Building the Tower of Babel: Cross-border Urgent Medical Assistance in Belgium, Germany and the Netherlands

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Abbreviations:
CPAs = centrale post ambulancevervoer (central emergency communication rooms for ambulance transportation
HC-1-0-0 = Central Assistance Center 1-0-0
HWA = Ministry for Health, Welfare and Sports (The Netherlands)
IKE = Ministry of the Interior and Kingdom Relations
MUG = Mobile Urgency Group
UMA = urgent medical assistance

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Abstract
The border area between Germany, Belgium, and the Netherlands includes a substantial number of cooperative forms in the urgent medical assistance sector. Collaboration usually takes place in densely populated areas with cities or villages situated on or in proximity to the border. In some regions, definitive borders are not apparent to the extent that inhabitants often times are unaware of their existence. The border may pass directly through a built-up area with intense cross-border activity due to population residency, place of work, shopping, and recreational pursuits.

To obtain a deeper insight into cross-border Urgent Medical Assistance (UMA), the Ministry of the Interior and Kingdom Relations (IKR) and the Ministry for Health, Welfare, and Sports (HWS) in the Netherlands commissioned research into cross-border UMA impediments and solutions at administrative, judicial, and operational level. The following central questions were presented for research: (1) What opportunities and impediments are presented in the area of cross-border, urgent medical assistance at administrative, legal, operational, and equipment employable level?; and (2) Which solutions may be submitted to tackle existing impediments?

Two techniques were employed to answer the research questions. First, relevant documents were studied from extensive file and literature searches. File and literature search findings subsequently were tested in practice through interviews with relevant experts.

Dutch ambulance services provide support to both their Belgian and German counterparts and vice versa. In the instance of cross-border ambulance deployment, relevant assistance services are subject to due observance of various legislations and regulations. Such regulations may restrict effective and efficient deployment of personnel and equipment at critical moments, because regulation discrepancies may arise over ambulance personnel's authorities, ambulance content, and deployment sequence. Discrepencies also may exist in the area of financial compensation concerning ambulance deployment and hospital admission. Gaining knowledge on their disparate systems and the opportunity to utilize the medical provisions of a neighboring country potentially in closer proximity to those in the victim's own country serves the best interests of the patient. Survival chances of a traumatized patient increase with the expedited arrival of medical assistance and increased speed of transportation to an appropriate hospital.

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Introduction

The border area between Germany, Belgium, and the Netherlands includes a substantial number of cooperative forms in the urgent medical assistance sector. Collaboration usually takes place in densely populated areas with cities or

villages situated on or in proximity to the border. In some regions, definitive borders are unapparent to the extent that inhabitants frequently are unaware of their existence. The border may pass directly through a built-up area with intense cross-border activity in regard to population residency, place of work, shopping, and recreational pursuits. Until recently, only the usage of different currencies served as a reminder of the existence of borders. With the arrival of the Euro, even this final frontier has disappeared. In these regions, cross-border collaboration is a necessity not only from a practical viewpoint (as the border cuts directly through urban agglomerations and economical zones), but also from a functional perspective.

Occasionally, a variety of medical centres may be situated within a smaller area, e.g., Heerlen, Maastricht (the Netherlands), Aken, Düsseldorf (Germany), Hasselt and Luik (Belgium), with some specialising in specific medical treatments. In the instance of cross-border collaboration, the UMA can offer the patient swift, cross-border transportation to a hospital providing the requisite specialist treatment. For example, Aken maintains a comprehensive burn-treatment unit while Dutch patients from South-Limburg are transported to Beverwijk (approx. 300 km away). Utilizing hospital capacities and specialized treatments in neighboring countries should induce a vast improvement in the functional efficiency of medical care.

Further north along the Dutch-German border, in the Maas-Rijn Euregion, a Dutch zone equipped with outstanding medical provisions (Radboud hospital, Nijmegen) borders an area of Germany which, is peripheral from a German perspective. German patients must journey to Düsseldorf (approx. 100 km) to obtain a standard of medical care equal to that offered by the Radboud hospital, while Nijmegen is accessible by city bus for German patients from Kleve. Incidently, collaboration in the area of traumatology does exist. Such cooperation, nevertheless, rests on individual initiatives, as nothing is established by way of arrangements or administrative agreements.

To obtain a deeper insight into cross-border UMA, the Ministry of the Interior and Kingdom Relations (IKR), and the Ministry for Health, Welfare and Sports (HWS) in the Netherlands commissioned research into cross-border UMA impediments and solutions at the administrative, legal, and operational level. The following central question was presented for research: (1) What opportunities and impediments are presented in the area of cross-border urgent medical assistance at the administrative, legal, operational and equipment employable level?; and (2) Which solutions may be submitted to tackle existing impediments?

It is important to distinguish between urgent and non-urgent assistance requisites in cross-border collaboration. This article describes the urgent assistance requirement process, from emergency communications room call-in to hospital victim admission. In a number of cross-border area cases, cooperation between hospitals and health insurers has enabled patients to receive treatment in a foreign hospital. These circumstances refer to non-urgent medical treatments for which waiting lists are maintained by hospitals in the patient's own country and may only be executed on condition that foreign patient treatment does not occur at the expense of "own" patients care. These situations are excluded from this report as they refer to non-urgent medical care.

Methods

File and Literature Search

Two techniques were employed to answer the research question. First, relevant documents were studied from extensive file and literature searches. Materials at hand appeared to be of a diverse nature comprising legal texts, treaties, minutes, brochures, official invoices, research reports, and the literature. A list of the literature consulted is included in the bibliography for this report.

Interviews

File and literature search findings subsequently were tested using mostly in-person interviews with relevant experts; while a few were conducted by telephone. The purpose of these interviews was to establish concrete impediments. Through dialogue with persons involved in cross-border UMA in practice, impediments could be revealed and suggestions for potential solutions could be offered. Interviews were based on prior prepared topic lists.

Interviewee selection initially took place at an administrative level. In other words, the people interviewed were predominantly responsible for medical assistance in disasters and incidents at the provincial and regional levels. Subsequently, a number of people were interviewed commensurate with the “snowball” technique: hereby, administrative functionaries were requested to name persons who have regular dealings with cross-border, urgent medical assistance at an operational level. In this manner, not only was insight gained from an administrative and judicial level, but impediments were pinpointed at the operational and equipment employable levels.

Results

Organizational Overview of Ambulance Transportation Systems

Belgium

Ambulances

Ambulance transportation in Belgium is organized by public services (fire-brigade, municipality) or private firms. To ensure proper functioning of the UMA within the Belgium system, ambulances must be recognized by the Federal Ministry of Social Affairs, Health and Human Environment and meet specified regulations.[a] Belgian ambulances, contrary to their Dutch colleagues who are available even in transit, must remain stationary at their prescribed post until such time as they are alerted to an emergency call. In the case of an incident, an ambulance is

[a] No legal requirements are in existence pertainig to the internal layout of ambulances. Ambulances must meet specific regulations in order to be recognized within the 1-0-0-system. These provisions are enacted by the Belgian Federal Ministry of Social Affaris, Health and Human Environment.

<table>
<tr><th></th><th>Belgium</th><th>Germany</th><th>Netherlands</th></tr>
<tr><td>Basic Life Support</td><td>Ambulance
Ambulancier or nurse</td><td>Krankentransport-wagen
Rettungshelfer
Rettungssanitater

Rettungswagen
Rettungssanitater
Rettungsassistent</td><td rowspan="2">Ambulance
Ambulance nurse</td></tr>
<tr><td>Advanced Life Support and Prehospital Trauma Life Support</td><td rowspan="2">Mobile Urgency Group
Doctor
Nurse</td><td rowspan="2">Notarztwagen
Rettungswagen with Notarzt and supplementary medical equipment

Notarzteinsatzfahrzeug
Car with Notarzt and supplementary medical equipment</td></tr>
<tr><td>Advanced Trauma Life Support</td><td>Mobile Medical Team
Doctor
Nurse</td></tr>
</table>

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Figure 1—Schematic representation of urgent medical assistance units based on authoritative powers in Belgium, Germany, and the Netherlands

called upon via the Central Assistance Center (HC-1-0-0). First-aid assistance (Basic Life Support) is provided by ambulance personnel. In general, ambulance personnel consists of two persons, a driver and a first-aid assistant. Ambulance (assisting) personnel must be in possession of an ambulance assistant license and at least educated to the Basic Life Support level.[1]

Mobile Urgency Group (MUG)

Belgium also has available a Mobile Urgency Group (MUG). These teams consist of a nurse for intensive and emergency care and a doctor with an "acute medical" licence. The MUGs are called upon when direct assistance at the Advanced Life Support level is required at the scene of the incident. A MUG may be deployed in addition to an ambulance and arrives at the location of the incident by a car that is equipped with supplementary medical equipment. The operator at the HC-1-0-0 decides whether to deploy an ambulance or a MUG, according to the information he or she gets from the person that calls. Moreover, an ambulance still may call for a MUG should its services be required on location. In the event of incidents of a more serious nature, the MUG team arranges for the (further) organization of assistance. They procure a diagnosis, determine the appropriate treatment strategies, establish priorities accordingly (triage), and coordinate the transportation of victims to the appropriate hospitals. In Bruges, the MUG may use a helicopter supplied by the Institute for Urgent Medical Assistance.[2]

1-0-0-System

An incident may be reported to the emergency communications room for ambulance assistance services, the Central Assistance Center 1-0-0 (HC-1-0-0). The name of the center is derived from the emergency telephone number for the fire-brigade, "1-0-0". The HC-1-0-0 provides emergency communications for the fire brigade, ambulances, and the MUGs. The police use a separate incident room and emergency telephone number. By calling the European emergency number 1-1-2 in Belgium, callers automatically are transferred to the HC-1-0-0.

Furthermore, the Center functions as an assistance coordination point in the event of accidents and disasters, determines the type of specific assistance required, and informs the hospitals of the status of the victims that will be transported to them. In respect to the location of the incident, the HC-1-0-0s benefit from an automated system indicating the nearest ambulance post and hospital with the required accident and emergency service. The HC-1-0-0s only may deploy ambulances using a strictly systematic sequence. For example, ambulances from location A are to be employed in the instance of an accident occurring at location A. Should they prove unavailable, an ambulance post at location B is contacted. In the instance of unavailability, an ambulance post at location C, D, etc. are contacted. The deployment sequence only may deviate from the original sequence following permission from the Minister of Social Affairs, Health, and Human Environment.

Hospitals

In Belgium, patients in the system only may be admitted to hospitals affiliated with the HC-1-0-0 system, (e.g., hospitals with accident and emergency rooms approved by the Ministry). An ambulance always must transport a patient to the nearest hospital affiliated with the HC-1-0-0 system. The patient may not personally select a hospital.[1] The 1-0-0-system may be overridden following deployment of a MUG team. The MUG doctor, contingent on injury type, can decide against the transport to the nearest hospital and select an alternative medical institution that is better equipped to deal with the particular type of injury or illness. The latter hospital must provide an approved emergency service and be affiliated with the 1-0-0-system.

Germany

Ambulances

The operational management of ambulance transport in

Germany is at Kreis (municipality) level.[3] Similar to Belgium and the Netherlands, ambulances also may be used by private parties that meet specific requirements.[b] In addition, various relief organizations may employ ambulances such as the German Red Cross (Deutsches Rotes Kreuz), the Samaritans (the Arbeiter Samaritaner Bund), the Johanniter Unfallhilfe, and the Malteser Hilfsdienst. In Niedersachsen and Nordrhein-Westfalen, most of the ambulances are managed by the fire-brigade, while ambulances in Southern Germany are controlled primarily by relief organizations.

Krankentransportwagens (KTWs) are employed in the case of non-urgent patient transport requirements. Krankentransportwagen personnel consist of a Rettungshelfer as driver and a Rettungssanitäter for the provision of nurse services. Rettungswagens (RTWs) are utilized should urgent medical assistance be required. Rettungswagen personnel consists of a nurse (Rettungsassistent) to administer Basic Life Support at the incident location, and a driver (Rettungssanitäter). With regard to the terminology presented in this report, a "Krankentransportwagen" signifies non-urgent transportation while the term "ambulance" is used to denote a "Rettungswagen" (for urgent transportation).

In addition, German UMA systems also have the Notarzteinsatzfahrzeug (NEF), which is a car equipped specifically with supplementary medical devices employed by an emergency doctor who, independently from the Rettungswagen, travels to scene of the incident. No patients can be transported in a Notarzteinsatzfahrzeug.

Finally, Germany also utilizes Notarztwagens (NAWs). A Notarztwagen is an ambulance extensively equipped with medical devices for the purposes of Advanced Life Support. Notarztwagen personnel consists of an emergency doctor (Notarzt) and a nurse (Rettungsassistent).[4]

Emergency Doctor (Notarzt)

An emergency doctor (Notarzt) specializes in urgent medical assistance and is deployed solely in the case of acute risk to the patient's life, or when determination of specific injuries are ascertained. Approximately 1,150 emergency doctors are stationed covering the German territory in its entirety. Certain states require emergency doctors to be in possession of a special Rettungsdienst endorsement. Emergency doctors often are affiliated with a particular hospital. In sparsely populated areas, however, local general practitioners (GPs) may act as emergency doctors. In principle, the emergency communications room determines whether an emergency doctor is required or whether an ambulance (Rettungswagen) would suffice. In the vast majority of cases, the rendezvous-system is applied in Germany in the scenario whereby both ambulance and emergency doctor (in a Notarzteinsatzfahrzeug) depart for the incident scene in independent vehicles. The emergency doctor's vehicle is equipped with supplementary medical equipment, but is unsuitable for patient transportation. The Rettungswagen is utilized for transportation of patients. Approximately two-thirds of the areas in which emergency doctors are located operate in accordance with this system. The Kompakt, or Parallelsystem, is applied in the remaining areas whereby the emergency doctor and the ambulance travel jointly to the incident location by Notarztwagen, an ambulance equipped with extensive medical equipment.

Helicopters

The German system has at its disposal a rescue helicopter (Rettungshubschraubers) territorial cover system equipped with >50 stations operating approximately 52,000 flights per year. Helicopters operate within a 50 km radius; serving a number of emergency doctors' locations. Helicopters are employed as a support system to the emergency doctor and frequently are deployed during large-scale traffic crashes, as they are not affected by traffic congestion. Helicopter crews consist of a pilot, a Notarzt, and a Rettungsassistent.

The principal disadvantages of helicopter use are that helicopters are relatively expensive and offer only limited deployment opportunities. Moreover, helicopters only can be flown during daylight hours and in the correct visibility conditions. Hence, helicopters offer no viable substitute to the emergency doctor, but, serve a complementary assistance function within a specific context.

Leistelle

Ambulance management is conducted by the regional emergency communications room (Rettungsleistelle, or in brief, Leitstelle) that is contacted using the emergency telephone number 1-1-2. This number has been utilized for decades as the fire-brigade emergency number throughout the entire German territory. In Niedersachsen and Nordrhein-Westfalen, urgent medical assistance also may be obtained by using this number as ambulance assistance services are conducted in conjunction with the fire-brigade's activities. The senior fire officer of the Kreis is the head of the emergency communications room. The Federal Republic of Germany maintains approximately 330 emergency communications rooms.

The staff of the emergency communications room determines the type of UMA deployment (Rettungswagen, Notarzt, or Rettungshubschrauber). Available vehicles are dispatched from the location of closest proximity (Rettungswache) to the scene of the incident. The emergency communications room also serves as a coordination center in the case of large-scale accidents or disasters, organizing the deployment of supplementary assistance services.

Hospitals

In Germany, victims must be admitted to a regional hospital. Consequently, virtually all regional hospitals on the German side of the border use fully equipped first-aid departments and operating rooms staffed by round-the-clock personnel. The regional emergency communications room benefits from a central registration system, indicating the number of available beds in the surrounding hospitals,

[b] In Germany, ambulances must meet DIN norms in order to acheive recognition.

thus enabling the allocation of victims to the corresponding hospitals.

The Netherlands

Ambulances

In contrast to the systems in Belgium and Germany, the system in the Netherlands does not possess urgent medical assistance services whereby doctors immediately travel to the scene of the incident.[5] The Mobile Medical Teams (MMT) mark an exception to this rule. There are doctors that can travel to the scene of an accident, but only if a mobile medical team is deployed. MMTs are only deployed in case ATLS is required. An ambulance has no doctor in the Netherlands. Necessary medical treatments are provided by ambulance nursing staff with the administration of further care occurring within the hospital. The majority of ambulances are owned by private parties and the remainder by the municipalities. Ambulance personnel is comprised of professionals who are employed on a daily basis either at Intensive Care or in the hospital First-Aid Department. Furthermore, all ambulance nursing staff have partaken in the benefits of a specialized stream of education. This education enables nursing staff to carry out Advanced Life Support procedures without the presence of a doctor in conformance with national legislation. Ambulance nursing personnel are authorized further to establish priorities (triage).

Mobile Medical Teams

An integrated system of trauma care currently employed in the Netherlands is based on a policy document presented to the Second Chamber in 1997. This system divides the Netherlands into regions for Medical Assistance in Accidents and Disasters (GHOR) and is headed by a Regional Medical Functionary. The system supplementarily provides for 10 trauma centers whereby each center has a Mobile Medical Team (MMT). A MMT consists of a doctor and a nurse educated and trained in the area of prehospital, urgent medical assistance. Four trauma centers, and the MMTs, currently are provided with a helicopter.

Central Emergency Communication Rooms for Ambulance Transportation (CPAs)

Central Emergency Communication Rooms for Ambulance Transportation (Centrale Post Ambulancevervoer (CPAs)). CPAs coordinate ambulance deployment performing a similar role to the Belgium HC-1-0-0s and the German Leistellen. The principal difference between the Dutch system and the Belgium system is that the former does not operate a fixed ambulance deployment sequence. In the Netherlands, the nearest available ambulance invariably is dispatched. Certain regions make use of the so-called collocated emergency communication rooms that also coordinate alternative emergency services such as the fire brigade and police.

Hospitals

No fixed systems regarding hospital admission of trauma victims exist in the Netherlands. In general, patients initially are transported to a hospital with a First-Aid Department or other "most suitable" institution. Hospital choice is contingent on capacity (number of beds available), injury or illness type, and the specialists' availability. Circumstances permitting, the patient is free to indicate preference for a particular hospital.

Urgent Medical Assistance Reimbursement Scheme

Ambulance Transportation Costs

Belgium, Germany, and the Netherlands use different types of medical insurance systems. Belgium operates a restitution system whereby the patient's costs are reimbursed following medical treatment. Germany and the Netherlands maintain a non-monetary system whereby medical declarations are paid directly by the (private) health insurance company to the medical care provider as opposed to patient invoicing.

The Belgian health insurance package differs to that of the Netherlands and Germany by manner of arrangement. For example, ambulance transportation in the Netherlands and Germany forms part of the basic package of provisions while Belgians require separate insurance for such services. A private contribution for ambulance transportation service is applicable, but is dependent on insurance type. Ambulance transportation fee structures differ considerably. In Belgium, only transportation is invoiced while medical assistance is charged through the hospital. In the Netherlands, medical procedures are included in the transportation costs. The following situations may result from cross-border ambulance assistance activities, due to differences in cost calculations and compensation:

A Belgian policyholder on Belgian territory is transported by a Dutch ambulance to a hospital in Belgium: Transport of a Belgian patient on Belgian territory to a Belgian hospital by a Dutch ambulance is not subject to compensation by a Belgian insurance company.

A Belgian policyholder on Belgian territory is transported by a Dutch ambulance to a hospital in the Netherlands: A Belgian patient is invoiced in accordance with the Dutch rates resulting in a discrepancy in calculated fees and the compensated amount is supplemented by insurance as Dutch rates are higher than are Belgian compensation amounts.

A patient insured in the Netherlands is transported by a Belgian ambulance to a Belgian or Dutch hospital: The Dutch insurance company is invoiced in conformity with the Belgian rates. A discrepancy occurs as the Belgian rates for ambulance transportation are lower than are the Dutch fees, consequently benefitting the Dutch insurance company.

Impediments in Cross-Border Urgent Medical Assistance Procedures

Ambulances

Ambulances in the Netherlands are equipped with devices to administer Advanced Life Support activities while their Belgian and German counterparts are furnished only with Basic Life Support equipment. In Belgium, supplementary apparatus are conveyed in the MUG-vehicle while in Germany the Notarztwagen or the Notarzteinsatzfahrzeug is utilized for such. Otherwise, Dutch ambulances are vir-

tually identical to those in Belgium and Germany. Hence, from a material viewpoint, cross-border ambulance deployment should not constitute a problematic issue in the level of care provided.

Belgium—In practice, this situation is more complex, as ambulances operating on Belgian territory must conform to the 1-0-0-system's regulations and gain recognition by this body. Articles 2 to 17 of the Dutch Ambulance Act state that cross-border ambulances not registered in the Netherlands are excluded from this legislation, consequently permitting unconstrained deployment of Belgian ambulances on Dutch territory. In order to deploy Dutch ambulances on Belgian territory, ambulances first require inspection and accreditation by the State Health Inspector of the Federal Ministry of Social Affairs, Health and Human Environment. Individual ambulance inspection is not a necessity, but all ambulances must receive membership in the 1-0-0-system. The Dutch Ministry of the Interior and Kingdom Relations and the Ministry for Health, Welfare and Sports may contact the relevant Belgium ministries for the arrangement of this inspection and accreditation.

Germany—Based on the fact that Articles 2 to 17 of the Dutch Ambulance Act state that cross-border ambulances not registered in the Netherlands are excluded from this legislation, German ambulances may be deployed on Dutch territory. Similar regulations allow Dutch ambulances to assist in Germany as legislations for ambulances operating in Nordrhein-Westfalen do not apply to ambulances registered outside the federal state.

Ambulance personnel—Dutch ambulance personnel are trained to execute duties at Advanced Life Support level. Their education differs from that received by German and Belgian ambulance staff by permitting them to administer treatments customarily performed by a qualified doctor.

Belgian assistance in the Netherlands—Ambulance staff in Belgium are trained to Basic Life Support level. Belgium currently observes a trend whereby nursing professionals form part of standard ambulance crew personnel. Belgian ambulance staff and licensed nurses may administer Basic Life Support in the Netherlands provided they refrain from treatments that, according to Dutch legislation, should be carried out by a doctor or ambulance-nurse. In Belgium, a MUG-vehicle is deployed should a trauma victim require Advanced Life Support treatment. As the MUG maintains a qualified doctor, a MUG may perform operations identical to a Dutch ambulance. In practice, should Belgian assistance be required, a Dutch CPA is obliged to provide clear information specifying both the accident and the injury type. The Belgium HC-1-0-0 subsequently may determine whether an ambulance or a MUG should be deployed.

Dutch assistance in Belgium—Specific activities executed by Dutch nursing personnel in the Netherlands and Belgium are reserved for a MUG. In the absence of a doctor, Dutch nurses may execute no such services on Belgian territory and must strictly observe the Belgian system of ambulance assistance solely serving Basic Life Support functions.

In the presence of a MUG, Dutch personnel act under the supervision of the Belgian doctor and only may deviate from Basic Life Support actions after being granted permission. Belgium's Criminal Code stipulates that all citizens must offer assistance to a person in distress in accordance with his or her capabilities (Article 458). Dutch personnel, while operating on Belgian terrain, reserve the right to invoke this article.

German assistance in the Netherlands—In accordance with their Belgian colleagues, German ambulance personnel are trained at the Basic Life Support level. With regard to the deployment of German ambulances on Dutch territory, the same principles apply as in Belgium. The CPA is compelled to clearly inform the Leistelle of both the specific accident and injury type. The Leistelle subsequently ascertain whether a Rettungswagen or a Notarztwagen is to be dispatched. To facilitate cooperation in the Achterhoek region, Kreis Borken has educated its German personnel to the level of Dutch ambulance nursing staff. However, if details on accidents and injuries are communicated effectively between the CPA and the Leistelle, such in-service training would have proved superfluous as clear information would indicate whether a Rettungswagen or a Notarzt should be present. Moreover, it is unreasonable to demand extended training of all German ambulance personnel along the Dutch-German border area in conformity with Dutch requirements.

Dutch assistance in Germany—With regard to the deployment of Dutch ambulances on German territory, the same principles apply as on Belgian territory. Dutch ambulance personnel are bound to strict adherence to Basic Life Support procedures and may only conduct alternative functions following permission of a German doctor. Dutch ambulance personnel offering assistance in Germany can always reserve the right to invoke German legislation which states that anyone failing to offer assistance in general danger or emergency situations is subject to prosecution on grounds of negligence.[c]

Operational Strategies

Deployment Sequence of Belgian Ambulances

Belgian HC-1-0-0s only may deploy ambulances in a strictly systematic sequence, and therefore, are ineligible to request the assistance of a Dutch ambulance in the instance of an order not subjected to modification by the Ministry of Social Affairs, Health, and Human Environment. The Belgian Ministry should be contacted to empower a general exception in the deployment sequence of Belgian ambu-

[c] German Criminal Code, article 323, sub C: any persons failing to offer assistance in gneral danger or emergency situations is liable to punishment by fine or imprisonment.

lances within the Dutch-Belgian border area in order to facilitate the call-out of Dutch ambulances should assistance be required. It is strongly recommended that Dutch ambulances be included in the HC-1-0-0 deployment sequence as, otherwise, no or little use of Dutch ambulances shall be made.

CPA permission—The presence of Belgian and German ambulances on Dutch territory is permitted only under the instructions of a particular Central Emergency Communication Room for Ambulance Transportation (CPA).[7] German or Belgian units only may cross the border having contacted and secured the consent of a Dutch CPA.

Admission to Belgian hospitals
In Belgium, accident victims only may be admitted to a hospital with a recognized emergency service (1-0-0-hospital). In the Netherlands, the St. Franciscus Hospital in Roosendaal is the only approved 1-0-0-hospital. Dutch ambulances assisting on Belgium territory therefore are prohibited from transporting patients to an alternative Dutch hospital. As outlined in the Royal Decree of 27 April 1998, discussion with the Belgian Ministry of Social Affairs, Health and Human Environment must occur prior to the approval of additional Dutch hospitals as emergency services along the border. It is to this end that current debates focus on the extension of the number of Dutch hospitals operating a recognized emergency service in conformity with Belgian legislation.

Transfer of patients from ambulance to hospital staff
At the scene of the incident, only Belgian and German personnel can provide Basic Life Support care. Further treatment is carried out by a doctor or in a hospital. Therefore, when patients are transferred to a hospital by a German or Belgian ambulance staff, the hospital staff should be aware that the victim's condition may be different than in the instance of the patient being handed over by Dutch ambulance personnel.

Efficient utilization of provisions
The Meuse-Rhine Euregion, in particular, claims an unusually high concentration of exceptional medical provisions in the area of emergency assistance within a relatively confined region. Owing to the dispersion of provisions throughout the three countries, admission capacity and specialization within neighboring countries are little considered. Improved knowledge on admission capacity and potential treatments available in medical centers across the border could incur considerable benefits in the standard of patient care culminating in a more effective utilization of knowledge and capacity.

Communicational Aspects

General communication—With regard to general communication, it may be stated that the success or failure of cross-border collaboration may be said to be contingent upon mutual comprehension of the respective assistance systems. At the local level, continuous communication is necessary between emergency communication rooms in order to improve the collaborative processes. Moreover, it is advisable that personnel discuss and compare cross-border working methodologies. Many misunderstandings are prevented through detailed information exchange and actual implementation of the terms agreed upon by all parties.

Radio communication—Belgium, Germany, and the Netherlands utilize various categories of communication and transmission frequencies in the field of urgent assistance. A substantial impediment is that Belgian and German vehicles are unable to communicate with the Dutch CPA while Dutch vehicles cannot converse with the Belgian HC-1-0-0 or German Leitstelle resulting in the following problematic situations: (1) A Dutch ambulance is lost abroad en route to the scene of an incident and unable to contact the emergency communications room; and (2) on its return from a foreign hospital, a Dutch ambulance unexpectedly arrives at the scene of an accident and is forced to employ a spectator's mobile for the purpose of contacting the emergency communications room.

Only a very few border regions are in possession of ambulances equipped with communication devices enabling Belgian and German vehicles to contact the Dutch CPA and Dutch vehicles to transmit information to a Belgian HC-1-0-0 or a German Leitstelle in the instance of cross-border deployment. Exchange of communication equipment is officially prohibited as other parties utilizing similar frequency channels may experience interference. By way of example, the use of Belgian or German radiotelephones on Dutch territory may lead to channel interferences as the frequency may be allocated to a different organization in the Netherlands.

The Dutch CPAs do maintain direct connections with the foreign emergency communications room. Consequently, a Dutch ambulance, in principle, can communicate with a Belgian HC-1-0-0 or German Leitstelle via the CPA. Notwithstanding, Dutch ambulances are not assured CPA contact as frequency ranges merely reach the country border. Hence, a Dutch ambulance may be unable to obtain contact with either the CPA or the foreign emergency communications room. The same applies to Belgium and German ambulances.

Language barriers—Little to no communication problems are prevalent in Belgian Flanders. However, language barriers exist in a small region of the Netherlands bordering with French-spoken Belgian Walloon consequently severely inhibiting collaboration between the two areas. Language differences also cause problems with German colleagues especially as some Dutch expressions can not be translated literally into German. In one particular case, a request for assistance from a Krankenwagen was submitted while a Rettungswagen was required.

To prevent linguistic difficulties, all emergency communications rooms should be provided with a list comprising the translations of all specific terms and phrases. Moreover, emergency communications rooms should possess fax

forms in two or three languages for transmission to cross-border communication rooms. Information on these fax forms should not request specific units, but should provide a description of the incident in question which the German or Belgium communication room may use to establish the requisite type of assistance.

Legal issues
Claim for damages—Medical personnel in the Netherlands are responsible for the care-related services they provide. Nevertheless, doctors and nurses in the Netherlands are automatically insured against claims for damages. The question is as to whether this insurance also covers individual cases abroad. Ambulance personnel providing cross-border assistance should arrange their own insurance regarding claims for damages from abroad.

Police-related aspects—Complications may arise in the instance of an accident victim in receipt of cross-border transportation to a Dutch hospital and suspected of being under the influence of alcohol. Belgian and German doctors cannot execute a breath and/or blood test prior to the expressed consent from the Dutch authorities. Moreover, interrogations of suspects wanted in Belgium or Germany are not permitted in Dutch hospitals. Cross examinations should be carried out by Dutch police possibly with the assistance of Belgian or German police functionaries.[8]

Traffic legislation—Dutch ambulances may cross Belgian or German territories without prejudice on possession of an international car insurance green card and due observance of Belgian and German traffic regulations regarding priority vehicles. Both neighbouring countries have no legal stipulations denoting the employment of optical and acoustical signals that enable Dutch ambulances to use signals upon crossing the border. The Netherlands does have regulations in place that are pertinent to signal usage. Ambulances should transmit a three-tone signal. In Belgium and Germany, ambulances convey a two-tone signal. Dutch legislation should be modified to exempt foreign ambulances from transmitting a three-tone signal that may be organised via reference to the stipulation that also exempts foreign ambulances from regulations outlined in the Ambulance Equipment Act.

Drugs—Medications on board an ambulance may be governed by the Opium Act. Assistance agreements between Belgium, Germany, and the Netherlands dictate that equipment, auxiliary materials, and durable goods may be imported by assistance units for temporary use. Standard customs regulations, therefore, do not apply to drugs present in an ambulance.[9]

Nonetheless, the assistance agreement only applies to disaster situations and excludes non-disaster cross-border ambulance assistance. Germany and the Netherlands have yet to establish a similar bilateral treaty regarding urgent cross-border medical assistance in non-disaster incidents. No problems exist between Belgian and Dutch ambulances recognized by the 1-0-0-system as their equipment and auxiliary materials are considered in conformity with Belgian criteria and legislation.

Financial matters
Ambulance transportation reimbursement—Dutch ambulance transportation is more costly than in Belgian due to inclusion of medical treatment allowances. In Belgium, these procedures are incorporated into the hospital invoice resulting in additional charges for Belgian insurance firms should a Belgian patient be transported by a Dutch ambulance. Accordingly, higher costs may be passed on to the insured party even if supplementarily insured for ambulance transportation.

A Belgian policyholder, even with supplementary insurance, is not compensated by Belgian insurance firms for transportation by a Dutch ambulance to a hospital in Belgium. The collaboration project between Roosendaal and Essen states that in such circumstances the Belgian municipality of Essen should cover transport costs. Conversely, Dutch insurance companies receive a lower expense report should transport of a Dutch insured party take place by a Belgium ambulance to a hospital in the Netherlands.

Dutch and Belgian authorities should act as a guarantor in cases whereby a Belgian policyholder is transported by a Dutch ambulance. Such a guarantee fund may be provided for in situations whereby Dutch policyholders are transported by Belgium ambulances resulting in a cost discrepancy in favour of the Dutch insurance firms.

Reimbursement of hospital expenses—Compensation of expenses incurred in hospitals is an extremely complex matter due to a variety of calculation techniques of hospital rates, treatment costs, whether or not costs are to be paid by health insurance fund provisions, etc. Easing settlement procedures of medical provisions supplied in neighbouring countries spells substantial modifications in social security systems via the establishment of compulsory insurances within a European framework. Such would appear unrealistic in the near future.

Conclusion
With the exception of some projects relating to cross-border ambulance care, in the majority of cases, the planning of medical provisions fails to include cross-border capacity requirements resulting from populous areas in close proximity to the border. This national approach has led to a situation in the ambulance care sector whereby patients are transported unnecessary distances in a failure to utilize more easily accessible cross-border provisions.

Some regions of the Dutch area bordering Belgium and Germany have collaborative agreements in place pertaining to urgent medical assistance. Dutch ambulance services provide support to both their Belgian and German counterparts and vice versa. In the instance of cross-border ambulance deployment, relevant assistance services however, are subject to the observance of various legislations and regulations. Such regulations may restrict effective and efficient deployment of personnel and equipment at critical moments as regulation discrepancies may arise over ambu-

lance personnels' authorities, ambulance content and deployment sequence. Discrepencies also exist in the area of financial compensation concerning ambulance deployment and hospital admission. The three countries share a common interest in finding a solution to existing impediments in cross-border, urgent medical assistance situations. Gaining knowledge on their disparate systems and the opportunity to utilize the medical provisions of a neighboring country potentially in closer proximity to those in the victim's own country serves the best interests of the patient. Survival chances of a traumatised patient increase with the expedited arrival of medical assistance and increased of transportation to an appropriate hospital.

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