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Haute école de gestion
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The logistical challenges of humanitarian medical emergency action, especially war surgery in conflict areas.

Bachelor Project submitted for the obtention of the
Bachelor of Science HES in International Business Management

by

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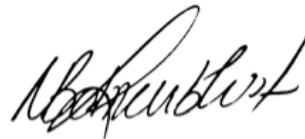Hes·so GENÈVE
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Declaration

This Bachelor Project is submitted as part of the final examination requirements of the Haute école de gestion de Genève, for the Bachelor of Science HES-SO in International Business Management.

The student accepts the terms of the confidentiality agreement if one has been signed. The use of any conclusions or recommendations made in the Bachelor Project, with no prejudice to their value, engages neither the responsibility of the author, nor the adviser to the Bachelor Project, nor the jury members nor the HEG.

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Geneva, the 31st of May 2016

Naomi BOHNENBLUST

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Executive summary

Humanitarian assistance, which is not to be confused with development aid, is based on four important principles, which are humanity, impartiality, neutrality and independence.

These values are shared by all humanitarian organizations such as the International Committee of the Red Cross (ICRC) and Médecins Sans Frontières (MSF) for example.

Both organizations are completely different in terms of intervention strategies but their final aim is common: to save human beings and alleviate suffering.

Humanitarian logistics or the emergency supply chain is composed of the same steps as classical logistics, which are purchase, transportation, storage and distribution. However, these phases might differ due to their high complexity, the high number of actors involved or the smaller response time requirement. Moreover, humanitarian logistics need to be adapted according to the type of disaster. An armed conflict situation for example consists of sudden or slow man-made disasters, which require humanitarian workers to overcome many challenges. For instance, during the preparation phases (before the disaster); the lack of information, bureaucratic delays or the make / buy dilemma need to be analyzed and successfully overcome.

Concerning medicine in conflict zones, both humanitarian organizations are present in emergency surgeries and need to find innovative and efficient ways of working.

In order to fulfill the quality criterions fixed for surgery MSF has for instance created chirurgical units, which can be deployed within hours.

The example of Syria is a good one as it is considered by many humanitarian actors as the worst crisis ever to resolve and to intervene in. One of the main difficulties of working in Syria is the security issue of the workers and civilians.

These challenges force humanitarian organizations to assess their activities and therefore, to better themselves. In fact, learning from past mistakes and being able to self-assess is the only sustainable way of continuing to offer answers, which will efficiently fulfill needs.

One solution to better humanitarian responses could be modeling. However, models contain pros and cons. It is very efficient in terms of reducing the response time with standardized e-preparation but models can be inflexible and require regular updates and improvements.

Post-mortem analysis is also very important to assess the strengths and weaknesses of an intervention. This investigation helps identify changes, which need to be done.

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- 3 kidnapped employees of Save the Children in the DRC (Democratic Republic of Congo) in March 2016 (JEUNE AFRIQUE, 2016)
- A MSF hospital bombed by US airstrike in October 2015 in Afghanistan: 30 deaths (LEMONDE, 2016)

These are only a few examples of the dangers humanitarian workers face nowadays. In fact, the number of humanitarian victims (kidnapped, wounded or dead) has already reached 36 in just the last 4 months (USAID, DFAIT, IRISH AID, 2016). Last year, in 2015, there were 238 victims, with more than half being International Non-Governmental Organization (INGO) workers. This is more than twice the number of victims in 2001 (90 victims). The worst year was 2013 with 474 victims.

These numbers tend to show that even though war has rules and emblems, humanitarian workers are less and less respected in conflicts.

Therefore missions need to be perfectly organized, partners scrupulously selected and staff perfectly trained in order to avoid any "mistakes" from the humanitarian side.

Organization is a key factor for a successful intervention and this is why logisticians are a key resource.

Figure 1 – International humanitarian emergency responses, 2007-2014
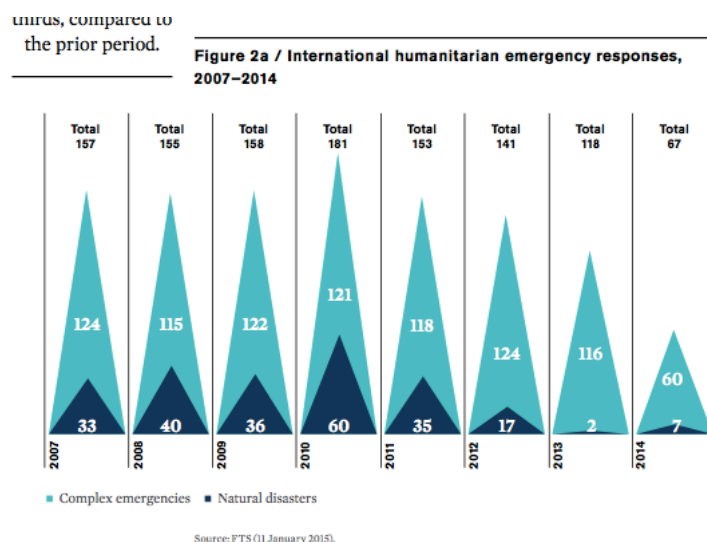
Source: The State of the Humanitarian System (2015, p.32)

Figure 1 illustrates the evolution of the nature of conflicts over the years, which shows an increase of complex emergencies (in percentage), in comparison with natural disaster responses.

Complex emergencies are usually characterized (IFRC, 2016) by factors such as:

- Extensive violence and loss of life
- Population displacement
- Widespread damage to societies and economies
- Large scale, multi-faceted humanitarian assistance
- Prevention of humanitarian assistance by political and military constraints
- Significant security risks for humanitarian relief workers in some areas".

In 2007, complex emergencies accounted for 74% of all humanitarian action, whereas in 2014, it represents 89%.

This increase of complex emergencies is one of the reasons behind the high number of humanitarian workers' deaths.

The aim of this document is to focus on the challenges humanitarian logisticians face during conflict zone interventions, particularly in the medical sector with the example of war surgery.

The first chapter will describe basic principles or concepts such as "humanitarian action" or "logistics". We will then define humanitarian logistics with an emphasis on medical logistics.

This work focuses on two organizations, MSF and the ICRC, which are highly active in medical interventions in conflict areas. They will be described and compared. The second chapter will include a description and analysis of surgical interventions in conflict areas.

This document will conclude on a discussion about the challenges faced and the pertinence of post-intervention assessment.

Interviews with professionals in the field have been conducted in order to bring an external and practical view of the subject. These semi-opened interviews were very helpful in understanding how these organizations integrate medical logistics and the main challenges of emergency logistics.

Over fifteen people or organizations were contacted by phone or e-mail but unfortunately the answers ratio was really low.

Note that the thesis will deliberately focus more on MSF for personal interest and beliefs.

1.1 "Humanitarian" action

1.1.1 History

For historians, humanitarian assistance, which is not to be confused with development aid, takes its roots in religion; in fact most religions mention in their sacred texts the notion of charity as a moral obligation, for instance it is the Tsedaka for the Jewish or Zakat for the Muslims. According to scholars on the subject, humanitarian action also takes its roots in philosophical texts about human solidarity such as Ciceron's or Aristotle's for instance.

The first time the term "humanitarian" was mentioned in the dictionary was in the middle of the nineteenth century (1835). At that time, humanitarian action was described as "aiming to the Good of Humanity" but the term itself is used for many other significations, such as the action or intervention, the actors, values and principles.

Humanitarian actions' history can be divided into two separate phases. The first one begins in the mid-nineteenth century, with the Solferino battle (1859), which created the basis for the ICRC (created 6 years later in Geneva by Henry Dunant). It was during this battle that the first neutral camp for both opponents was created. Many other organizations were created during this period, such as Caritas in 1857. During the two World Wars many more humanitarian organizations were created such as OXFAM. It is also during this first phase that the First Geneva Convention was established, with what will later become the foundations for International Humanitarian Law (IHL). Henry Dunant in 1864 insisted and supported this Convention; he actively demanded that nations sign the Convention. He supported its key ideas: neutrality, official written rules for victims, obligation of care without discrimination as well as protection of the humanitarian workers and material.

Another important date for the humanitarian community is the 22nd of August 1864 with the Geneva Convention's first founding texts. It initially includes ten articles to help military injured soldiers.

The second phase began in Nigeria with the Biafra conflict. This civil war lasted three years (1967-1970), during which the Igbo population fought to gain independence from the Nigerian government. This event triggered a new humanitarian phase, as this regional conflict involved high levels of action due to a large number of internally displaced people. Moreover, it is the first time the media were used to support causes and witness incidents.

This second phase saw the birth of a new kind of organization: MSF, with its new way of operating. In addition to the speak-out and denouncement wish, MSF sometimes illegally enters countries in order to be present and support local populations in need.

Even tough the term "humanitarian" has been in the dictionary since the mid-nineteenth century; it is only in 1945 that the word has been included in the UN charter. Three years later and following this charter, the UN declared the Universal Declaration of Human Rights. In fact, the 1990's were crucial for the humanitarian world and its future evolution.

In 1991, the United Nation's strategy to reinforce the efficiency of all humanitarian operations was clearly supported by the resolution 46/182, which created the Emergency Relief Coordinator (ERC) and later the Department of Humanitarian Affairs (DHA). In 1998, DHA was included in the Office for Coordination of Humanitarian Affairs (OCHA); its main role being "need assessments, consolidated appeals, field coordination arrangements and the development of humanitarian policies" (OCHA, 2016). OCHA's mission is to mobilize and coordinate all humanitarian actors in order to guarantee an efficient humanitarian response to any crisis. It is also during these years (1997-1998), that the Sphere Project was launched in order to fix minimum standards to better the overall quality of humanitarian interventions but also to have a minimum requirement of accountability for each actor.

MSF was present in the beginning of the Sphere Project but rapidly decided not to continue due to divergence of opinion. MSF announced that the Sphere Project was not answering the problem correctly by focusing on the political aspect rather than on the technical aspect.

Today, the Geneva Convention is separated into four parts, called conventions (injured and sick soldiers in the countryside, seas, war prisoners and civilian protection) and is the base of many humanitarian actors, such as the ICRC, which is the guardian of International Humanitarian Law (IHL).

It is also during the 1990s, that humanitarian work began to include not only doctors but also other professions such as lawyers for instance.

Finally, a resolution was adopted in December 1988, asking receiving countries to help humanitarian interventions, with all their power, the resolution also included neighboring countries. In fact, neighboring countries were asked to facilitate the transit of humanitarian actors; this notion is referred to as the humanitarian corridor in the resolution 45/100 of 1990.

1.1.2 Humanitarian "Tribes"

According to Peter Walker and Daniel Maxwell (CARBONNIER, 2015), four different tribes of humanitarian organizations exist. The first one is the "**Principle" or "Dunantist"**; these are rigorously impartial, neutral and independent organizations. They usually follow the 1994 Code of the Conduct of IFRC and NGOs (see Appendix 2). Another important point is that their interventions do not include any political or religious basis. Examples are the ICRC and MSF.

The second group is composed of "**Pragmatist" or "Wilsonians"**. These organizations receive a certain amount of financing from their home government; this is the case of CARE France. For example, in 2014, CARE France received 1'127'000 € from the French government (almost 4% of its annual resources) (CARE FRANCE, 2015).

Thirdly, "**Solidarism organisms"** have not only a humanitarian objective but also other purposes such as women's rights. OXFAM for instance is also fighting poverty on a long-term basis. Finally, "**Faith based organisms"** are organizations such as World Vision, Islamic Relief, which include religion in their principles. However, their interventions are neutral without any religious discrimination.

1.1.3 Principles

The principles on which Humanitarian action is based are the following:

- Humanity
- Impartiality
- Neutrality
- Independence

Humanity, is the first principle and states the fact that all humans should be treated with respect and humanitarian action should be driven by the willingness to save lives and reduce suffering.

Impartiality means every action should be based on the needs of the receiver without any kind of discrimination.

Neutrality signifies that actions should be beneficial for each party, no matter its position, for example during an armed conflict, no favoritism should be seen.

Finally, the last principle is independence; an organization should remain autonomous financially, politically and military speaking.

MSF often criticizes other organizations on their lack of independence, which they consider to work under the supervision of other organizations or political institutions.

1.1.4 International Humanitarian Law

International Humanitarian Law (IHL), whose roots go back to the 1864 Geneva Convention was created to regulate war. According to the Office of the United Nations High Commissioner for Human Rights (OHCHR), the main goal of IHL is to protect people not directly involved in conflicts but also to "limit the effects of violence in fighting to the attainment of the objectives of the conflict" (BLECKEN, 2010).

Both IHL and Humanitarian Rights (HR) complements each other as the IHL is only relevant to armed conflicts, but humanitarian rights is pertinent to all kinds of humanitarian action.

The core of the IHL includes the following rules (LAFORET, 2014):

- Right to life
- Prohibition of torture, of cruel or inhumane treatment
- Punishment of humiliating or degrading treatment or punishment of slavery of convincing
- Punishing someone for an act that was not a crime at the time it was committed
- Right for the government to suspend the rights of freedom of movement, liberty, security and association in case of an extreme emergency situation

Furthermore, IHL distinguishes two very important terms, which are "Jus In Bello" and "Jus Ad Bellum". "Jus in Bello" describes the right in the war, whereas "Jus ad bellum" defines the right to enter a war, meaning the reasons and "legality" of the war. The latter is not managed under IHL but by the UN Charter. In 1977, two additional protocols were created to address civilian protection in international and national armed conflicts. Finally, in 2005 a third convention about emblems during war was added.

1.1.5 Humanitarian Mandate

Different organizations are defined and described by a document, which is called the **mandate** of a humanitarian organization. According to Kovacs and Spens, this document specifies the "operational boundaries" of a humanitarian organization:

- The items delivered
- The beneficiaries
- The types of disasters
- The phase of the disasters
- The partners

For instance, if we compare the MSF's mandate with the ICRC, it could be summarize as in the table in Appendix 3

1.2 *Logistics*

The term "logistic" initially comes from the Greek: "logisteuo", which means to manage. This logistical concept includes in itself two dimensions, which are space and time. Originally used in the military vocabulary, it became with time an essential notion in the economic and business world.

The common business or corporate logistics include four classical steps:

- Purchase
- Transportation
- Storage and Warehouse
- Distribution

The whole logistics chain from the suppliers to the final consumers is called the supply chain.

2. Analysis

2.1 *MSF*

2.1.1 History

MSF or Doctors Without Borders in English, is a Non-Governmental Organization (NGO), created in 1960 by a group of French doctors. It is after their return from the Biafra war in Nigeria that these doctors felt uncomfortable with the idea of giving medical assistance without denouncing what they had seen.

In fact, they were working with the ICRC, which has a non public-speaking policy; the ICRC workers cannot speak, judge or take side. Except for the first one (non speaking policy), these values are shared with MSF, both organizations respect Humanitarian principles, which are: Humanity, Impartiality, Neutrality and Independence. Their common objective, which is to protect and help victims is the same; however, it is their means that are different.

MSF was officially founded in France on December 12nd 1971 by thirteen doctors and journalists, one of them being Bernard Kouchner, who did not want to feel the same guilt of not speaking out as he did during World War 2 with the rise of Nazi power. He then created MSF; its core goal is to provide medical treatments that include global medical aid, nutritional assistance, vaccination campaigns and water cleaning, without any discrimination of nationality, gender, religion or race.

Moreover, he also wanted to speak out about disasters, whether man-made or natural. He believed that speaking out and raising public awareness could bring change, through donations and pressure on political decision-makers.

The organization, which is not to be confused with Médecins du Monde, includes more than twenty national offices, ten specialized organizations and five national sections also called operational centers: Geneva, Paris, Brussels, Amsterdam and Barcelona. Each of these centers is independent and manages its own projects but an appropriate information flow is important to ensure the coherence of their actions. In the case of an important emergency, the action and tasks are divided between these sections.

The distinction between MSF and Médecins du Monde is not very well known by the public. One of the founders of MSF, Bernard Kouchner did not like the direction some founders wanted for MSF. In fact, they wanted to create a more structured organization, therefore Bernard Kouchner left and decided to start another organization: Médecins du monde.

It is also Bernard Kouchner with a lawyer, Mario Bettati, who invented the concept of "ingérence humanitaire", which could be translated as the right to humanitarian intervention. It is the right or even the duty not to respect State sovereignty in case of Human rights violation.

For example, the French military intervention in Ivory Coast was done without the UN's mandate.

In 1980, MSF decided to grant itself the right to enter any country, where populations were in need, even without government authorization. This is also a highly important difference from the ICRC. If MSF considers a medical action as legitimate or thinkable, even if it is illegal, it will do its best to achieve it. However, many important issues arise from this illegal intervention. One of them is the neighboring countries; will they help and cooperate in order to access the country? Another issue to overcome is the lack of information concerning the geographical situation of the conflict; how is the country divided in terms of liberated area or governmental areas for example? Finally, MSF needs to find local, trustworthy and neutral partners.

In 1999, MSF received the Nobel Peace Prize, rewarding all the employees and volunteers (more than 30'000 worldwide). These 30'000 people are divided into national and international workers. In the field, all members of staff have a professional background and 90% are recruited locally, due to logistical reasons such as better local knowledge and to ensure the best conditions for future developments of the medical units.

Being the first organization not respecting a vow of silence, one of the main dilemmas MSF faces compared to the ICRC is the choice between speaking out to the world and denouncing the horrors of war or being discrete but at the price of having better relationship with governments.

Regarding financing, MSF is very attentive and strict of its sources for independence reasons. Today, 89% of the funds come from 5 million individual donors and the remaining 11% from governments and/or international organizations. 80% of the funds are used for actual humanitarian action and 20% for administrative or managerial needs. A crucial point concerns the 11% of governmental funds. MSF will not accept any governmental money if it generates a conflict of interest with their humanitarian actions (MSF, 2015).

In fact, as Caroline Abu Sa'Da mentioned in our interview, MSF is going one step further by analyzing every donation in order to be sure of the origin of the money to avoid any conflict of interest.

2.1.2 MSF Charter and Principles

In order to act in line with its mission, which is to "provides assistance to populations in distress, to victims of natural or man-made disasters and to victims of armed conflicts" (MSF, 2016), MSF, as most humanitarian organizations, respects and complies with the humanitarian principles, which are **humanity, impartiality, neutrality and independence.**

These principles are well mentioned and described in their charter (MSF, 2016):

- **Independence:** "[…] we have the power to freely evaluate medical needs, to access populations without restriction and to directly control the aid we provide. Our independence is facilitated by our policy to allow only a marginal portion of our funds to come from governments and intergovernmental organizations."

- **Impartiality and neutrality:** "MSF offers assistance to people based on need and irrespective of race, religion, gender or political affiliation. […] MSF does not take sides or intervene according to the demands of governments or warring parties."

MSF added three additional core principles to its charter, which are **medical ethics, accountability** and **bearing witness**. Medical ethics is about "[…] respect[ing] patients' autonomy, patient confidentiality and their right to informed consent [and] We treat our patients with dignity, and with respect for their cultural and religious beliefs. The accountability is about ensuring the analysis and evaluation of each activity."

Finally, and maybe one of the most famous and unique principles for a humanitarian organization is the bearing witness code. MSF is impartial and neutral but without giving up on speaking out, "When MSF witnesses extreme acts of violence against individuals or groups, the organization may speak out publicly".(MSF, 2016)

2.1.3 MSF medical logistics

2.1.3.1 MSF Logistique

MSF has a particularity that it created in 1986 an independent entity called MSF Logistique, which is in charge of the whole supply chain and organization for MSF. All the materials needed for an intervention are sent from Bordeaux.

Since its creation, MSF has mainly gained its experience, knowledge and skills from refugee camps, the first one being "the Cambodian refugees in Thailand in 1979: Sakeo and Khao I Dand camps" (MSF, 2011).

During the intervention in these camps, MSF workers experienced many small issues, which seem unimportant but which are crucial to an effectient action.

The first one being the organization of drugs and medicine: medical materials need to be well organized in order to be accessible to doctors but also classified according to their nature, as the material comes from different countries and therefore, with different names or languages.

Many other logistical systems needed to be put in place for the first time, such as a complete drug list that every worker needed to update in order to know exactly the initial and the actual basis to assess future needs.

This set of "rules" and procedures set the basis for what will be later MSF Logistique.

The main reason for this independent body is to have logistic specialists, who will not work under operational managers; therefore, they would have more time and autonomy to prepare for interventions. This independence would also benefit them in terms of initiative. In fact, more autonomy leads to more initiative, which leads to innovation; innovation being the key word for constant improvement and future development.

2.1.3.2 MSF Medical kits

Even though medical kits are widely used today in many humanitarian organizations, MSF played an important role in the evolution of the kits. A good example is their work in designing kits in a more standardized way. Highly influenced by military kits, their primary goal was to answer to the needs of a large number of patients in an emergency situation, while taking into account the high turnover of doctors with often little knowledge of the local medical situation. The aim was to standardize medical equipment and drugs with clear notices in order to reduce response time, while being able to efficiently take care of 10'000 patients for a duration of 3 months. Another important aspect of these kits is their standardization: as they are homogeneous, MSF Logistique could mass-produce them, which lead to a huge reduction in costs.

These kits were first named the Clinical Guidelines and then the Green Guide, due to the color of the kit's cover. Guides for all types of drugs were added to the kit in order to help any international or local medical staff with different levels of training.

Different kits exist based on their use. One kit for example, called "Chirurgie 300 interventions" (MSF, 2016) is a chirurgical kit, which allows a team to install in any conflict zone a 100 bed unit for one month with the possibility to execute up to 300 chirurgical acts. Vaccination kits also exist as well as kits to create hospital tents.

In total, MSF Logistique in Mérignac, counts 400 referred kits and 4'500 drugs pallets. These kits and medical equipment are provided to MSF for their interventions but also for the use of other humanitarian organizations. MSF Logistique is therefore not only a vertically integrated supplier for MSF but also a general supplier for other NGOs such as the ICRC, which is a large purchaser of these Green guides.

These kits need to comply with the "three-fold imperatives consistency, simplification and learning from experience" principle (MSF, 2011). Which means that even with kits being highly standardized, MSF Logistique needs to ensure its kits remain flexible and evolve with time and experience.

According to Naoufel Dridi, these kits are mainly designed based on experiences in the field and are revised every year by the whole team according to the percentage of non-used materials. However, as they are standardized kits, which need to answer to many different needs, there are only minor changes. Usually 60 to 70% of the kit is not used, but as MSF priorities are reactivity, rapidity and quality rather than financial savings, it is not an issue for the logisticians.

2.2 ICRC

2.2.1 Generality

The ICRC is a private, neutral and independent SA, created in Geneva in 1863 (9th of February) by Henry Dunant. Its symbol, which needed to be recognized worldwide, was officially approved in 1929 representing a red cross on a white background. It is during the mid-nineteenth century that the Ottoman Empire decided to replace the cross by a crescent, considering the cross as "offensive to the Muslim soldiers" (ICRC, 2007). Finally, in 2005, the Federation adopted a new emblem: the red crystal to avoid any additional issues.

Since 1863, this Inter-Governmental Organization's (IGO) mission remains the same: to "protect the lives and dignity of victims of armed conflict and other situations of violence and to provide them with assistance" (ICRC, 2016). The third point of their mission is to prevent crises by strongly supporting the importance of IHL.

The Nobel Peace Prize rewarded their missions and interventions in 1917, 1944 and 1963.

It is financed by countries including governments and the different societies (national red cross organizations) and has a duty of reserve concerning its intervention, which means that they cannot speak out about situations they witness contrary to MSF for instance.

Its range of operations are not only medical assistance but also many other kinds of interventions such as detainees visits, building respect for the law, civil protection, migrant situation, mines action, humanitarian diplomacy. Nowadays, the organization employs more than 12'000 people in a total of 80 countries.

One of the main particularities of the ICRC is its status. In fact, it is considered as an IGO due to its mandates received from States but its legal status in Switzerland is a S.A (Société Anonyme).

2.2.2 ICRC Principles

The ICRC as well as the three others bodies of the organization follow and respect seven principles, which are the following:

- Humanity
- Impartiality
- Neutrality
- Independence
- Voluntary service
- Unity
- Universality

The first four principles are the same as Humanitarian Principles but the ICRC is going further by adding three more principles.

The voluntary service aspect distinguishes the ICRC from a company, the humanitarian organization is not profit driven but based on the voluntary to do good.

Unity refers to the fact that only one society per country can be part of the Federation and that it must effectively accomplish its humanitarian work inside its boarders.

Finally, the last principle is universality, which means all societies no matter its country of origin are equal and share "equal responsibilities and duties in helping each other" (ICRC, 2016).

2.2.3 The Federation

The Movement or Federation, as it is called, takes its root from the ICRC and was created in 1919. It added to the ICRC, two more independent legal entities. The 189 National Red Cross and Red Crescent Societies and the International Federation of Red Cross and Red Crescent Societies. If the ICRC focuses more on armed conflict victims, the Movement provides humanitarian action towards all kind of disasters – natural or man-made.

The National Red Cross and Red Crescent societies are for instance associated with national authorities and specialized in the humanitarian sector. Only one organization per country can be included in the Federation if it has proven its legibility. The table in Appendix 4 summarizes the distinction between the three entities.

The Federation as a global entity has significant experience and resources to be considered as one of the most present Humanitarian organizations, especially in the health sector.

2.2.4 ICRC medical logistics

The ICRC medical logistics is divided into five different responses (ICRC, 2009):

- First-aid training and support: stabilize the patient before more expert care
- Primary health care: Preventive actions and treatment (ex: vaccination)
- Hospitals and beyond
- Mental health and psychosocial support
- Health in detention: ensure detainees have basic care

The medical logistics of the ICRC is also different according to the type of hospitals they work in. They identify three types of hospitals based on their locations. Type A hospitals are rural ones with mainly basic trauma services; type B includes provincial hospitals with more advanced trauma services.

Finally, the most complete ones with comprehensive trauma services: type C major city hospitals.

In fact, the ICRC's strengths in terms of medical logistics are their huge databases and procedures available for any kind of possible situations.

A good example is the list of procedures available for all kinds of war injuries: primary closure and skin grafting, neglected or mismanaged wounds, infections, retained bullets and fragments, burns, mine injuries, anesthesia or even amputations.

The ICRC, because of the nature of its action and its objectives, does not have the same logistics in terms of warehousing as MSF; it has general delivery warehouses in each continent.

In 2011, the ICRC opened a whole new logistics center near the Airport of Geneva. This building includes a 3'500m^2 storage area, offices for the finance and logistics department as well as a training workshop area, and a meeting and archive room.

The storage area is mainly used for medical equipment as the area offers perfect conditions for this kind of material. Climatic conditions are met, which means temperatures are adapted for medical drugs.

The ICRC describes itself as having a comprehensive approach by placing the individual at the center of their action, which ends only with the person's recovery and rehabilitation. Therefore, to have the best possible response, the ICRC is working closely with local communities as well as health agencies.

2.3 *Humanitarian logistics*

2.3.1 Definition

According to a definition of Van Wassenhove in his book (2006, p.476), humanitarian logistics is " the processes and systems involved in mobilizing people, resources, skills and knowledge to help vulnerable people affected by a disaster".

Based on this definition, terms should be defined, the first one being disaster. A disaster can be divided in two different categories based on the source of the disaster or based on the rapidity of the release.

The table below describes well the two categories and gives example for each type.

Table 1 – The different types of disasters

	Natural	Man-made
Sudden-onset	Earthquake	Terrorism attack
Slow-onset	Coastal erosion	Refugees flux

Source: Identifying challenges in humanitarian logistics (2009, p. 515)

The types of disaster we will focus on are the two man-made ones, whether they are sudden or slow. In fact, during an armed conflict both types co-exist and therefore, need a different and adapted response. For instance, the sudden crisis will require higher logistical work as the answer needs to be as quick as possible.

2.3.2 Key players

The second term to be analyzed is about the people who are involved in humanitarian logistics. Who are the key players?

Governments are highly involved and key influencers on logistics, they decide whether an action is legal or not. In fact, without their authorization, no one is authorized to enter the country. A good illustration could be the Syrian conflict. The Damascus government accepted only humanitarian organizations that were already in the country and forbad all other organizations to intervene in Syria.

The second player is the **military**, which is usually the first one to come and help vulnerable populations. The **donors**, whether they are individuals or companies are key players as they are the main financial support for organizations such as MSF. Both donors are not only about money, they could be associations gathering food or clothes to ship to the country in need. **Specialized aid agencies** and **NGOs** are important players in logistics as well as **other general companies** or **specialized logistic companies**. The last actors are in fact very important to the whole humanitarian logistics in terms of material and also in terms of expertise and know-how. They contribute to the efficiency of a mission due to their experience and means, even if they are not specialized in humanitarian work.

2.3.3 Emergency Supply chain

The four classical steps of general logistics (purchase, transportation, storage and distribution) are the same for humanitarian logistics but the challenges to efficiently fulfill them might differ.

The first one is the **purchasing**, in other words the part in which resources need to be collected, whether it is money or materials. Concerning the financing part, different solutions exist. One of them is corporate sponsorship; where companies or foundations engage to give money to humanitarian organizations. Another one is spontaneous giving or calling for money based on specific usage of it. Regarding material, the biggest challenge is the same as for corporate logistics: make or buy? Usually, humanitarian organizations prefer to buy materials locally for two reasons. First,for reducing the total costs, as transportation and duty do not exist. Secondly, it supports the local economy, whose strength is essential after a disaster.

The second step concerns **transportation**, which delivery mode best suits the needs and the means of the intervention? Four classical modes exist: by air, by sea, by road or by rail. Each of them has their advantages as well as their disadvantages, for instance transportation by air is the fastest one but also the most expensive.

Air transport has its challenges such as finding gasoline to take off again or having enough place to land and take off. By road and by rail are two cheaper ways of transport but often the infrastructure is out of use or in case of armed-conflict checkpoints might delay or cancel any transportation. Finally, sea delivery mode is less expensive but less rapid and the receiving country needs to have an access to the sea and a usable port.

According to an MSF logistician Naoufel Dridi, MSF only uses plane transportation to send primary goods close to the emergency zone, as it is the fastest way to be present on the field. Once the goods and the team are on the field, usually in the capital, they rapidly leave the main cities to approach other disaster zones, usually not exposed to the media (non "Urgence CNN"). This is usually the most difficult mode of transportation as access to the zone might have been destroyed. Interviews showed many innovative and different ways of sending emergency personal or material, such as bikes but also canoes. As Mr. Dridi, an emergency logistician said, "With means, it is logistically always possible".

The third step, **storage** is also a very important and critical stage, especially in the medical sector, as some medicine needs special storage and security conditions. According to the expert Gerardo Quiros Cuadra (PAN AMERICAN HEALTH ORGANIZATION , 2001), four types of storage exist:

- General Delivery Warehouse
- Slow Rotation Warehouse
- Quick Rotation Warehouse
- Temporary Collection Sites

The General warehouse is for products, which will stay there until they are transferred to a smaller warehouse (secondary warehouse). A good example of the general delivery warehouse is MSF Logistique in Bordeaux, which takes care of the material for all the different independent sections of MSF.

The Slow rotation warehouse is useful for non-urgent reserves, whereas the quick rotation one is for emergency products as the rotation ratio is higher. Quick rotation warehouses are therefore, closer to emergency zones and the cycle is usually changing on a daily basis.

The temporary collection sites are less known and are used to classify all kinds of material in order to send only the useful provisions to warehouses.

Finally, the **distribution**, which can be done directly or indirectly through a local partner, needs to be neutral and impartial to ensure an efficient distribution.

Time-pressure, on which the emergency supply chain is based, leads to complexity. In addition, the instability and rapidly evolving situation in armed conflicts requires an adapted and flexible answer.

2.3.4 Disaster Management Stages

Many specialists, such as Kovacs and Spens, Altay and Green agree on the classical disaster management stages, which include four stages:

- The Preparation Phase
- The Response
- The Reconstruction phase
- The Mitigation Phase

The figure in Appendix 5 shows all four stages and their order of occurrence. The first phase, preparation, happens before the disaster itself. It is the time organizations usually use to prepare themselves and make sure their strategy will be the fastest and the most efficient possible. Effective strategy includes applying the lessons learnt from past experiences as well as doing a self-assessment analysis to be aware of their strengths or weaknesses.

Organizations need to assess the needs of the population as well as the local operational infrastructures such as roads and buildings.

This phase is very important, as humanitarian workers need to ask themselves the right questions and to answer them with all the information they can find. Information includes population data (needs, challenges faced, percentage affected, segment of the population), causes of the crisis, geographical situation, local power parties but also the source and reliability of the information.

The first phase after a disaster is the response phase and its implementation requires a high level of collaboration and coordination between all actors: the donors, the local staff as well as the international workers…The goal of this stage is to immediately respond to the population's needs, while at the same time to restore all vital services which have been destroyed. For instance, water access is often a main issue for humanitarian interventions as many water canalizations might have been damaged.

The last phase of humanitarian logistics is reconstruction, as mitigation is not considered part of the humanitarian work. This reconstruction phase is described as being long-term oriented. The logistics team needs to help the population without being

too present. For example, by exporting material a country does not possess, humanitarian organizations could damage and weaken the local economy, which is already fragile due to the disaster. Once the emergency is passed, humanitarian actors need to find the right balance for their presence and action towards the population.

In the reconstruction phase, emergency organizations such as MSF usually leave the country based on many criterions. These criterions, which are assessed and analyzed daily are usually based on rates, such as mortality rates for instance. However, the hand-over activities to locals are becoming more and more challenging for MSF and nowadays they tend to be more and more present in the long-term view (ABU SA'DA, 2016).

In all these steps, the necessary qualifications of an efficient humanitarian action are agility and leanness. Agility means to be able to answer rapidly and effectively to unexpected situations. Leanness signifies being efficient but with a high cost savings management.

The mitigation phase is not considered as part of the humanitarian work as its role is to take all actions, which will reduce the probability of another emergency to happen. Governments through laws or financing allocations take on the responsibility of these actions.

2.3.5 Corporate and humanitarian logistics comparison

According to Balcik and Beamon, the main difference between corporate logistics and humanitarian logistics concerns timing. As a disaster usually comes suddenly and without predictability, humanitarian logisticians always need to be ready to react no matter the time, location or size of the disaster.

The number of players involved in humanitarian logistics is consequent, therefore the level of communication, cooperation and coordination among them needs to be perfectly prepared and executed. Moreover, as governments are involved in humanitarian logistics, the political aspect can be very complex and difficult to cope with. In regards to this, armed conflicts are especially delicate to manage.

Finally, the level of stress and responsibility is not the same and therefore, influence the logistics.

The figure below describes the differences in terms of flows (material, information and financial). For instance, the financial flows only concern the first part of the supply chain, whereas in the commercial one, money goes everywhere.

Figure 2 – Differences between supply chains
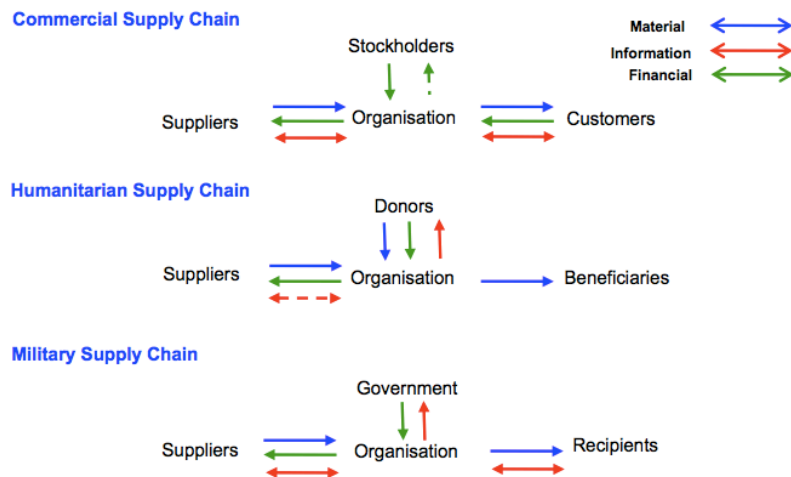
Source: Modeling a Humanitarian Supply Chain using the Structured Analysis and Design Technique (SADT) (2008, p.7)

Despite their differences, both corporate and humanitarian organizations are strongly cooperative and commentary. This kind of association is called: "Business humanitarian partnerships" (CARBONNIER, 2015). Companies as well as humanitarian organizations gain advantages from this type of cooperation. Corporations are improving their brand's image and competitive advantage in countries defined as frontier market. This could also be a motivational incentive for employees.

From their side, humanitarian organizations are benefitting from the company's know-how, expertise and experience.

2.3.6 Particularities of medical logistics

Medical emergency logistics is composed of the same supply chain as general logistics, except for conditions such as the time frame that might be a lot more crucial. The same four steps: purchase, transportation, storage & warehouse and distribution are essential to analyze and need to be effectuated with serious care and scrupulousness.

2.3.6.1 *Purchase*

For the **purchase phase** and despite the make or buy question, the origin of the material is fundamental to analyze. MSF is for example very careful about its medical drug procurement, the organization even created the "Campaign for Access to Essential Medicine" (MSF, 2016). This campaign ensures MSF delivers the best quality possible of medicine to the people who need it the most. This also prevents MSF from facing issues such as "patent kidnapping" (ABU SA'DA, 2016), rise in prices from drug companies or help the organization to favorize generics drugs.

Quality, origin and the type of medicine need to be clearly and scrupulously examined.

2.3.6.2 *Transportation*

Concerning the **transportation**, many questions need to be answered before actual physical transport. The country's situation in terms of infrastructure such as ports or roads is an example, but also the borders to pass and the possible agreements with the different armed forces present. Once the analysis of the country's state is done, the mode of transport can be decided. Consequently, documents necessary for the transport should be issued (bill of lading, contracts with corrected incoterm, customs clearance…).

It is also important to note that the transportation phase includes the transport to the receiving country as well as inside the country, between different conflict regions. It is usually these displacements, which require imagination and innovation. Appendix 6 shows different modes of transport and their capacity, what is interesting to see are the more unusual modes of transport such as donkeys, cows or humans. This demonstrates the difficulty to assess certain zones in conflict areas.

Another important point is the labeling of the medical equipment, which is vital to ensure its adapted storage condition and distribution or to avoid waste of time. The appendix 7 shows an example of the standardized labeling the ICRC uses in order to avoid mistakes. Medical labeling has one more difficulty, as the importance of being understood by everyone is fundamental. In fact, medical equipment such as drugs are so fragile and perishable in case of bad conditions that the labeling system needs to be the same worldwide.

2.3.6.3 Storage/Warehousing

The **storage and warehousing** needs to be as close as possible to the conflict zone, while still being able to fulfill the storage conditions in terms of safety, security and temperature requirements.

As field storage usually has a quick rotation ratio, the level of inventory needs to be perfectly assessed to avoid any shortage or surplus, which could have dramatic impact on the overall humanitarian intervention. Medical drugs have a perishable life, which means expiration dates need to be regularly controlled.

Therefore, the storage phase requires a high level of **organization** from the staff. Medical drugs should be clearly divided according to their nature and flammable material should be stored outside of the general warehouse for instance.

Different zones in the warehouse should also be organized (SUMA, 1999):

- The arrival zone: to classify, write and check new arrivals
- The delivery zone: to stock ready to deliver materials
- The storage zone: to store non-immediate used items
- The preparation zone: to prepare future deliveries
- The administrative zone: a file for all administrative papers, such as the inventory

The level of **security** of the warehouse is another essential part; it can strongly reduce the loss of material but also secure the safety of humanitarian workers in the warehouse. Entries should be monitored and accepted by authorized people only. Deliveries in and out should be double-checked and papers analyzed. Movement of people and goods should be monitored. The security issue should be taken very seriously as the emergency and conflict situation of the country could lead to recurrent robbery attempts or to the development of a medical black market.

Finally, the transport as well as the warehouse should respect the **Cold Chain**, this means keeping a low and stable temperature at all times but also respecting the **sterility** of the equipment and material.

As electricity is often an issue in conflict situation, humanitarian logisticians should be sure to have a generator to replace electricity. Generators also have the role of back-up supplier of electricity in case the electricity is cut off in order to keep the refrigerator functioning.

2.3.6.4 Distribution

Finally, **distribution** needs to be handled with care as medical drugs bear serious consequences if wrongly allocated compared to blankets for example.

The distribution could be done directly or indirectly. In case of an indirect distribution, the local partner should be trustworthy, well established in the country and, more importantly, should be neutral and independent. Any conflict of interest must be avoided; this means the partner should not be involved politically for instance.

Direct distribution requires a more important level of organization from humanitarian actors. An identification system should be installed to control the distribution process. A very simple identifying method could be used, such as red markers, but the efficiency of this method should be proven to avoid distributing a drug to the same person twice for instance.

Workers also need to be trained in special tropical diseases if necessary and they should follow and base their distribution on official protocol. MSF has for example a list of drugs with their specificities; Appendix 8 shows a part of one of their list of 2013. The Appendix 9 also shows the importance of medical drugs waste treatment in and after a conflict.

Finally, workers on the field, through daily assessments or journals, should constantly evaluate the whole supply chain. These daily assessments will be summarized and regrouped into a final evaluation, which will be beneficial to identify the different steps in the supply chain which need to be improved

Appendixes 10 to 12 shows the challenges of each step as well as the advantages if effectuated correctly.

2.4 MSF/ ICRC Strategies

2.4.1 MSF Strategy

Since its foundation in 1971, MSF has been shaking the generally accepted ideas about humanitarian organizations. It was the first humanitarian actor to publicly denounce the horrors of war. Also, MSF was the first medically dedicated organization and is unique, as it is not controlled or guarded by national governments. It focuses on remaining totally independent and places an emphasis on populations in need, even if this means illegally entering the receiving country. Where they are people in need, MSF will do anything to be present.

As MSF focuses on medical treatment, its strategy is to improve its responses to any medical issue it could face by learning from past experiences.

Self-introspection and action analysis are key for MSF in order to improve their actions. One of their biggest self-improvements could be its independent logistics center in Mérignac (France), which is called MSF Logistique. This separate logistics center has the role of medical procurement or kits design for example, which allows MSF to vertically integrate a part of its supply chain. Therefore, MSF secures the supply but also reduces costs, which is a key principle to humanitarian logistics.

Another upstream vertical integration example is Epicentre, which was created to find better and alternative solutions to improve their response towards patients.

The MSF doctors funded Epicentre in 1987 as an independent French NGO. Its main activities are research (mainly statistical and objective reports) and formation. It includes all of the useful professions (32 in total) for MSF apart from the core professions such as medical jobs for instance. With the cooperation of experts, Epicentre is able to objectively "describe, quantity, and compare different situations" (EPICENTRE MSF, 2016).

Other bodies of MSF exist and confirm the willingness to extend its independence, such as UREPH (Unité de Recherche sur les Enjeux et Pratiques Humanitaires, Suisse) or CRASH (Centre de Réflexion sur l'Action et les Savoirs Humanitaires).

According to their website, UREPH is a Research Unit on Humanitarian Stakes and Practices, which was created in 2006. Its main aim is to help MSF improve their responses by creating and allowing "critical thinking on humanitarian and medical action" (UREPH, 2016) through debates and articles.

CRASH also has the same goal, which is to analyze and comment MSF actions but also the global humanitarian world through articles and forum.

All these bodies were created in order to reduce the dependence on other actors, with the ultimate goal to increase its level of autonomy and become more and more independent. Moreover, their studies help MSF to constantly learn from its mistakes or successes in order to constantly improve.

2.4.2 The ICRC Strategy

The ICRC gets involved in conflicts only if all the fighting parties accept its presence; this means they do not take sides. One of their strengths is the relationship they developed with governments. As they are not denouncing any details to the public, governments are usually willing to let them work in their country. However, we can raise questions about the fact that they do not denounce the horrors of war; is it a silence vow? How can they remain independent and impartial if they are working with governments?

Finally, the ICRC strategy could be summarized as followed:

- Alleviate suffering and support all victims in armed conflicts
- Spreading the Federation by encouraging partnership with national societies
- Support the IHL
- Support its core principles

2.5 *MSF and the ICRC*

After describing both organizations, we can analyze on which points they are comparable.

We can associate them in terms of choice of intervention in a conflict situation, in fact they are usually both present in emergency zones, yet their intervention strategies are not comparable.

In addition to the factors within a conflict situation, we can compare them with their principles as they fight for the same reason, which is helping people in need. However, their means to achieve goals are totally different.

The relationship they entertain with governments is a good example. The ICRC works closely with local governments and needs their agreement for intervention, which is not the case with MSF. In fact, the ICRC is closer to governments due to its nature of being an IGO, which is not the case of MSF (NGO).

A good example is in Syria, as Caroline Abu Sa'Da explained. MSF was present in Syria during the Iraq refugee crisis but as the relationship with Damascus was delicate, the Syrian government decided to expel MSF from the country. When the Syrian war began, the government authorized only the Humanitarian organizations present within the borders. Since then, MSF is still waiting for the Government to legally authorized them to re-enter.

Even though MSF's intervention was not legal, it is considered legitimate by MSF workers and therefore, MSF is present in Syria. (See MSF in Syria 2.6.4.1). On the on the other hand, the ICRC will have never entered the country without authorization from the government.

The lead-time, which is the period from the moment the need is discovered to the instant the organization is active on the field, is another aspect that differentiates these organizations. MSF is usually one of the only humanitarian organizations to be present within the first hours of an emergency and this is made possible mainly due to its strong financial independence. ICRC, due to its size, its financial dependence and its bureaucracy is usually present after the first hours of the emergency and often comes arrives after emergency organizations such as MSF.

The presence of an organization in the field before the disaster has a large impact on the response time. In fact, if MSF is one of the first organizations to arrive on the field, it is mainly because nowadays it is present in every country in need (ABU SA'DA, 2016/ DRIDI, 2016)

Concerning their collaboration and even though, I have read articles and heard in interviews, that cooperation is key to a successful intervention; the theory is not always applied in practice.

In theory, cooperation is essential to guarantee an appropriate response. This means sharing information, dividing the intervention into specified actions or even sharing planes or logistic means.

In fact, almost all humanitarian organizations cooperate in some points during interventions but MSF is again the exception that proves the rules.

According to interviews with MSF, it is really important for them not to be associated with any other organization as their independence is a key principle. Information is being shared among humanitarian organizations, for instance the map of the area but it will never be advertised or shared with the media. A good example is the Libyan ones, MSF was willing to accept security information shared with the ICRC and the UN, as they were the only ones to conduct cross-border activities.

To conclude, both organizations are completely different, except for their willingness to alleviate suffer and help human beings. They differ by their principles, intervention's strategies, bargaining strengths, official status, lead-time expertise and their means in general.

2.6 *Surgery in armed conflict countries*

During medical missions, an important part of the activities is surgical interventions. War surgeries are very challenging due to their emergency level, the limited technical environment and their complexity. The specificities of war surgeries include mass victims, open wounds, emergency surgeries such as bombing victims, but also classical surgery such as caesarean for instance. Classical surgeries due to the war situation become very challenging ones. Actions need to be taken as fast as possible but without compromising the quality of care.

First, the **structure**, which must be sterilized and closed, needs to be set inside an existing building or created from scratch. This also concerns a post-anesthesia recovery unit. **Electricity and clean water** are essential for the surgery to be correctly executed. Moreover, equipment needs to be **sterilized** and **medical drugs** available.

Finally, and maybe the most challenging aspect of emergency surgery: **blood banks**. How do medical teams in war and instable situations ensure blood is available and especially compatible with the victims, even though no medical or physical background of the victim is known? How do organizations make sure the quality is not reduced to favor rapidity?

2.6.1 Challenges of armed conflict surgeries

In addition to the challenges of any humanitarian emergency interventions (man-made or natural), armed conflict surgeries have some particularities, which make humanitarian intervention even more challenging.

The preparation phase and the response phase are the most challenging ones.

In fact, many challenges of the response phase can be avoided if the preparation is scrupulously completed.

The lack of information could be considered as the most challenging aspect in the preparation phase as the whole intervention will be based on this analysis. During an armed conflict situation, information could be even more difficult to obtain.

This first phase also includes challenges such as the decision to "make or buy". Does the organization want to import materials or does it want to buy locally? Organizations usually import materials first and then according to the local capacities, will use local production.

The response phase's most challenging aspect and especially nowadays is the security issue. This includes security of the workers but also of the patients.

Finally, the reconstruction phase's main challenges are the patients' follow-up and the hand-over activities.

Leaving criterions need to be defined and local successors need to be found to ensure that the quality of the care is maintained.

The table below summarizes all challenges according to the different stages of a disaster management stages.

Table 2 – The armed conflict surgeries challenges

Preparation	Response	Reconstruction
Lack of information Number of people affected Geopolitical situation Uncertainty of the needs Local capacity	**Instability** Political: Government constraints High number of local power entities involved Cooperation with local authorities	**Aid Dependency** The hand over activities to locals might be challenging
Standardization of the medical answer and materials Medical kits Modeling answer	**Surgeries** Skills of the medical staff Lack of medical staff Guarantee medical material quality during all logistics processes Transnational medicine Blood need	**Patients** Follow up of the patients to avoid possible medication complication
Bureaucratic delays Financial justification Official protocols, long authorization process which increases the answer time	**Patients** Patients medical history or allergies Consent of the patient Triage of patients could lead to dilemma: number saved before individuals saved	**Hand over activities** When criterions to leave country are met, difficult to find local people to take over activities
Inappropriate Donations	**Security** Patients and evacuation logistics Humanitarian workers	**Traceability**
Make or Buy Bring or local?	**Bureaucratic delays** Customs and duties States declare emergency state Legislations	
Coordination and cooperation actors Shared information and coordinated action Communication issue (Lingua Humanitarian)	**Organizations presence** Lack of cooperation Communication issue (Lingua Humanitarian) Competition among them	
Shorter lead times	**Cultural shocks** Medicine cultural differences Climate differences	

Source: Naomi Bohnenblust

2.6.2 ICRC Surgeries

ICRC's relation to surgery is completely different from MSF's. Officially, ICRC posture toward the war-wounded is not to treat victims but to support governments, which will handle victims through their army medical services. Nevertheless, as medical staffs are often overwhelmed, the ICRC decided to step in to help victims.

Historically, they first began to supply different hospitals with medical equipment or drugs. The increase in their medical activities happened in 1980, when they started to deploy their own medical staff.

Today war surgery is a "pillar of the ICRC's identity" and is executed through three different approaches (GIANNOU, BALDAN, 2010):

- "Independent ICRC-run hospital
- Support to local hospital with the presence of expatriates"
- Only practice surgeries in a government's hospital

In addition to these approaches, the ICRC arranges "war surgery seminars" in order for professionals to share and discuss their personal experiences.

In appendix 13, an independent ICRC hospital structure is described. It shows all the factors needed to be in accordance with the ICRC's principles, such as neutrality, impartiality or independence. The ICRC also described the criterion to meet concerning their surgical care. The surgeries need to be **economical** in terms of spending, **non-specialized,** as the primary goal is to save as many lives as possible. Finally, they need to be based on **solid scientific principles** as any other surgeries.

The organization of an ICRC hospital is usually composed of a fixed part with the post-operative ward, blood bank, labs and radiology unit. The operating rooms and triage center are usually executed in tents, which are more easily assembled. Therefore, the capacity can easily be increased.

The surgical team, which is usually composed of a surgeon, a nurse and an anesthesiologist, is normally changed every 3 months with local and international workers.

Once the patient arrives in the hospital, he is directly sent to the triage center. The ICRC places patients in three categories:

- Need urgent surgery with a good chance of survival
- Surgery will not help, also called: "unsalvageable injuries" (GIANNOU, BALDAN, 2010)
- No need of surgery
- Can wait for surgery without risk

Appendix 14 shows an example of a triage sheet used by the ICRC medical staff.

The ICRC's strategies in terms of surgery could be summarized in two techniques. The first one is the **Scoop and Run** strategy, this means bringing the patients as quickly as possible to the closest hospital. The second one is the **Stay and Treat** strategy: the patients' wounds are treated on the spot, either because the wounds are too severe or because evacuation is not possible.

Finally, and this is one of the strengths of the ICRC, their whole strategy in terms of conflict surgery is being standardized under the shape of a situation assessment.

The assessment of the situation is divided into six sections (ICRC, 2010):

- "General section (population, transport, area situation, hospital structure…)
- Management and administrations (workers, finance, infrastructure…)
- Medical support services (medicine lists, stocks, storage condition, blood bank...)
- Clinical services (consultations, follow up of patients, admission, hygiene, triage…)
- Comments (any particular specificities of the situation)
- Conclusion (findings summary, positive and negative points, recommendation)"
-

Appendix 15 shows an example of an ICRC procedure to strategically assess a conflict situation.

Moreover, other models exist such as the different scenarios according to the situation (GIANNOU, BALDAN, 2010): safe or unsafe urban setting, rural setting of safe but austere setting. An assessment of the effects on the humanitarian workers according to the armed situation is also available, describing the level of risk or challenge but also the level of respect for IHL or the feasibility of the humanitarian work (Appendix 16).

2.6.3 MSF Surgeries

In order to ensure the high quality of its care, MSF has created minimum criterion to respect before any surgeries can occur. These requirements include all of the above-mentioned conditions of the ICRC and in addition (CHU, 2016): "anesthetics, analgesics, antibiotics, and qualified surgery and anesthesia providers".

Moreover, MSF created surgical units, which can be deployed within hours. The two first units were created: the RISK (Rapid Intervention Surgical Kit) and the MFH (Modular Field Hospital). The former being for first hours of the intervention as it contains only basics materials in small quantity.

The latter is a modular hospital; it is an inflatable structure with different modules. Caroline Abu Sa'Da and Naoufel Dridi both agree on the disadvantage of the MFH: the lead-time. In fact, this hospital takes too much place but also takes too long to be installed. It was used once in Gaza, where it took approximately 20 days to be installed, too long to be efficient.

Therefore, the RDSU (Unité Chirurgicale à Déploiement Rapide) was created, after the Earthquake in Haiti. It aims to answer medical and surgical needs between Day 3 to 21. This Unit is completely independent in terms of electricity and water as it uses a generator and has a water purification and storage system (MSF, 2016). Moreover, this unit can be carried out by humans if necessary, which allows it to be set up in hardly accessible area. Appendix 17 shows a picture of an RDSU of MSF.

According to Naoufel Dridi, MSF is really good and efficient in the 20 first days of an emergency due to its independent funds and availability of materials. Moreover, MSF has high-standardized processes such as the kits, which are key for a fast response. In addition to these identical kits, MSF is also standardizing its surgical activities.

In fact, its surgical centers are composed of one "operating room (OR) in the form of an inflatable tent, together with all the necessary supportive units including an emergency department (with a resuscitation, treatment and observation area), a pre- and post-operative ward, a sterilization unit, a basic laboratory and blood transfusion capacity." (CHU, 2016)

Another standardized process used by MSF is the SMART (Simple Triage and Rapid Treatment), a triage method based on the level of injuries. This was highly useful in Syria during incidents involving a high number of victims (Mass Casualty Incident (MCI)). This triage method includes color codes with four degrees. Green is for minor injuries, victims are able to walk for instance, yellow is for victims who can wait. Red victims need immediate surgeries and black represents a deceased patient. Appendix 18 shows the standardized procedure, step by step to identify these color marks.

2.6.4 The Syrian Crisis

Syria's first demonstrations began in 2011, as a consequence of the Arab Spring, which affected many Arabic countries.

The conflicts, which followed these demonstrations, rushed the population into one of the most complex crisis ever. The armament of the opposition in 2012 dramatically raised the level of violence in the country.

In fact, Syria is by far considered by many humanitarian actors as the worst crisis ever to resolve and intervene in.

Studies show that more people have died due to health problems because of inefficient or inexistent care than from direct causes of the conflict (bombs, terrorism attacks or gun fires).

The total humanitarian aids from the year 2011 to 2015, according to the UN-coordinated appeals rose to more than 16 billion $.

Figure 3 – Humanitarian funding to the emergency inside and outside UN-coordinated appeals, 2011-2015
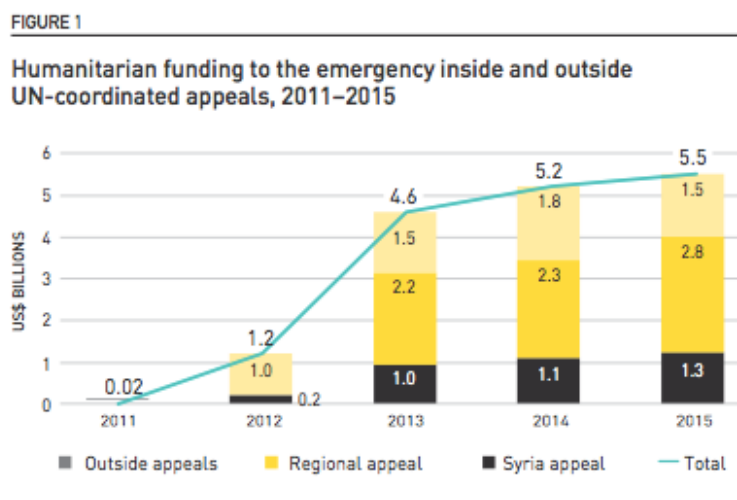
Source: Funding overview, Humanitarian assistance to education for the Syrian emergency (2016, p.3)

This important amount of money was mostly coordinated via two plans. The first is called the SRP, Syria Strategic Plan, at the beginning known as the SHARP (Syria Humanitarian Assistance Response Plan).

The second is called, the 3RP (Syria Regional Refugee and Resilience Plan), which is replacing the RPR, the Syrian Regional Refugee Response Plan.

2.6.4.1 MSF in Syria

From September 2012 to January 2014, MSF operated more than 800 times on almost 600 patients, 44% being violent trauma and 33% being obstetric emergencies. (CHU, 2016)

All activities were supervised by a professional international team including: "one surgeon, one anesthetist, one emergency doctor and one OR nurse" (CHU, 2016) but also reinforced by local staff.

In the North-West of Syria for instance, for security reasons and due to the high difficulty of the missions, the international staff are being changed every month. This high staff turnover ratio is also justified by the fact that surgery teams need to be available 24h/24h. In addition, the level of organization needed to be able to treat everyone is very high and requires a lot from workers.

In the year 2014, MSF was present in many parts of the country not controlled by the government, which is the North and the West of Syria, including the Aleppo region. In total, MSF's interventions include 6 hospitals and clinics and more than 60 international workers.

Figure 4 – MSF presence in Syria

One of the main difficulties of working in Syria is the security of the workers. In January 2014, more than ten MSF workers including eight local staff members were abducted by ISIS (Islamic State of Iraq and Syria) (MSF, 2015). After such a dramatic event, MSF faced a dilemma; continue to help populations in need but compromise the workers' safety or to stop helping in certain areas judged too risky. Finally, MSF decided to stop all its direct interventions in the region under the control of ISIS.

In August, one of the three hospitals in the second largest city, Aleppo, was closed. This area, which is one of the most violently touched areas, included three MSF hospitals.

In the North East of the country, in Al Hasakah, MSF was still able to work on both sides of the boarder with Iraq as the border re-opened in June 2014.

Cross-border activities mean more mobile teams and involvement in refugee camps. These activities also help organize the evacuation of injured people from cellars, bunkers or other secret hospitals based in the more dangerous areas.

In total, at the end of 2014, MSF distributed almost 5'000 relief kits and executed more than 4'000 surgical interventions. However, a new peak was reached with more than 135'600 general consultations and medial meetings carried out in 2014 (MSF, 2014).

2.6.4.2 Syrian's challenges

The Syrian conflict illustrates perfectly the different challenges and difficulties of surgeries in war zones. In addition, given the high complexity of the conflict and the large number of parties involved, many other challenges needed to be overcome.

2.6.4.2.1 Information

The first challenge to overcome in many conflicts is to find appropriate and trustworthy sources of information. In order to assess the needs and therefore, define the intervention's strategy, organizations need to have access to information about besieged zones, the number of civilians and clear maps of the country.

In Syria, the government chooses where humanitarian aid goes and this is highly criticized by MSF (ABU SA'DA, 2016). MSF, which is not "partnering" with the government or any kind of power in Syria, denounces the UN and the ICRC, which are under the supervision of the Government of Damascus.

We can therefore question the impartiality or independence of the humanitarian aid in Syria. How is aid considered as impartial or independent if the government chooses the region, which needs humanitarian intervention?

The Syrian example highlights the importance and the power of information.

Finally, information can also serve as a justification in terms of financing as it allows organizations to clearly explain and validate where money goes.

2.6.4.2.2 Security

The second and certainly the biggest difficulty in Syria concerns security matters. Safety is an issue for civilians as well as for humanitarian workers.

Many secret hospitals are for instance created to answer the chirurgical needs of victims but these hospitals are often discovered and bombarded, doctors are often killed or kidnapped.

Therefore, a dilemma arises, until which point can we justify and accept to endanger humanitarian workers if thousands of lives depend on them?

According to Caroline Abu Sa'Da, MSF found a way to answer this challenging question by offering humanitarian aid via two different strategies.

In less dangerous zones, MSF is physically present through local staffs and international workers; this is called a "hand on mission" (ABU SA'DA, 2016). The second strategy concerns high-risk areas; in fact MSF is conscious it cannot access all Syrian provinces. Therefore, in order to be helpful to the Syrian population without being physically present, they support locals financially (local salaries for instance) as well as supplying material, fuel or generators for instance.

2.6.4.2.3 Evacuation

Evacuation of injured victims is crucial and often a life or death question. This issue is highly challenging as it involves moving the patients from a dangerous area to a more stable one and usually takes more time than expected. It often involves crossing borders; which means working with neighboring countries. This adds more complexity to the action as more governments or political parties are involved. In the Syrian example, the neighboring countries include Iraq, Jordan, Turkey and Lebanon.

In order to effectively evacuate people, not only is cooperation between countries required but also between organizations themselves in order to offer the best response possible.

In Syria for instance, the UN, ICRC and the Syrian Arab Red Crescent (SARC) cooperate with locals to obtain a cease-fire in order to bring aid to four besieged cities (Zabadani, Foua, Kefraya and Madaya). From this cooperation, humanitarian workers successfully reach populations highly in need but it also allows the evacuation of 450 civilians and fighters (FRANCE 24, 2015).

Finally, another difficulty of evacuations concerns negotiations with locals. Agreements need to be found without compromising the organization's ethics and principles. The humanitarian organizations need to find the limit at which the negotiation stops being acceptable.

2.6.4.2.4 Governments

Despite the lack of information and the power of the government to choose who receives humanitarian aid, the government also decides which humanitarian actors have the right to enter Syria. MSF has for instance never been legally authorized to enter the country, as they were not present in the beginning of the conflict. The government is also forcing international organizations to distribute their aid through local intermediaries.

2.6.4.2.5 Medical materials

The quality and diversity of the medical material is also a large issue in Syria.

A blood bank was destroyed in Aleppo during the first months of the conflict. As surgeries require a large amount of blood, this means finding adequate solutions to bring blood to the surgical teams without damaging it.

Another issue concerning blood transfers is Rhesus tests; sufficient material should be brought to ensure a viable blood transfusion, which also includes a fridge to keep the blood under a certain temperature.

In Syria, medical infrastructures are catastrophic; hospitals are bombarded, forcing the medical teams to find discrete and accessible buildings. For instance, many temporary hospitals are installed in cellars, bunkers or abandoned houses.

3. Discussion

Humanitarian interventions, especially surgical interventions have always been complicated and difficult to organize, but the armed conflict aspect brings even more complexity to these interventions.

The analysis part, which was based on interviews and readings, helped me get an overview of the humanitarian actions but also to learn more about the ICRC and MSF. Moreover, the knowledge I gained helped me build my own opinion on some humanitarian matters.

Initially, this thesis first question was: In constantly evolving war situations, how do logistic teams re-evaluate and improve their support to surgical teams in order to respond efficiently to their patients' needs?

I will now try to answer this question by discussing some of the main challenges of surgical interventions in armed conflict and by arguing modeling and post-assessment analysis but also by discussing how MSF could evolve in the future to overcome these challenges.

3.1 *Challenges*

As mentioned in the analysis part, the humanitarian supply chain is very complex and demands a high level of organization. The response needs to be quick without reducing the quality of the action. I will now highlight the challenges of each phase, which I consider to be the most vital to overcome.

During the preparation phase, the **lack of information available or bureaucratic delays are** the main issues. In fact, without proper information about the receiving country or population, the intervention might not answer appropriately to the needs.

In the response phase, surgeries require experienced medical workers with knowledge **of local medicine**. I think the last point is very important; workers need to be aware of local habits and practices, in order to reduce the **cultural shock** and not to be perceived as a foreigner who is not capable of adaptation.

During the reconstruction phase, I consider the **hand-over activities** to be the most challenging. How do organizations make sure that the quality and criterions remain in place in the future? How are humanitarian organizations sure that they found the appropriate and trustworthy local partners to take over the medical activities?

Another challenge faced by many humanitarian organizations is the way the public opinion feels about them; many people might perceive humanitarian action as recycling or basic medicine. The communication therefore, needs to be effective enough to make people understand that "simplified treatment protocols" (MSF, 2011) does not mean undeveloped treatment.

Finally, the two biggest challenges, which are present in all three phases, are the **access to the needed area and the security issue.**

Security includes safety for local workers, patients, local population and international workers but also for the medical material. During an armed conflict, everything and everyone should be protected in the best way possible but without reducing the humanitarian action itself. In my opinion, this could lead to an impossible dilemma to solve: security first or patients first?

3.2 *Learning from past experiences*

Learning from past mistakes and being able to self-assess is the only sustainable way of continuing to offer answers, which will efficiently fulfill needs. This also allows organizations to better themselves and to move with the times.

I decided to assess the ways MSF and the ICRC learn from experiences by describing the strengths and weaknesses of their learning but also the potential opportunities to improve their actions.

Of course, at the end of each intervention, a complete report is effectuated based on daily assessments in the field. This is the case for both organizations but how do they analyze actions in order to draw conclusions and define strengths, weaknesses or mistakes?

From what I understood, MSF is mainly relying on independent entities, such as UREPH, Epicentre or CRASH to improve itself.

UREPH, which was created in 2006, aims to help MSF improving their answers by creating and allowing "critical thinking on humanitarian and medical action" (UREPH, 2016) through debates and articles.

CRASH also has the same goal, which is to analyze and comment MSF actions but also the global humanitarian world through articles and forums. Forums allow professionals to share experiences and communicate on how they can help with improvements.

Concerning the ICRC, I think they have strong analytical skills to build models and procedures to follow, which is essential to gain time and therefore, reducing the lead-time.

From my point of view, this strength could also be their main weakness as they might rely too much on these models and may "forget" to view each crisis as unique or "forget" to re-evaluate these models based on recent experiences. Are these models really still based on today's needs?

To conclude on possible weaknesses for both organizations, I think the ICRC might be too big, old and well established to question their actions and therefore, might lose and overlook opportunities to improve themselves.

Concerning MSF, they might be too exclusive and lose occasions to learn from other humanitarian actors.

Many other organizations are using clusters in order to coordinate actions but mainly to share knowledge on how to better each of their actions. The humanitarian response.org proposes guidance and templates for each phase. They describe themselves as having a cluster approach, which will bring added value to the humanitarian organization's coordination by increasing the accountability and transparency. I think these clusters of organizations can be useful to share information before crises, to share the latest medical innovations or to discuss an action after the intervention but as sudden crises require rapidity of action, a good balance between action and discussion should be found.

3.2.1 Modeling

The use of conceptual models in humanitarian logistics is crucial to efficiently and rapidly respond to emergency situations. They allow organizations to follow a guide, which has been conceived based on lessons learned from past experiences but which are constantly being improved. Moreover, these guidelines help logisticians to list challenges and difficulties they will need to overcome during the whole intervention. However, I think models can be hard to change and too theoretical.

In the table below, I summarized the advantages and disadvantages of modeling actions in humanitarian interventions.

Table 3 – The advantages and disadvantages of modeling

Advantages	Disadvantages
Standardized procedures reduce the lead-time	Inflexibility of the models as humanitarian actions are unpredictable and unique. → Is it really adapted to reality?
Model action becomes workers' habits under pressure → workers might have better reactions once on the field	Models are often done and accepted without regular checks and improvements
The more investment in E-preparation, the more the action will be efficient	

Source: Naomi Bohnenblust

Even though models could be seen as inflexible, I consider them to be essential to humanitarian responses. They help reduce the lead-time by bringing more organization and quality to the response.

I think models are crucial, especially for the preparation phase, they allow humanitarian workers to be better prepared. Models have the role of common threads, which make the logisticians work faster, without forgetting or jumping steps in the e-preparation.

However, models need to be adapted; a good balance needs to be found concerning the frequency of changes. Too often, they will not be standardized models anymore and not often enough, the models will not show improvements from past experiences.

3.2.2 Post Assessment

The post assessment analysis is to reflect on interventions in order to better the action. This mainly means improving the preparation phase, as it will define the quality of the response phase.

The difficulty and challenge of this analysis is to have a neutral view on interventions, as it is impossible to ask for feedback, as a company will do with its clients.

I think each organization needs to find its own way of assessing their actions, whether it is more informal (as MSF) or formal and official (as ICRC). However, some issues such as security or quality of the material are essential to be officially discussed. Concerning the material quality assessment, a written document should be available and transmitted to the department or independent entity concerned such as MSF Logistique for instance.

In my opinion, information regarding security should be published as well as the potential solutions for other organizations to be aware of them. Concerning the security issue, I really think unity makes strength.

Finally, post-mortem analysis should be done as soon as possible with every person who was involved in the response. The timing and the people involved are important.

What I really like in MSF's strategy to better itself, is that independent entities are part of this constant project of evolution; this means more neutrality and impartiality. This neutrality could mean more self-introspection and therefore, more based on reality, which will lead to more improvements. The Vienna Unit, which is the evaluation center for MSF is constantly trying to improve the actions of MSF through the help of independent professionals in their field. The remaining challenge is to make people accept and implement these changes.

Based on all my readings and discussions, I decided to summarize the lesson workers learned and are still learning from the Syrian conflict.

- Trustful and neutral networks should be developed to support international staff
- Security should be a priority but a solution exists to gather security without compromising on helping populations in needs
- Conflicts do not always respect international humanitarian organizations
- Neutrality and independence are not always valued by conflict actors and therefore humanitarian workers are not always respected
- Kits and inflatable hospitals are essential as local infrastructure might be completely destroyed
- Kits and inflatable hospitals need to be easily assembled as well as disassembled for security reasons
- Urgency makes the lead-time requirement smaller and smaller: timing is key!
- E-preparation is key, standardization means time saved and therefore more lives saved
- Each intervention is different, therefore standardized procedures need to be adapted to local needs
- Good Government relationships are not mandatory but are important

3.3 _MSF Evolution_

Based on an interview published with the communication assistant editor of MSF France in 2011 and during discussions I had during interviews, humanitarian organizations and especially MSF need to urgently leave their comfort zone and innovate while taking risks, because higher the risk, the higher the return. This means reducing the official protocols and implementing lessons learnt from each action in order to improve and better their response.

If we analyze the evolution of MSF over time, it can be summarized as follow:

Only doctors → Doctors who speak out → Standardized kits (MSF Logistique)/ Research, blogs and analysis (Epicentre, CRASH, UREPH)

Over time, MSF has been more and more vertically integrating, incorporating suppliers, researchers and specialists.

I think the main reason is at the core of its principle: independence! MSF is distinguishing itself from other organizations, by strongly focusing on its independence. Therefore, we can ask ourselves about the future evolution of MSF, how can they increase even more their level of independence, without losing quality of the medical support? We can make some assumptions about their future:

Can they be more involved in the legal part of the humanitarian world as the ICRC is for example, without becoming too big to react quickly?

However, it is important to remember that MSF is focusing on medical care. I think that widening their actions to legal or any other intervention type will reduce the quality of their core activities, which is medical support.

Another possibility could be to internally produce its own drugs. In fact, I think the drugs are the only high dependence of MSF (are the only aspect on which MSF is dependent).

MSF might have some power in terms of drug type choice (generic drugs), but it is still strongly relying on the pharmaceutical industry.

They could reduce their dependence in two ways:

- Integrate drug production
- Innovate with alternative medicine

The first strategy could be possible as MSF is strongly involved and innovative in terms of medicine. Their contribution in solving the Ebola Crisis was huge and they have a sufficient level of medical knowledge.

Secondly, innovation through alternative medicine could be a solution but I think it needs to be part of a more global strategy, as alternative medicine does not solve diseases in the same way as classical medicine. They are more complementary rather than subsidiary.

4. Conclusion

To conclude, I will highlight two concepts, which are for me the most important ones for humanitarian organizations: independence and security.

The notion of independence, which we have seen throughout this thesis, is key to ensure a sustainable and successful future for humanitarian actors.

Nowadays the political sphere takes more and more space and I do not think this will change over the next decades, in fact, their power and presence might even increase.

Therefore, the humanitarian world needs to strongly focus on this issue to remain independent but it also needs to support and defend the humanitarian principles: humanity, impartiality, neutrality and independence.

Many historical conflicts show that some principles such as impartiality and neutrality are not respected due to the high power of governments.

Moreover, humanitarian actors need to find ways to integrate new trends such as sustainability, ecology or transparency.

In a world where humanitarian workers are less and less respected and where conflicts are becoming more and more inhuman and violent, how can humanitarian workers position their actions in order to overcome the security issues and still increase the quality of their medical care? How can they adapt their actions in order to efficiency respond to a rising demand?

These questions are proof that the future of humanitarian action might be difficult and challenging. However, I think the example of MSF in Syria with their two types of missions (hand-on and support one) is proof that solutions can be found to support populations in need when security issues cannot be overcome.

Innovation and technology might be the solution to modernize humanitarian actions and adapt their answers to difficult situations.

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Interviews

Interview with M. Naef, Ex-delegate ICRC and Founder/President of the Human'Air Project, Genève, 18 mars 2016

Interview with Mme Abu Sa'Da, Head of the Research Unit (MSF Switzerland: UREPH), Genève, 8 avril 2016

Interview with M. Dridi, MSF logistician in emergency situation, Genève, 8 avril 2016

Appendix 1: Lexicon

BHP: Business Humanitarian Partnership

CARE: Cooperative for Assistance and Relief Everywhere

CRASH: Centre de Réflexion sur l'Action et les Savoirs Humanitaires

DHA: Department of Humanitarian Affairs

DFAIT: Department of Foreign Affairs and International Trade (Canada)

DRC: Democratic Republic of Congo

ERC: Emergency Relief Coordinator

EPREP: Emergency Preparedness Plan

GHA: Global Humanitarian Assistance

HDI: Human Development Index

HR: Humanitarian right

ICRC: International Committee of the Red Cross

IDP: Internally Displaced Person

IFRC: International Federation of Red Cross and Red Crescent Societies

IHL: International Humanitarian Law

IGO: Inter- Governmental Organization

INGO: International Non-Governmental Organization

ISIS: Islamic State of Iraq and Syria

MCI: Mass Casualty Incident

MDM: Médecins du Monde (Doctors of the World)

MFH: Modular Field Hospital

MSF: Médecins sans Frontières (Doctors without Boarders)

NGO: Non-Governmental Organization

NFI: Non-Food Items

OCHA: Office for the Coordination of Human Affairs

OHCHR: The Office of the United Nations High Commissioner for Human Rights

PAHO: Pan American Health Organization

RDSU: Unité Chirurgicale à déploiement rapide (Rapid Development Surgery Unit)

RPR: Syrian Regional Refugee Response Plan.

RISK: Rapid Intervention Surgical Kit

UN: United Nations

UNHCR: United Nations Office of the High Commissioner for Refugees

UNOCHA: United Nations Office for the Coordination of Humanitarian Affairs

UREPH: Unité de Recherche sur les Enjeux et Pratiques Humanitaires, MSF Switzerland

(The Research Unit on Humanitarian Stakes and Practices)

USAID: United States Agency for International Development

SA: Société Anonyme: Corporation

SARC: Syrian Arab Red Crescent

SHARP: Syria Humanitarian Assistance Response Plan

SRP: Syria Strategic Plan

START: Simple Triage And Rapid Treatment

SUMA: Humanitarian Supply Management System

WHO: World Health Organization

3RP: Syria Regional Refugee and Resilience Plan

Appendix 2: Principles of Conduct for the International Red Cross and Red Crescent Movement and NGOs in Disaster Response Programs

- The humanitarian imperative comes first.

- Aid is given regardless of the race, creed or nationality of the recipients and without adverse distinction of any kind. Aid priorities are calculated on the basis of need alone.

- Aid will not be used to further a particular political or religious standpoint.

- We shall endeavor not to act as instruments of government foreign policy.

- We shall respect culture and custom.

- We shall attempt to build disaster response on local capacities.

- Ways shall be found to involve program beneficiaries in the management of relief aid.

- Relief aid must strive to reduce future vulnerabilities to disaster as well as meeting basic needs.

- We hold ourselves accountable to both those we seek to assist and those from whom we accept resources.

- In our information, publicity and advertising activities, we shall recognize disaster victims as dignified human beings, not hopeless objects.

Appendix 3: The different mandate of MSF and the ICRC

	MSF	ICRC
Items delivered	Medical care	Protect life and dignity
Beneficiaries	Every population in distress	Every population facing armed conflict or any violent situation
Type of disasters	All kind of disaster man-made or natural	Only man-made disaster

Source: Naomi Bohnenblust

Appendix 4: The three Federation entities

ICRC	International Committee of the Red Cross	Geneva 1863	Violence and armed conflict victims lives and dignity
IFRC	International Federation of Red Cross and Red Crescent Societies	Paris 1919	Humanitarian values, disaster response, disaster preparedness, and health and community care.
	National Red Cross and Red Crescent societies	190 recognized countries societies	Support the public authorities in their own countries as independent auxiliaries to the government in the humanitarian field

Source: Naomi Bohnenblust

Appendix 5: The Humanitarian logistics and stages in the emergency supply chain
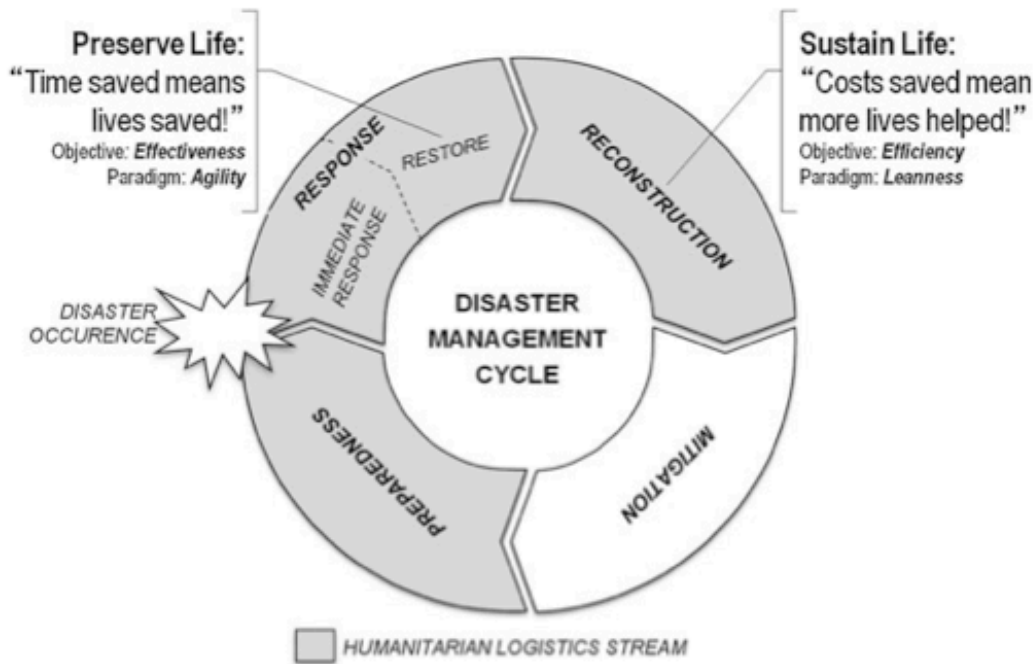
Fig. 2.3 Agility and leanness in the humanitarian logistics stream

Source: COZZOLINO, *Humanitarian Logistics* (2012, p.10)

Appendix 6: UNHCR Transportation terrestrial load capacity
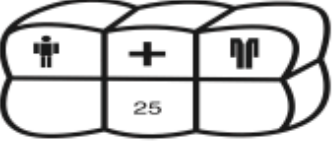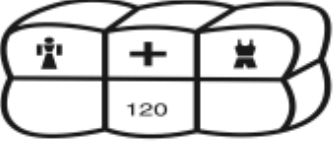
Tableau 2: Capacité de charge terrestre (*)	
Moyen de transporte	**Capacité de chargement**
Wagon standard de train	30 TM (52 m³)
Conteneur standard 20 pies/6,1 m	18 TM (30 m³)
40 pies/12,2 m	26 TM (65 m³)
Camion long avec remorque	22 TM
Camion long articulé	30 TM
Camion moyen	6-8 TM
Pick Up 4x4	1 TM
Personnes	
Charge sur la tête et les épaules	20-35 kg
Charge sur le dos	35- 70 kg
Bête de somme	
Chameau	200-300 kg
Âne	50- 120 kg
Cheval	100-150 kg
Charrettes (tirée par un seul animal)	
Âne	200-400 kg
Cheval	Jusqu'à 1200 kg
Bœuf	500- 1000 kg
(*) Adapté de *Engineering in emergencies. Davis and Lambert. Intermediate Technology Publication Ltd. 1995, London* and *Handbook for emergencies. UNHCR. 1982, Geneva*	

Source: SUMA, *Manuel Gestion intégrale des approvisionnements d'urgence* (1999, p.12)

Appendix 7: The ICRC different types of labeling

Basic symbols

Men 15 years and older	Women 15 years and older	Boys 4–14 years	Girls 4–14 years	Infants 0–4 years
Outerwear— men, women, and children	Suits, jackets, slacks, shirts— men, women, and children	Dresses, skirts and bouses— women	Sweaters, jackets—men	Shoes—men, women, chil- dren	Undergar- ments, sleep- wear, socks— men, women, and children

KEEP DRY

Blankets

Labeling of bales

Symbols stamped on this bale signify that it contains 25 overcoats for men.

These symbols represent 120 undergar- ments for women.

Source: PAN AMERICAN HEALTH ORGANIZATION *Humanitarian Supply Management and Logistics in the Health Sector* (2001, p. 53)

Appendix 8: Part of the medicines used by MSF sorted according to the WHO Therapeutic Groups classification

10.2. Medicines affecting coagulation

HEPARIN SODIUM, 5 000 IU/ml, 5 ml, vial
NADROPARIN calcium, 1900 IU / 0.2 ml, syringe
NADROPARIN calcium, 2850 IU / 0.3 ml, syringe
NADROPARIN calcium, 3800 IU / 0.4 ml, syringe
PHYTOMENADIONE (vitamin K1), 10 mg/ml, 1 ml, amp.
PHYTOMENADIONE (vitamin K1), 10 mg/ml, 2 mg/0.2 ml, amp.
PROTAMINE sulfate, 10 mg/ml, 5 ml, amp.
TRANEXAMIC ACID, 500 mg tab

10.3. Other medicines for haemoglobinopathies

Section 11: Blood products and plasma substitutes

11.1. Plasma substitutes

PLASMA SUBSTITUTE, gelatin, 500 ml, plast. btl.

Section 12: Cardiovascular medicines

12.1. Antianginal medicines

ATENOLOL, 50 mg, tab.
GLYCERYL TRINITRATE, 0.5 mg, sublingual tab.
ISOSORBIDE DINITRATE, 1 mg/ml, 10 ml, amp.
ISOSORBIDE DINITRATE, 5 mg, sublingual tab.
VERAPAMIL hydrochloride, 2.5 mg/ml, 2 ml, amp.
VERAPAMIL hydrochloride, 40 mg, tab.

12.2. Antiarrhythmic medicines

AMIODARONE hydrochloride, 50 mg/ml, 3 ml, amp.
ATENOLOL, 50 mg, tab.
DIGOXIN, 0.25 mg, tab.
DIGOXIN, 0.25 mg/ml, 2 ml, amp.
EPINEPHRINE (adrenaline) tartrate, eq.1 mg/ml base, 1ml, amp
VERAPAMIL hydrochloride, 2.5 mg/ml, 2 ml, amp.

Source: MSF, *Drugs by therapeutic Group* (2013, p.10)

Appendix 9: Guidelines for medical drugs waste during and after emergency

Category	Disposal methods	Comments
Solids Semi-solids Powders	Landfill Waste encapsulation Waste inertization Medium and high temperature incineration (cement kiln incinerator)	No more than 1% of the daily municipal waste should be disposed of daily in an untreated form (non-immobilized) to a landfill.
Liquids	Sewer High temperature incineration (cement kiln incinerator)	Antineoplastics not to sewer.
Ampoules	Crush ampoules and flush diluted fluid to sewer	Antineoplastics not to sewer.
Anti-infective drugs	Waste encapsulation Waste inertization Medium and high temperature incineration (cement kiln incinerator)	Liquid antibiotics may be diluted with water, left to stand for several weeks and discharged to a sewer.
Antineoplastics	Return to donor or manufacturer Waste encapsulation Waste inertization Medium and high temperature incineration (cement kiln incinerator) (chemical decomposition)	Not to landfill unless encapsulated. Not to sewer. No medium temperature incineration.
Controlled drugs	Waste encapsulation Waste inertization Medium and high temperature incineration (cement kiln incinerator)	Not to landfill unless encapsulated.
Aerosol canisters	Landfill Waste encapsulation	Not to be burnt: may explode.
Disinfectants	Use To sewer or fast-flowing watercourse: small quantities of diluted disinfectants (max. 50 litres per day under supervision)	No undiluted disinfectants to sewers or water courses. Maximum 50 litres per day diluted to sewer or fast-flowing watercourse. No disinfectants at all to slow moving or stagnant watercourses.
PVC plastic, glass	Landfill	Not for burning in open containers.
Paper, cardboard	Recycle, burn, landfill	--

Source: WORLD HEALTH ORGANIZATION, *Model Guidelines for Safe Disposal of Unwanted Pharmaceuticals in and after Emergencies* (1999, p.25)

Appendix 10: Guidelines for Procurement - SUMA

Recommendations	Activity Indicators	Result Indicators	
To pre-qualify the suppliers (international or regional manufacturer, wholesaler, distributor) in compliance with the MQAS document. Exceptions: If DG ECHO partners buy from HPCs, the pre-qualification of each product/supplier pair has to be carried out by the HPC and is therefore the responsibility of the HPC.	• A specific SOP to pre-qualify a product/supplier pair is available. • EoIs are sent for each pharmaceutical product to be procured, every year. • Controls of pharmaceutical QA are performed on the specific site of the product manufacture on a regular basis.	• The procedure is known by the person in charge of the procurement of medicines. • A list of pre-qualified suppliers per product exists, is used and is maintained.	
The WHO pre-qualified list of pharmaceutical products/manufacturers should be used for the medicines being procured	• Compliance with lists of pre-qualified medicines is a routine on the part of ECHO partners in any tendering that they do.	• WHO pre-qualified pharmaceutical products (or local equivalent) are being procured and used for HIV (including diagnostic tests), TB, and malaria.	
Re-qualification and monitoring of suppliers are regularly performed.	• Re-evaluation of product information is carried out every three years. • Re-inspection of manufacturers takes place at least once every year. • Random samples of batches are sent to QC laboratories.	• Updated reports on all of these actions are available.	**PROCUREMENT**
Restricted tenders are called by direct invitation of all pre-qualified suppliers. Exceptions: When procuring from an HPC, the procurement can be done through a single-bid procedure.	• Restricted tenders consider at least three pre-qualified suppliers. • Exception: • If less than three suppliers respond to the yearly EoI for a specific medicine. (DG ECHO must be notified)	• The best quality/price ratio is chosen and final price is within the 'international indicator price' range.	
A contractual agreement or MoU could be signed between the supplier (manufacturer, wholesaler, distributor or HPC) and the partner.	• A model contractual agreement or MoU is established between HPCs and each partner., this is on a voluntary basis.	• Signed MoU or contractual agreement established.	

Source: EUROPEAN COMMISSION *Quality Assurance (QA), Mechanisms for Medicines and Medical Supplies in humanitarian Aid* (2006, p.11)

Appendix 11: Guidelines for Selection - SUMA

Recommendations	Activity Indicators	Result Indicators
Acute Emergency		
Use kits or standard lists for 10,000 persons during 3 months, when no needs assessment can be made. Exceptions: A partner's team is in the field before the emergency and is able to send a specific list.	• Standardised kits lists are available at partners' headquarters. • Kits are available in stock for the partner to use.	• No stock shortages occur. • No excess stock exists. • Most of the encountered pathologies can be treated.
Post-acute and Chronic Emergency		
The quantity of needed medicines should be assessed by the patient morbidity standard treatment method or the adjusted consumption method.	• An assessment of the needed quantity is done by one of the recommended methods.	• No stock shortages occur. • No excess stock results. • All the pathologies can be treated.
The medicines procured should be compliant with the National Essential Medicines Lists or the WHO Essential Medicines Lists.	• The National Essential Medicines List is available at the decision-making point.	• None of the pharmaceutical products received in the country are different from the National Essential Medicines List.
Packaging for dangerous materials is foreseen and ordered in compliance with IATA or other pertinent regulations.	• Class of dangerous materials is identified. • Weight and/or volume of each type is identified. Compliance with the foreseen transport regulations is checked.	• The final destination is reached safely for all of the dangerous materials.
The requirements for a cold chain are assessed from the selection phase of the products.	• The volumes of the goods to be stored at controlled temperature(s) are identified. • The time for these items to be stored cold is calculated. • The needed variety and quantity of temperature control materials is defined.	• The cold chain package is compliant with the WHO standards.1 • The cold chain is maintained until the final destination of the respective pharmaceutical products. • The efficacy of the cold chain is monitored and temperatures registered until the final destination.

Source: EUROPEAN COMMISSION *Quality Assurance (QA), Mechanisms for Medicines and Medical Supplies in humanitarian Aid* (2006, p.10)

Appendix 12: Guidelines for Distribution – SUMA

Recommendations	Activity Indicators	Result Indicators	
Warehouses to be managed at least in compliance with WHO guidelines (or equivalent) and premises to respect its basic prescriptions.	• The field warehouse staffs are properly trained.	• Good Distributing Practices and Good Storage Practices are respected.	
Pharmaceutically competent staff is designated in the partner team.	• A job description exists including what to do in each phase of the distribution cycle.	• Designated staff members are in charge of the distribution of the pharmaceutical products, as well as the management of waste from it (see next chapter).	
Each batch number is tracked from the receipt to the final point of delivery of each product.	• Records are regularly updated.	• The health facility to whom each batch number was sent can be identified from records in less than 1 day	
An independent quality control laboratory should be identified either in the country or in a third country.	• Medicines are sent for analysis when and as needed.	• While tests are ongoing, products are kept in quarantine and released when the analysis is favourable.	
For economies of scale, the transport to health facilities (especially if by air) should be coordinated with other partners so as to maximise bulk and minimise cost.	• Internet connections and/or phone contacts exist and are used by the different partners' logisticians.	• Pharmaceutical products do not have to wait more than two days at the airport before being sent on.	
The cold chain is strictly respected and monitored all along the transport for temperature-sensible products.	• An independent energy supply is available. • Fridges or cold rooms are available in the warehouse. • Temperature of this equipment is monitored. • Cold boxes and freeze packs are used for • transportation in accordance with WHO standards	• The cold chain is not interrupted during the storage and transport.	DISTRIBUTION
Packaging of dangerous materials should be compliant with the relevant international standards or standards as required by transporters.	• Dangerous materials are properly identified and labelled. • Specific packaging is ordered in the field or comes from the supplier for all the products that need it.	• All dangerous pharmaceutical materials reach their destination safely and on time.	

Source: EUROPEAN COMMISSION *Quality Assurance (QA), Mechanisms for Medicines and Medical Supplies in humanitarian Aid* (2006, p.12)

Appendix 13: The structure of an independent ICRC hospital

An independent ICRC hospital comprises all echelons in one structure.

In both instances – support to national structures or establishment of an ICRC hospital – a number of factors are taken into consideration to ensure the neutrality and independence of ICRC activities on the one hand, and the quality and professionalism of care on the other. The same logic applies to other humanitarian agencies. These factors are summarized in the following pyramid and checklist (Figure 6.9 and Section 6.7.1).
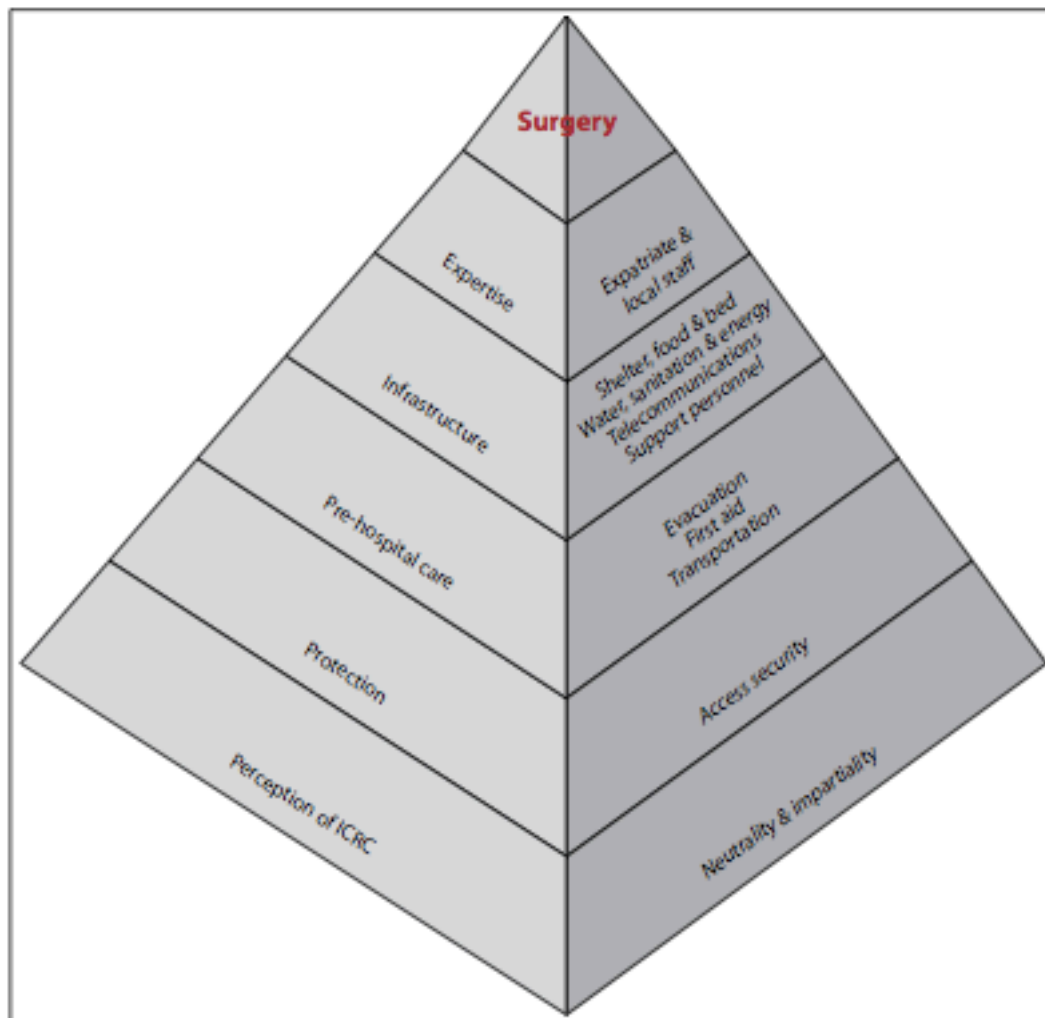
Source: GIANNOU, Chris, BALDAN, Marco, *War Surgery, Working With limited resources in armed conflict and other situations of Violence Volume 1* (2010, p. 138)

Appendix 14: The ICRC admission sheet for triage

ICRC EXPERIENCE

An ICRC admission sheet with Wound Score recorded.

Source: GIANNOU, Chris, BALDAN, Marco, *War Surgery, Working With limited resources in armed conflict and other situations of Violence Volume 1* (2010, p.85)

Appendix 15: ICRC Strategic assessment

ANNEX 6. B   Strategic assessment of a conflict scenario

The main appraisals in a strategic assessment of a conflict situation in order to determine some of the factors influencing the chain of casualty care are the following:

1. Geography:
   a. topography of the conflict area
   b. routes of communication and transportation
   c. distribution of medical facilities available and their safety

2. Where is the fighting taking place? Safe areas, dangerous areas?

3. Where do patients come from?

4. How many wounded are there?

5. Who are the wounded?
   a. trained soldiers in a regular army
   b. guerrilla fighters, militiamen
   c. civilians

6. Who performs first aid, if anyone?
   a. National Red Cross/Red Crescent Society volunteers
   b. military services
   c. trained civilians (RC/RC community-based first aid, MoPH)
   d. untrained civilians
   e. non-governmental organizations

7. Assessment of efficiency of first-aid system

8. How are the wounded transported from point of wounding to hospital?
   a. private means
   b. public transportation
   c. ambulance service
   d. military services: air, land, etc.

9. Assessment of efficiency of evacuation system

10. Which hospitals receive the wounded ?

11. Assessment of work performed in hospitals and their capacity to receive and treat patients (see Annex 6. A: Initial assessment of a surgical hospital treating the war-wounded).

12. Which other actors are present in the area?
    a. National Red Cross/Red Crescent Society
    b. ministry of public health
    c. military medical services
    d. national non-governmental organizations
    e. missionary clinics or hospitals
    f. foreign non-governmental organizations

On the basis of the above assessment, the military or civilian health services or National Red Cross/Red Crescent Society should take action to fill in any gaps by creating the following facilities.

1. System of first-aid posts.

2. Transport system.

3. Reliable surgical units: central, regional, zonal, local; alternative sites for hospitals; convalescence houses.

The above-mentioned institutions have several means of intervention to face the challenge of establishing an efficient chain of casualty care.

1. Negotiation with the various belligerents to make sure international humanitarian law is respected in order to ensure that:
   a. medical personnel has access to the wounded and sick;
   b. the wounded and sick can reach medical care;
   c. first-aid and health personnel and structures are safe.

2. Support to existing health structures, which may take the form of infrastructure renovation, equipment, medical supplies, or re-enforcement with human resources.

3. Mobilization of local infrastructure and human resources to improve the chain of casualty care or project forward medical care for the wounded.

4. Mobilization of international agencies to supplement national efforts.

Please note:

Points 1 – 12 of this sample form are available as a downloadable document on the accompanying DVD.

Source: GIANNOU, Chris, BALDAN, Marco, *War Surgery, Working With limited resources in armed conflict and other situations of Violence Volume 1* (2010, p. 146)

Appendix 16: Types of situations of armed conflict and violence and their effects on humanitarian medical work

Example	International armed conflict	Internal armed conflict/ guerrilla warfare	Civil disturbance/revolt	Widespread banditry and other crime
Description	A straightforward war between country X, and its allies, and country Y, and its allies	Intense fighting within one country	Unpredictable; hit and run skirmishes, often with a vested interest in the continuation of anarchy	May coincide with any of the other situations
Combatants/ Fighters	Easily visible, and wearing distinctive uniforms	Not all wear uniforms. Government forces opposing well-organized military groups	Armed individuals, gangs, bandits, and militia groups	Purely self-interested individuals or groups
Front lines	Well known	May not exist, or may change very quickly	Linked to constantly shifting alliances among or between forces	At the fringes of the conflict, ready to take advantage of circumstances
Chain of command	Structured and with available points of contact	Tenuous points of contact on the opposing sides	Not clear, and variable from one faction to another (often based on an individual leader surrounded by a small group and supported by part of the population)	Traditional and local leader, personalized (e.g. street gangs)
Respect for IHL	Parties aware of their obligations and try to meet them	A certain degree of respect	Very little, with a complete breakdown of law and order	IHL unknown or no regard for
Humanitarian tasks	Classic	Classic	Extremely difficult	?
Risk level	Low	Growing and less predictable	Very high, perhaps bordering on the unacceptable	Very real and very dangerous threat
Obstacles to medical work	Few, if any	More restrictions, negotiations, controls and delays, etc.	Severely restricted ability to intervene – vehicles, radios, goods, etc. are extremely attractive to the warring parties	Numerous: greatest caution required

Source: GIANNOU, Chris, BALDAN, Marco, *War Surgery, Working With limited resources in armed conflict and other situations of Violence Volume 1* (2010, p. 149)

Appendix 17: MSF RDSU

Source: MSF. L'unité chirurgicale à deploiement rapide: une innovation vitale. *Médecins sans frontières.ch*

Appendix 18: SMART Triage procedures

R. P. M.

R = Respiratory

P = Perfusion

M = Mental Status

Respiratory

The first thing we check for is presence of respiration.

Respirations:

NONE?

Open the airway

Still none?

Tag BLACK, deceased

Were respirations restored?

Tag RED, immediate

Respirations:

PRESENT?

Assess respiratory rate

RATE ABOVE 30 breaths per minute?

Tag RED, immediate

RATE BELOW 30 breaths per minute?

Move on to assess perfusion criteria

PERFUSION

Radial Pulse Absent or Capillary Refill > 2 seconds

Tag RED, immediate

Radial Pulse Present or Capillary Refill < 2 secs
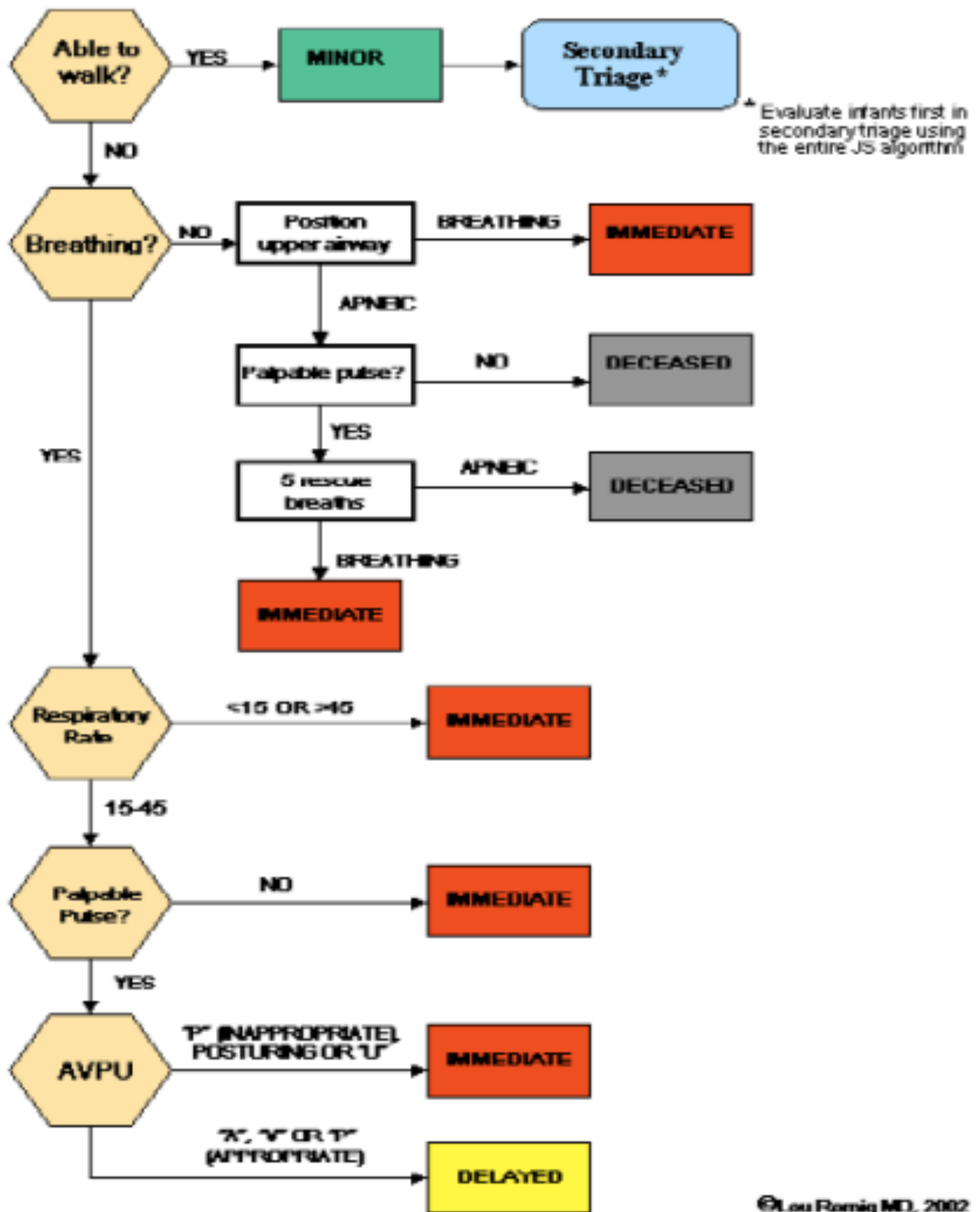
Move on to assess mental status

MENTAL STATUS

Cannot follow simple commands? (unconscious or altered mental status)

Tag RED, immediate

CAN follow simple commands.

Tag YELLOW delayed

Source: UNKNOWN. S.T.A.R.T, Simple triage and rapid treatment. *Emsconed online.com*

Appendix 19: Interviews list

Interview 1: Ex-delegate ICRC and Founder/President of the Human'Air Project: Jean-Philippe Naef

Interview 2: Head of the Research Unit (MSF Switzerland: UREPH): Caroline Abu Sa'Da

Interview 3: MSF logistician in emergency situation: Naoufel Dridi

Appendix 20: Interview with Jean-Philippe Naef

The interviewed professional	Jean-Philippe Naef
	Ex-delegate of the ICRC
	President and Founder of Human Air
Why this interview?	First interview completed to get an overview of the humanitarian world and especially how the ICRC missions are conducted.
How the interview was performed?	The interview was accomplished through an open conversation

Highlighted points

- Black market about non food items
- Negotiation is effectuated differently according on the organization's bargaining strengths
  - MSF: EU food
  - ICRC: government relationship

- Humanitarian world is a business world, first arrived, first served in term of:
  - Delivery position
  - Pictures (→funds)

- Soudan (Kassala), many important logistics issues:
  - Distribution: making sure double distribution is avoided
  - Storage without breaking the cold chain,
  - Materials: finding fridge working without electricity, finding oil…

- Work of the delegates is also to negotiate about diplomatic outcomes such as ceasefires, field evaluation and distribution organization but also an important part of the work on the field is the customs and duty clearance
- Local contract with ICRC, mainly support local economies, otherwise send cargo
- ICRC mainly EU, not really USA
- Cooperation might occur between different organization in term of logistics: plane share for example
- Kits have norms for practical reasons also: Caritas, ICRC, MSF for sure, maybe HCR
- Baby Set from MSF to UNICEF
- Ex: ICRC using Toyota for logistics reasons, replacement pieces to repair available worldwide! Every partnership and choice has a logistics reasons behind
- ICRC: Reconstruction Urgency and formation

Appendix 21: Interview with Caroline Abu Sa'Da

The interviewed professional	Caroline Abu Sa'Da Head of the Research Unit in UREPH: MSF Switzerland
Why this interview?	To ask specified MSF questions about their organization, values and position in the humanitarian world
How the interview was performed?	The interview was conducted at the same time with Naoufel Dridi and through open discussion with questions as guidelines

Highlighted points

- *Preparation and medical kits*

Standardized kits, only a few change between main concern: rapidity!
Ex: RDSU (Rapid deployment chirurgical unit) invented after the Earthquake in Haiti
Where surgeries under trees: not possible, quality must be respected for MSF, never used though
MSF also: inflatable hospital but lead time: 20 days and take a lot of place
Ex: Gaza the lead times was too big: too late or Pakistan also

- *On the field*

MSF always present, never a country where MSF started from scratch, always a small presence
10% expat and 90% locals

- *Cooperation between organizations*

Image of MSF: very important!! no contract with other organization or official statement
Sometimes cooperation but not for plane, only MSF on the plane, even if this means half empty plane
Ex: Libya: more or less agreement with ICRC and UN to share information concerning security between MSF was the only one to effectuate cross boarders activities
Syria:
UN, ICRC and many other organizations under the supervision of the government, who created humanitarian needs maps. The government decides where are the besieged areas, the last map: no besieged area?
Syria unique for MSF, 2 types of interventions:
- Area where staff is present: staff, expat → hand-on mission
- Area with non physical presence but supported by MSF (money: local salaries or material: fuel, generators…mainly West of Syria

History MSF in Syria:

Present during the Iraq refugee flow but relationship between Dames government and MSF: bad relation → MSF was forced to leave
During war in Syria, the government allows only the tens of organizations, which were already present inside the boarders, so not MSF
Last 5 years: MSF is asking for the agreement of the Government to officially enter the country

1. *MSF*

MSF is always asking officially to enter a country
MSF is really neutral in both sides
Ex: Gaza Strip, many organizations stop between financing issue concerning Hamas and terrorism amalgam but not MSF
Ex: Kenya and Somalia: all under the supervision of HCR but not MSF

2. *Financing MSF*

Very careful!
No France no USA, no to defined industries: tobacco or pharmaceutical for instance
Every donation is analyzed
No right to decide or know how the money is used
Ex: Gates foundation not for MSF: conflict of interest possible !

3. *Medical drugs*

MSF Access Campaign (rue de Lausanne)
Favors generics drugs and avoid "patents kidnapping"
Also do everything they can to reduce the drugs price
Innovation: key for MSF
- Highly involved in Ebola or HIV crisis
- Also created vaccination drugs, which do not require any Cold Chain

4. *Medical Landscape has changed*

OMS not good for emergency
Political highly involved!

5. *Criterion for leaving a country*

Challenge!
Defined quality (work requirement) and way of work: highly important: not easy to follow up after by local workers

6. *IATI*

Do not know but MSF not part of those clusters: for those with no financing: time to speak, MSF act! And also want to remain 100% independent
Those cluster for good image also
Emergency: no time to speak but act!
But sometimes goes to reunion to know if what is being said correspond to reality

7. *Post-evaluation*

Vienna unit: evaluation
More informal and discussion: no official defined protocol, but report on mission with all incidents or security issue
Ex: Ebola: huge learning experience
Constantly evolving on the field: liberty and flexibility are important!
Ex: re-evaluation of refugee help camps de 1992/5: not update since 20 years

Appendix 22: Interview with Naoufel Dridi

The interviewed professional	Naoufel Dridi Logistician in emergency situation MSF Switzerland
Why this interview?	To ask specified MSF questions about their organization and logistical actions
How the interview was performed?	The interview was conducted at the same time with Caroline Abu Sa'Da and through open discussion with questions as guidelines

Highlighted points

- *Preparation and medical kits*

Based on the field analysis and analyzed every year by the whole team (referent from each unit)

Reevaluation based on the % non used material for instance

To know: 60,70% of kits not used! Losses not a problem as emergency and reactivity is more important than finance

Kits for the field: 2-3 days until 5 weeks

MSF very good in emergency!! J-0 to J-21 because resources and funds available →
>90% private financing, no financing demand to effectuate

NFI: non food item

First material send: always from MSF Bordeaux, then local if possible ex: blankets in Myanmar 2008: 20'000 blankets send then MSF asked Dubai or countries bordering: 16 planes!

Challenge of NFI: never sure contract with local enterprise: money involved: business world! Who can pay the more?

Emergency! Quality yes but emergency is important!

- *Response time*

MSF Bordeaux: medical drugs and plane reservation

GVA: make pressing for rapidity action

Every minute is important!

The demand rise so is the difficulty of interventions

Modeling: kits and guidelines

- *On the field*

Outside of the capital where TV and mediatisation: "Urgence CNN"
If stuck at the customs: stock on the spot and bring more for when the customs accept to let MSF pass
E-prep: material already on the spot
« logistiquement tjs possible avec des moyens »: foot, moto, bike or even canoe or in the bush
Always a local to welcome international and to make link between logisticians
Once on the field, meeting with organization for information, maps but that is it!
Always think of the hidden impact of an action, do not play heroes!

8. *Criterion for leaving a country*

Daily evaluation on the field
Based on numbers: ex: mortality….
Before MSF: close abruptly over night
Now: more long mission, too long mission?
Congo, Haiti: locals took over