, dogs, cats, birds and other animals, which may be carriers (reservoirs) of disease-causing organisms, are attracted to discarded food,

clothing, medical dressings and other components of solid waste. Small rainwater collections in solid waste such as discarded car tyres or oil drums may serve as the breeding places for *Aedes* mosquitoes, vectors of the dengue virus.

Medical waste from field site clinics may present a special challenge and could typically contain the following categories of waste: infectious waste; pathological waste; sharps (i.e. syringes, blades, glass, etc.); pharmaceutical waste; chemical waste; waste with high heavy metal content; and pressurized containers. The safe and appropriate disposal of medical waste is critical to preventing or minimizing the risk of transmitting microorganisms and potential infections.

Storage, collection, treatment and disposal of sullage and solid waste

Management of health risks related to storage, collection, treatment and disposal of sullage and solid waste will depend on the source, quantity and nature of wastewater and solid waste as well as soil, topography, climate and other factors that may determine which options are possible.

Legislation controlling the handling, collection and disposal of medical waste is extensive and varies by country. Sharp items, such as hypodermic needles and syringes, cannulas and surgical blades, should be disposed of in dedicated, sealed after-use containers. Contaminated consumables such as bandages, gauzes, plasters, cotton tampons, surgical dressings and gloves, must be stored separately from non-medical waste and shall be disposed of separately as per local laws and regulations, or incinerated. It should be compulsory for all personnel handling medical waste to use appropriate PPE, such as gloves (disposable and one-time use); face mask (covering the mouth and nose); protection glasses (for eye protection); and long-sleeve coveralls.

A complete description of the treatment and disposal of sullage and solid waste is beyond the scope of this document.

For further information on the topics in this section, see the references below:

- Water supply and sanitation assessment and programme design[18,19,20,21]
- Solid waste management[22]
- Surface water and waste water drainage[20,23]
- Management of medical waste.[24,25]

Attention should be given to the treatment and disposal of solid waste, especially medical waste from field site clinics, to prevent or minimize the potential risks of infection.

[18] WHO, 2003. Environmental health in emergencies and disasters: a practical guide. Eds. Wisner, B. and Adams, J. World Health Organization. ISBN 92-4-154541-0. 272 pages, English only. Order No. 11500487. www.who.int/water_sanitation_health/emergencies/emergencies2002/en/index.html

[19] The Sphere Project, 2000. Humanitarian charter and minimum standards in disaster response. Chapter 2: Minimum standards in water supply, sanitation and hygiene promotion. www.sphereproject.org/content/view/38/5/lang,english

[20] Davis, J. and Lambert, R., 2002. *Engineering in emergencies: A practical guide for relief workers.* Second Edition. RedR/IT Publications, London. 718pp ISBN: 1-85339-521-8.

[21] Harvey, P., Baghri, S. and Reed, R. (2002) *Emergency sanitation: Assessment and programme design.* WEDC, Loughborough University, UK.

[22] UNCHS, 1989. *Solid waste management in low income housing projects: the scope for community participation.* UNCHS, Nairobi, Kenya

[23] WHO, 1991. *Surface water drainage for low-income communities.* ISBN 92-4-154416-3. World Health Organization, Geneva.

[24] Reed, R. and Dean, P. T., 1994. Recommended methods for the disposal of sanitary wastes from temporary field medical facilities. In: *Disasters*, Vol.18(4), pp.355-67, December 1994.

[25] WHO, 1999. *Safe management of wastes from health-care activities.* Eds. Prüss, A., Giroult, E. and Rushbrook, P. World Health Organization, Geneva.

Glossary

Clinical governance
The systematic approach to maintaining and improving the quality of patient care within a health system.

Emergency medical technician (EMT)
A term used in some countries to denote a health-care provider of emergency medical services.

First responder
A term used to refer to the first person to arrive at an emergency scene.

First-aiders
An individual who is a non-expert, but a trained person able to provide the initial care for an illness or injury, usually to a sick or injured person, until definitive medical treatment can be accessed.

Health management system
A process that applies a disciplined and systematic approach to managing health in company activities.

Health-care system
A complex of facilities, organizations and trained personnel engaged in providing health care within a geographical area.

Medical emergency response plan (MERP)
A site-specific emergency response plan for dealing with injury or illness to a worker.

Occupational disease
Any illness associated with a particular occupation or industry.

Occupational health hazard
Any source of potential damage to, or harm or adverse health effects on a person, resulting from conditions at work.

Occupational health service
A service established in or near a place of employment for the purposes of:
(a) protecting the workers against any health hazard which may arise out of their work or the conditions in which it is carried out;
(b) contributing towards the workers' physical and mental adjustment, in particular by the adaptation of the work to the workers and their assignment to jobs for which they are suited; and
(c) contributing to the establishment and maintenance of the highest possible degree of physical and mental well-being of the workers.

Strategic health management
Systematic, cooperative planning throughout the project life cycle to maintain the health of the workforce and promote lasting improvements in the health of the host community.

Annex 1: Health audit for managers

The template in Table 2 (below) provides an example of a self-audit that managers can perform in order to assess their health provision (this can be adapted to meet different companies' needs). It is based on data from OGP Report No. 423, *HSE management: guidelines for working together in a contract environment*, published in June 2010.

The questions in the table are examples of the information that can be collected and assessed. The scoring system is 0, I, 2 where '0' is no provision, '1' is partial compliance and '2' is full compliance. The information obtained can be used to measure health performance and improvement, to set targets and prioritize action points for local management.

Table 2 *Questionnaire for contractor HSE capability assessment*

Location: ..... Assessment conducted by: .....
Position: ..... Date of assessment: .....
Remarks: .....

	0	1	2	Comments
1. Leadership and commitment				
Are health issues regularly addressed at leadership/ management meetings?				
Are sufficient resources allocated to health in the location?				
Is the improvement of health an overall corporate strategy/value?				
Is a positive health culture promoted at all levels?				
Are all senior managers setting a personal example to others?				
2. Policy and strategic objectives				
Is there a written HSE policy that makes reference to the importance of health that is dated and signed by the chief executive?				
Are policy statements issued to cover specific aspects (e.g. alcohol, substance abuse, smoking, AIDS)?				
Are health objectives clearly defined at location level?				
Are all employees aware of the company's health policies and objectives?				
3. Organization, responsibilities and resources				
Have all employees had first-aid training?				
Have all employees had hygiene training?				
Have all employees had health training?				
Do all employees undergo pre-placement/periodic health assessment?				
Are vaccination requirements clearly defined at the location level?				
Are first-aid requirements clearly defined at the location level?				

continued …

Table 2 *Questionnaire for contractor HSE capability assessment (continued)*

	0	1	2	Comments
3. Organization, responsibilities and resources (continued)				
Applicable only if there is a company health-care professional (HCP):				
Does the location have the adequate number of HCP(s)?				
Has the location's HCP been recertified/retrained as per company standards?				
Does the location's health-care professional have a job description matching his/her responsibilities?				
Does the organization chart clearly show the positions of HCP and their line of reporting?				
Is the location's HCP familiar with the standards of the company health assessments?				
Is the location manager kept informed by the HCP of major health risks?				
Does the HCP participate actively in HSE meetings?				
Does the HCP understand the main hazards and risks of the operation?				
Has the HCP taken action to reduce the risk?				
Is the HCP familiar with the medical emergency response plan (MERP) and has he/she participated in its preparation?				
Does the HCP have a confidential medical file for each employee?				
Applicable only if there is a company medical facility:				
Is the facility inspected/audited on a regular basis?				
Does the facility meet company standards?				
Does the facility have equipment and medication as per company requirements?				
Is the necessary emergency equipment available as per company recommendations?				
Is medication kept in a dry and safe area?				
Are controlled/dangerous drugs kept locked away?				
Are medication expiry dates respected?				
Are records maintained and securely stored in a confidential manner?				
Are records maintained for equipment?				
Are records maintained for medication?				
Is medical waste disposed of correctly?				

Table 2 *Questionnaire for contractor HSE capability assessment (continued)*

	0	1	2	Comments
3. Organization, responsibilities and resources (continued)				
Applicable only if there is a company ambulance:				
Is the vehicle in good working condition?				
Is a trained ambulance driver available 24 hours a day?				
Is the ambulance equipped according to company requirements?				
Do drivers have a periodic health assessment as per company policy?				
Applicable only if there is a local hospital (secondary care facility):				
Has the local hospital been audited as per company requirements?				
Does it meet cleanliness and hygiene standards?				
Is there a well-equipped emergency room?				
Does the emergency room function 24 hours a day?				
Is there an intensive-care unit?				
Is there a doctor on call 24 hours a day?				
Does the hospital have its own ambulance?				
Is the hospital's telephone number known?				
Is there an interpreter?				
4. Contractor and supplier management				
Are contractors aware of the company's health requirements and standards?				
Do contractor's employees all have a health assessment?				
Do drivers have a periodic health assessment as per company policy?				
Does the catering staff have appropriate health assessment/hygiene training?				
Does the contractor have a medical emergency response plan (MERP)?				
Does the contractor have medical evacuation coverage?				
5. Risk management				
Has a health risk assessment (HRA) been developed at the location?				
Is there an occupational health programme in place, based on the HRA, that: identifies health hazards; assesses the health risks; provides for the control of health hazards; identifies PPE and prophylactic requirements; provides emergency cover; and applies to all work sites?				

continued …

Table 2 *Questionnaire for contractor HSE capability assessment (continued)*

	0	1	2	Comments
5. Risk management (continued)				
Is there a welfare programme in place that meets the needs of isolated work sites (if applicable)?				
Are personnel checked for medical fitness for task by a recognized and approved medical facility?				
Is an ongoing system of health surveillance based on job-specific health risks in place?				
Are all employees up to date with the required vaccinations?				
Do accommodation and catering facilities meet acceptable standards of hygiene and are they fit for purpose?				
Does food storage, handling and preparation meet acceptable industry standards?				
Are the health and hygiene training standards known?				
Is the local MERP known?				
Is the international MERP known?				
Are living quarters designed and maintained according to acceptable standards?				
Do employees know where to get country info on epidemics/MERP/resources, etc.?				
Is health addressed regularly in HSE meetings?				
6. Planning and procedures				
Medical emergency response plan (MERP):				
Is the MERP in place for all identified medical emergency situations, and are the responsibilities of all involved parties clearly identified?				
Is an appropriately manned response centre set up to coordinate the MERP?				
Are all personnel made aware of the MERP and their individual roles and responsibilities?				
Of particular importance in emergency situations is that instructions are available and understood in the language of the individuals—is this requirement met?				
Is the MERP covered in employee HSE orientation?				
Are lines of communication clearly identified and tested with: third-party emergency services; local hospitals; helicopter services; and Medevac facilities?				
Are third-party emergency services aware of their roles in the MERP?				

Table 2 *Questionnaire for contractor HSE capability assessment (continued)*

	0	1	2	Comments
6. Planning and procedures (continued)				
Are MERPs, both local and international, tested and practised regularly?				
Has the health plan been developed in compliance with company medical standards?				
Have written procedures been developed which cover different health hazards encountered on location?				
Are written procedures available to all employees, including subcontractors, in their own language?				
Are all health procedures controlled documents?				
7. Implementation and monitoring				
Are health performance indicators (HPIs) identified to measure health performance?				
Is progress against identified HPIs measured regularly?				
Does the HCP provide a regular activity report/report health problems?				
Are kitchens, refrigerators, dining rooms and catering staff regularly inspected by the HCP, and do they comply with standards?				
Are living quarters cleaned and maintained frequently, and inspected regularly by the HCP?				
Is water testing performed and documented?				
Are Medevac drills conducted regularly and reviewed, and are the lessons learned implemented?				
8. Health management audit				
Is there a health management audit procedure complying with the health plan, identifying responsibilities, frequency, method and follow up.				
Are audits planned and line management kept informed?				
Have medical resources been audited within the past 12 months?				
Has corrective action been taken concerning all the points listed in the last audit?				
9. Management review				
Does management undertake a documented review of health performance at a prescribed frequency, and do they take into account health incidents and audit findings?				
Are the improvements identified documented and incorporated into an improvement plan?				
TOTAL SCORE:				

Annex 2: Guidelines for medical evacuation by ground, air and water

General requirements for transportation

- All methods of transportation should be approved for use according to defined company standards and audited on a regular basis.
- The vehicle (ground vehicle, boat or aircraft) must be compliant with local law, meet local and company safety regulations, and undergo regular maintenance.
- The vehicle must be ergonomically suitable for stretcher recovery work, allowing ease of access for the stretcher as well as the patient escort and equipment.
- Secure storage space for the required equipment and material should be provided.
- A suitable and approved power supply for medical equipment within the vehicle should be provided.
- Adequate interior and exterior lighting and climate control should be available.
- The vehicle operator should be made aware of patient injury or illness, advise on adverse travel conditions and agree to undertake the transport.
- The patient escort must be able to communicate with the vehicle operator, either directly or via a headset link.
- An adequate level of communication between the patient and the patient escort should be maintained throughout the evacuation.
- The patient escort and/or the vehicle operator must be able to communicate with external support.
- The patient escort must have sufficient space to provide care and resuscitation.

General requirements for medical equipment

All medical supplies and equipment dedicated for use within the vehicle should be readily accessible, inventoried and checked. Note that all electrical medical equipment should have a self-contained power supply.

The following should be available:

- oxygen provided via a variable flowmeter and appropriate masks:
  - rebreatheable bag masks are necessary if 100% oxygen is required;
  - normally, a minimum of 3 litres of oxygen is required per patient per minute, however in case of trauma, 10–15 litres are required per minute;
- suction equipment;
- a mechanism for adequate delivery of intra-venous fluids;
- splints (vacuum and traction);
- spinal immobilization equipment and vacuum mattress;
- stretchers (which should meet company safety regulations, be securely fastened and should have a patient restraining harness that can be easily released);
- automated external defibrillator (AED) or defibrillator/monitor;
- PPE and methods for safe disposal of clinical waste;
- emergency material and medication as defined in the Level 3 first-aid kit (see Annex 3).

Medical evacuation by ground transport

Ground vehicle standards for medical transport

Recommendations in addition to the general requirements listed above:

- Vehicles should be suitable for stretcher recovery work, doors should open fully to allow free and unrestricted access, and all seats should be fitted with seat belts. Harnesses should be provided to make patients secure.
- The stretcher should be securely fastened to a vehicle anchor point and preferably have locking wheels. It should be possible to load the vehicle with the patient's head towards the front.
- Seating for the patient escort should be available at the patient's head.

- The vehicle should be staffed with a minimum of two people—a driver and a patient escort.
- The driver should hold a current driving licence appropriate for the class and size of the vehicle with a valid appropriate medical assessment.
- The patient escort should be a doctor, nurse, paramedic or first-aider as defined by company procedures.

Medical evacuation by air transport

Medical evacuation by air is a complex and costly process that may require prior company approval. Feasibility of evacuation by air depends upon:

- access to an appropriate medical facility that has agreed to receive the patient;
- an appropriate landing zone and transport to the medical facility;
- clinical condition of the patient;
- weather conditions;
- availability and type of aircraft;
- landing and flyover clearances; and
- visa and travel documents clearance.

In general, family members will not be allowed to travel with the patient. Medical evacuation by air is normally contraindicated in the following circumstances:

- cardiovascular instability;
- non-drained gaseous effusion (pneumothorax, intestinal occlusion); or
- recent surgical procedures.

Medical evacuation by air normally requires a patient escort. Standards for patient escorts include the following:

- Depending on the complexity and severity of the medical case and the journey time, more than one patient escort may be required.
- Should a doctor, nurse or paramedic be required, they should have received training in, and be familiar with, the aviation environment and impact on patient physiology in flight.
- In some cases a family member, friend or colleague may be sufficient. This should be determined by the company-approved health professional in association with the carrier.
- The patient escort must carry sufficient medications to provide for the anticipated needs of the patient during the flight, including additional quantities in case of unexpected delays.
- The patient escort must ensure that all medical equipment has been approved for use on the aircraft concerned. In addition, an approved and dedicated power supply for medical equipment should be available.
- The patient escort should travel in seating adjacent to the patient.

Consideration should be given to connecting flights, transit time and the requirement of commercial carriers.

Commercial aircraft

Both scheduled and chartered commercial aircraft can be utilized for seated and stretcher patient transport. Commercial flights are the first choice for stable patients needing to be flown long distances. For stretcher patients an airline-approved stretcher is necessary; note that this can limit the availability of commercial aircraft for rapid patient movement.

Medical evacuation by commercial aircraft is usually contraindicated in the following circumstances:

- contagious diseases;
- agitation;
- nauseating odours;
- incontinence;
- ongoing intensive medical care.

In such cases, special authorization by the airline and/or pilot is required.

Medical evacuation by scheduled commercial aircraft imposes additional requirements:

- The airline must consent to carry the patient by approving a medical clearance form.
- The medical clearance form is to be completed and submitted to the airline as soon as the need for medical evacuation by this means is determined (at least 48 hours of advance notice may be required).
- If necessary, oxygen should be requested from the airline (up to 180 litres of oxygen is required per person per hour).
- Suction equipment should be available.
- Conveniently placed hangers or hooks should be available to support the provision of intravenous fluids in flight.

Light fixed-wing aircraft and helicopters

In certain circumstances it may be necessary to use light fixed-wing aircraft or helicopters. Consideration should be given to:

- pressurization of the aircraft;
- stretcher accessibility;
- pilot awareness concerning the extent of the injury or illness, and agreement to undertake the transport;
- airline and/or pilot clearance of the equipment;
- in-flight communication between the pilot and the patient escort.

Air ambulances

Air ambulances may be used to transport patients who:

- are seriously ill/injured or have unstable conditions;
- would not be accepted by a commercial flight;
- have urgent conditions in locations where commercial flights are not available.

Aircraft standards

In certain types of aircraft (e.g. helicopters), consideration should be given to problems associated with:

- noise (hearing protection, communication between patient escort and patient);
- vibration;
- temperature (in helicopters space blankets are highly recommended);
- air sickness;
- psychological distress due to travel conditions;
- use of certain medical equipment (e.g. defibrillator).

Medical evacuation by water transport

All watercraft which may be used for evacuation need to be able to accommodate a stretcher case in a safe, comfortable and secure manner.

Watercraft standards for medical transport

Additional recommendations include the following:

- The craft must be ergonomically suitable for stretcher recovery work and should be equipped with an appropriate sheltering area or cabin to protect the patient lying on the stretcher as well as the medical escort and equipment.
- It must be equipped with appropriate life jackets for all on board including the patient, and be compliant with local water transport safety regulations.
- The position of the stretcher should allow the patient to be aligned along the long axis of the watercraft.
- Special precautions should be taken when using electrical equipment (e.g. automatic external defibrillator) in a wet environment to avoid electrocution of any personnel.
- The craft should have a power supply for powering medical equipment.
- It should carry a vacuum mattress for spinal cases and other cases needing immobilization. These stretchers must be securely fixed to the watercraft.

Annex 3: Guidelines for health-care professionals: knowledge, skills and medical kits

For the purpose of this document, health-care personnel have been divided into five categories:

- Level 1 health-care providers: basic first-aider.
- Level 2 health-care providers: advanced first-aider and emergency medical technicians (EMTs).
- Level 3 health-care professionals: nurse and paramedic.
- Level 4 health-care professionals: medical doctors and nurses.
- Level 5 health-care professionals: medical specialists.

Level 1 health-care providers: basic first-aider

Knowledge and skills

- Scene assessment and prevention of secondary accident (including self protection)
- Contents and use of Level 1 first-aid kit
- Priorities ('ABC'—Airway, Breathing and Circulation)
- Emergency call-out procedures
- Relevant safety data sheets
- Prevention of blood-borne pathogens and other associated hazards
- Basic hygiene
- Use and application of the recovery position
- Cardio-pulmonary resuscitation (CPR), possibly including use of an AED
- Basic control of external bleeding
- Application of simple dressings
- Application of simple splints
- Eye washing of foreign bodies and chemical splashes
- Initial treatment of thermal or chemical injuries
- Ability to provide clear details of injury/illness.

Level 1 first-aid kit

- Contents list
- Cardiopulmonary resuscitation card
- Individually wrapped sterile adhesive dressings
- Sterile eye pads
- Surgical tape
- Triangular bandages
- Safety pins
- Medium and large sterile unmedicated dressings
- Alcohol-free cleaning wipes
- Surgical gloves
- Scissors
- Pocket mask
- Burns packet (e.g. Water-Jel™ or equivalent)
- Bag for clinical waste.

Access to an AED and eye wash facility is recommended.

Level 2 health-care providers: advanced first-aider

Emergency medical technicians (EMTs) used in some countries may come under Level 2.

Knowledge and skills

(in addition to Level 1)

- Contents and use of Level 2 first-aid kit
- Management of bleeding
- Management of simple wounds
- Management of an unconscious person
- Treatment for shock, hypothermia, heat injury, immersion, burns
- Various types of dressings
- Immobilization of injured parts
- Transportation of an injured or ill person
- Communication and delegation in an emergency
- Specific workplace risks
- Simple record keeping.

Level 2 first-aid kit

(in addition to Level 1)

- Guidance leaflet
- Butterfly closures
- Crepe bandages
- Splints (inflatable or vacuum)

- Thermometer (digital)
- Forceps
- Pocket light
- Saline solution
- Burn blanket (space blanket)
- Tourniquet.

Other abilities

In certain circumstances first aiders may need to drive or operate radio equipment in order to fulfil their first-aid responsibilities.

Recertification and maintenance of skills

First-aid and resuscitation skills decline rapidly without practice. Recertification should take place at least every three years. In the interim, skills should be maintained through participation in drills. Records should be kept of each individual's training.

Supervision

All first-aiders need supervision by competent company approved health professional.

Level 3 health-care professionals: nurse and paramedic

Level 3 health-care professionals are individuals with specialized training in emergency care; they are accredited by various professional organizations around the world, and are usually employed in field operations to manage medical emergencies with remote support from a Level 4 health professional.

Knowledge and skills

(in addition to Level 2)

- Contents and the use of Level 3 medical kit
- Emergency response plan
- Food hygiene
- Administration of identified drugs and medicines under qualified supervision.

Level 3—medical kit

Content to include Level 2 first-aid kit plus the following items that the Level 3 individual is competent to use or certified to administer:

- Suture set
- Sphygmomanometer
- Stethoscope
- Oro-pharyngeal airway
- Laryngeal mask
- Pulse oximeter
- Bag, mask and valve set (Ambu bag)
- Oxygen, tubing, manometer
- Foot operated suction unit with catheters
- Laryngoscope with blades, bulbs and batteries
- Endotracheal tubes
- Intravenous giving sets
- Intravenous cannulae
- Intravenous fluids
- Intramuscular injection needles and syringes
- Medication as approved by the supervising health professional (with manufacturer's prescribing information)
- Rehydration sachets
- Patient identity tags
- Injury and treatment summary charts and report forms
- Large torch with batteries
- Container for contaminated needles and sharps
- Thermometer
- Glucometer
- Splints
- Nasopharyngeal airways
- PPE
- Spinal immobilization equipment
- AED +/– 12 lead capability

- Nebulizer capability
- Capnography device.

Level 4 health-care professionals: medical doctors and nurses

The primary health-care unit on site should be staffed by registered and licensed health professionals. These could be doctors, nurses, physician assistants or other trained personnel with experience in primary and emergency medical care. They would be expected to provide advanced emergency medical care to resuscitate a patient and to participate in the MERP in case the patient is to be transferred to the secondary or tertiary HCU.

Knowledge and skills

(in addition to Level 3)

Advanced life support (ALS)

- Cardiac monitoring
- Cardiac defibrillation
- Transcutaneous pacing
- Intravenous cannulation (IV)
- Intraosseous (IO) access and intraosseous infusion
- Surgical cricothyrotomy
- Needle cricothyrotomy
- Needle decompression of tension pneumothorax
- Advanced medication administration through parenteral and enteral routes, including intravenous (IV), intraosseus (IO), per os (PO, by mouth), per rectum (PR), endotracheal (ET), sublingual (SL, under the tongue), topical and transdermal
- Following algorithms as set forth by AHA[26], advanced cardiac life support (ACLS)
- Following algorithms as set forth by Pre-Hospital Trauma Life Support (PHTLS), Basic Trauma Life Support (BTLS) or International Trauma Life Support (ITLS).

Advanced trauma life support (ATLS)

- Spinal immobilization and correct application of emergency cervical collar
- Use of long back board and head immobilizer (if available)
- Care of unconscious head injury
- Evaluation of level of consciousness using Glasgow Coma Scale
- Patient log rolling techniques
- Stop bleeding
- Identify signs of shock
- Immobilization of limbs in a possible fracture
- Eye irrigation
- Patient decontamination.

Interpretation and diagnosis of all potential serious and life-threatening conditions

These shall include the following:

- Cardiac chest pain
- Difficulty in breathing
- Anaphylaxis
- Asthma
- Hyperglycemia
- Hypoglycemia
- Altered level of consciousness
- Head injury
- Neurological deficits
- Hypertension
- Hypotension
- Heat stroke and heat-related illness
- Food poisoning
- Dehydration
- Altered mental status
- Signs of infection (viral, bacterial and fungal)
- Signs of infestation
- Suicidal tendencies
- Depression
- Fatigue
- Acute weight loss
- Eye injuries/disorders
- Sight deficiency
- Hearing deficiency.

[26] American Heart Association

Level 5 health-care professionals: medical specialists

The identified secondary and tertiary HCU should be staffed by medical specialists. These are medical personnel who have undertaken postgraduate medical training and obtained further medical qualifications, and whose competence has been certified by a diploma granted by an appropriate specialist medical college. They would be expected to assess, diagnose and treat specialized and complex medical conditions.

Knowledge and skills of secondary HCU medical specialists

(in addition to Level 4)

- Management of inpatient medical and surgical cases requiring investigation and/or treatment
- Capable of damage limitation surgery
- Ability to provide emergency resuscitation and stabilization of patients prior to referral to a tertiary HCU if necessary
- Participation in MERP in case the patient is to be transferred to the tertiary HCU.

Knowledge and skills of tertiary HCU medical specialists

(in addition to Level 4)

The tertiary HCU is able to handle critical conditions that exceed the capacity of the local secondary health-care facility. Such conditions include, but are not limited to the following:

- Major trauma
- Neurosurgery
- Severe burns
- Cardiac surgery
- High-risk pregnancy
- Complex tropical diseases
- Organ failure and transplant
- Oncology
- Major psychoses
- Substance abuse treatment.

Annex 4: Local medical facility audit template

The checklist in Table 3 below summarizes the basics of what should be found in primary, secondary and tertiary health-care units.

Table 3 *Basic requirements of primary, secondary and tertiary health-care units*

		Primary health-care unit	Secondary health-care unit	Tertiary health-care unit
Administration				
Basic	Patient confidentiality	●	●	●
	Health records	●	●	●
	Control of prescription drugs including CDs	●	●	●
	Standard operating procedures	●	●	●
	Medevac procedures	●	●	●
Advanced	Appointment system	●	●	●
	Discharge agreement with company		●	●
	Agreed company access to monitor patient care		●	●
Logistics				
	Accessibility	●	●	●
	Security	●	●	●
	Communication	●	●	●
	Supply of quality drugs and medicines	●	●	●
	Preservation of cold chain	●	●	●
	Programme of preventative maintenance	●	●	●
	Telemedicine	●	●	●
	Clinical waste disposal	●	●	●
Health professionals				
Basic	Competence (training, skills, experience)	●	●	●
	Paramedic	●	●	●
	Nurse	●	●	●
	Doctor—general practitioner	●	●	●
Advanced	General surgeon		●	●
	Cardiologist		●	●
	Obstetrician—gynecologist		●	●
	Paediatrician		●	●
	Anaesthetist		●	●
	Dentist		●	●

continued …

Table 3 *Basic requirements of primary, secondary and tertiary health-care units (continued)*

		Primary health-care unit	Secondary health-care unit	Tertiary health-care unit
… Health professionals (continued)				
Advanced *(contd.)*	Pharmacist		●	●
	Health technician		●	●
	Ophthalmologist		●	●
	Surgical specialists			●
	Medical specialists			●
Premises				
	Cleanliness	●	●	●
	Privacy	●	●	●
	Comfort (TV, phone)		●	●
	Furniture (desks, chairs, etc.)	●	●	●
	Beds and examining tables	●	●	●
	Lighting	●	●	●
	Refrigeration	●	●	●
	Heating/air conditioning	●	●	●
	Back-up power supply	●	●	●
	Hand washing facilities for staff	●	●	●
	Toilets	●	●	●
	Waste disposal	●	●	●
	Running water	●	●	●
	Environmental protection	●	●	●
	Ambulance	●	●	●
	Catering		●	●
	Potable water	●	●	●
	Potable water testing	●		
	Laundry service	●	●	●
	Sterilization/sterile supplies	●	●	●
	Operating theatre		●	●
	Recovery room		●	●
	Emergency room		●	●
	Isolation room		●	●
	Mortuary		●	●

Table 3 *Basic requirements of primary, secondary and tertiary health-care units (continued)*

		Primary health-care unit	Secondary health-care unit	Tertiary health-care unit
… Premises (continued)				
	Helicopter landing access	●	●	●
	CD cabinet	●	●	●
Diagnostic equipment				
	Thermometer	●	●	●
	Sphygmomanometer	●	●	●
	Stethoscope	●	●	●
	Foetal stethoscope		●	●
	Otoscope	●	●	●
	Reflex hammer	●	●	●
	Ophthalmoscope	●	●	●
	Eye chart	●	●	●
	Urine dip stick	●	●	●
	Scales	●	●	●
	Height measurement	●	●	●
	Electrocardiogram	●	●	●
	Spirometer		●	●
	Peak flow meter	●	●	●
	Audiometer		●	●
	Radiology		●	●
	Ultrasound		●	●
	CT scan		●	●
	MRI		●	●
	Invasive diagnostic procedures		●	●
	Laboratory		●	●
	Glucometer	●	●	●
	Drug and alcohol testing	●		
	12-lead ECG	●	●	●
	Point-of-care testing, e.g. pregnancy, cardiac markers, malaria	●	●	●

continued …

Table 3 *Basic requirements of primary, secondary and tertiary health-care units (continued)*

		Primary health-care unit	Secondary health-care unit	Tertiary health-care unit
Emergency requirements				
	Syringes, catheters, needles, sterile swabs	●	●	●
	Intravenous fluids	●	●	●
	Antitoxin	●	●	●
	Anaphylaxis treatment	●	●	●
	Vacuum mattress and stretcher	●	●	●
	Suture kit	●	●	●
	Splints	●	●	●
	Breathing bag and mask (Ambu bag)	●	●	●
	Oxygen	●	●	●
	Automatic external defibrillator	●	●	●
	Manual defibrillator	●	●	●
	Suction	●	●	●
	Laryngoscope	●	●	●
	Endotracheal tubes and laryngeal mask airway (LMA)	●	●	●
	Pulse oxymeter	●	●	●
	Fully-equipped intensive care unit to include:			
	• blood gases		●	●
	• ventilator		●	●
	• chest tube		●	●
	• monitoring equipment		●	●
	• safe blood supply		●	●
	Urinary catheterization	●	●	●
	Thrombolysis	●	●	●
	Rapid sequence intubation		●	●
	Nebulizer	●	●	●
Therapeutic requirements				
Basic	General medicine	●	●	●
	Vaccination	●	●	●
	Appropriate medication and consumables as defined by company-designated health professional	●	●	●

Table 3 *Basic requirements of primary, secondary and tertiary health-care units (continued)*

		Primary health-care unit	Secondary health-care unit	Tertiary health-care unit
… Therapeutic requirements (continued)				
Advanced	General surgery		●	●
	Cardiology		●	●
	Obstetrics—gynaecology		●	●
	Paediatrics		●	●
	Psychiatry		●	●
	Anaesthetics		●	●
	Ophthalmology		●	●
	Dentistry		●	●
	Appropriate surgical specialities as required			●
	Appropriate medical specialities as required			●
	Burns units			●

IPIECA is the global oil and gas industry association for environmental and social issues. It develops, shares and promotes good practices and knowledge to help the industry improve its environmental and social performance, and is the industry's principal channel of communication with the United Nations. Through its member-led working groups and executive leadership, IPIECA brings together the collective expertise of oil and gas companies and associations. Its unique position within the industry enables its members to respond effectively to key environmental and social issues.

5th Floor, 209–215 Blackfriars Road, London SE1 8NL, United Kingdom
Telephone: +44 (0)20 7633 2388 Facsimile: +44 (0)20 7633 2389
E-mail: info@ipieca.org Internet: www.ipieca.org

OGP represents the upstream oil and gas industry before international organizations including the International Maritime Organization, the United Nations Environment Programme (UNEP) Regional Seas Conventions and other groups under the UN umbrella. At the regional level, OGP is the industry representative to the European Commission and Parliament and the OSPAR Commission for the North East Atlantic. Equally important is OGP's role in promulgating best practices, particularly in the areas of health, safety, the environment and social responsibility.

London office
5th Floor, 209–215 Blackfriars Road, London SE1 8NL, United Kingdom
Telephone: +44 (0)20 7633 0272 Facsimile: +44 (0)20 7633 2350
E-mail: reception@ogp.org.uk Internet: www.ogp.org.uk

Brussels office
Boulevard du Souverain 165, 4th Floor, B-1160 Brussels, Belgium
Telephone: +32 (0)2 566 9150 Facsimile: +32 (0)2 566 9159
E-mail: reception@ogp.org.uk Internet: www.ogp.org.uk