

Unità di simulazione avanzata



UNIVERSITÀ
DEGLI STUDI
DI PADOVA

HEMS in EUROPA

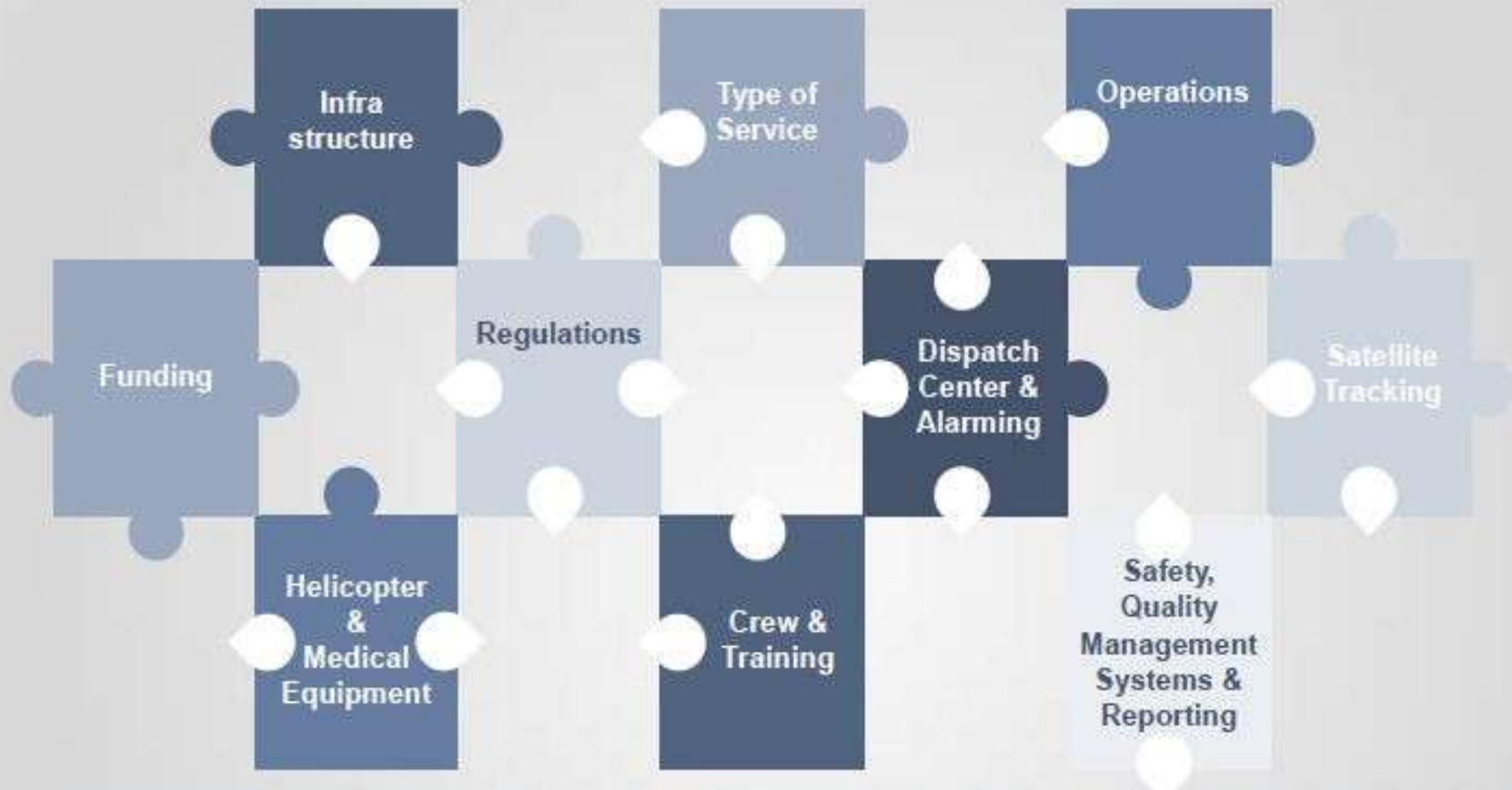
Modelli nazionali a confronto

Padova, 3 maggio 2018

Dott. G. Misuraca – Responsabile C.O 118 Caltanissetta
Dott. A. Giupponi – HEMS Association



HEMS – Key Aspects to be considered



Funding Models – Zoom Europe



Three (3) main “financing models” :

- **Governmental** funding
- Private funding through non-profit organizations (paid by **Health Insurance**)
- Private funding through **Charity**



Typical Staffing:

- One pilot (two pilots by night)
- One paramedic (=Technical crew member)
- One emergency doctor



Infrastructure – Station

- Hospital
- Helipad with fuel station
- Hangar
- Platform



Helicopter located at hospital and supported by Hangar Infrastructure!

Infrastructure – Hangar Overview

- Parking and protection
- Automatic fast opening doors
- Mobile Platform or mover
- Storage area for Line Maintenance (consumables, spares, tools)
- Air-conditioned storage area for own autonomous medical stock (band aid, infusions, syringe, drugs in safe)
- Desinfektion area (black&white, washing machine, 2 sets)
- Social area
- Station Control Centre (offices)



Type of Service

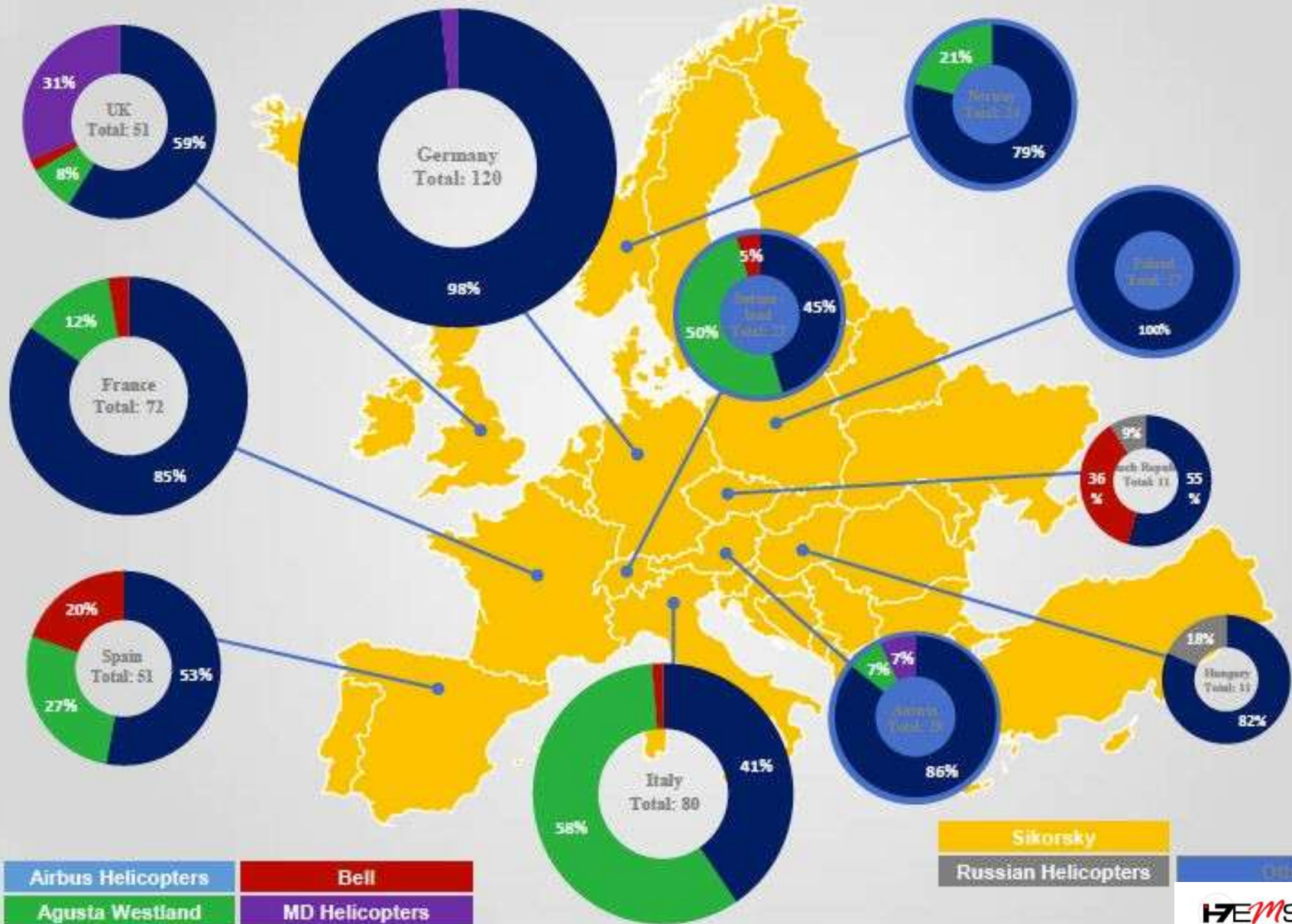
- Primary missions – HEMS
- Secondary missions - Air Ambulance
(Hospital – Hospital)
- Intensive Care Transports (HICAMS*)
- Specialized equipment such as hoist
- Transport organs
- Day time or 24hrs operation
- VFR or IFR
- Non NVG or NVG



Operations - General

- HEMS as complementary to ground ambulance with operational integration
- Appropriate tasking of assets with Dispatch Center
- Well developed communications systems / networks and operational protocols
- Strong links (physical, formal and informal) between crew (operations and medical) and hospital(s)
- Continuous improvement across all areas of operations
- The need for thorough and rigorous audit of tasking and skills application
- Familiarization of medical professionals at receiving hospitals, as well as dispatching hospitals, fire brigade and police of the capabilities and limitations of aircraft

Zoom HEMS Europe – Number of helicopters (2015)



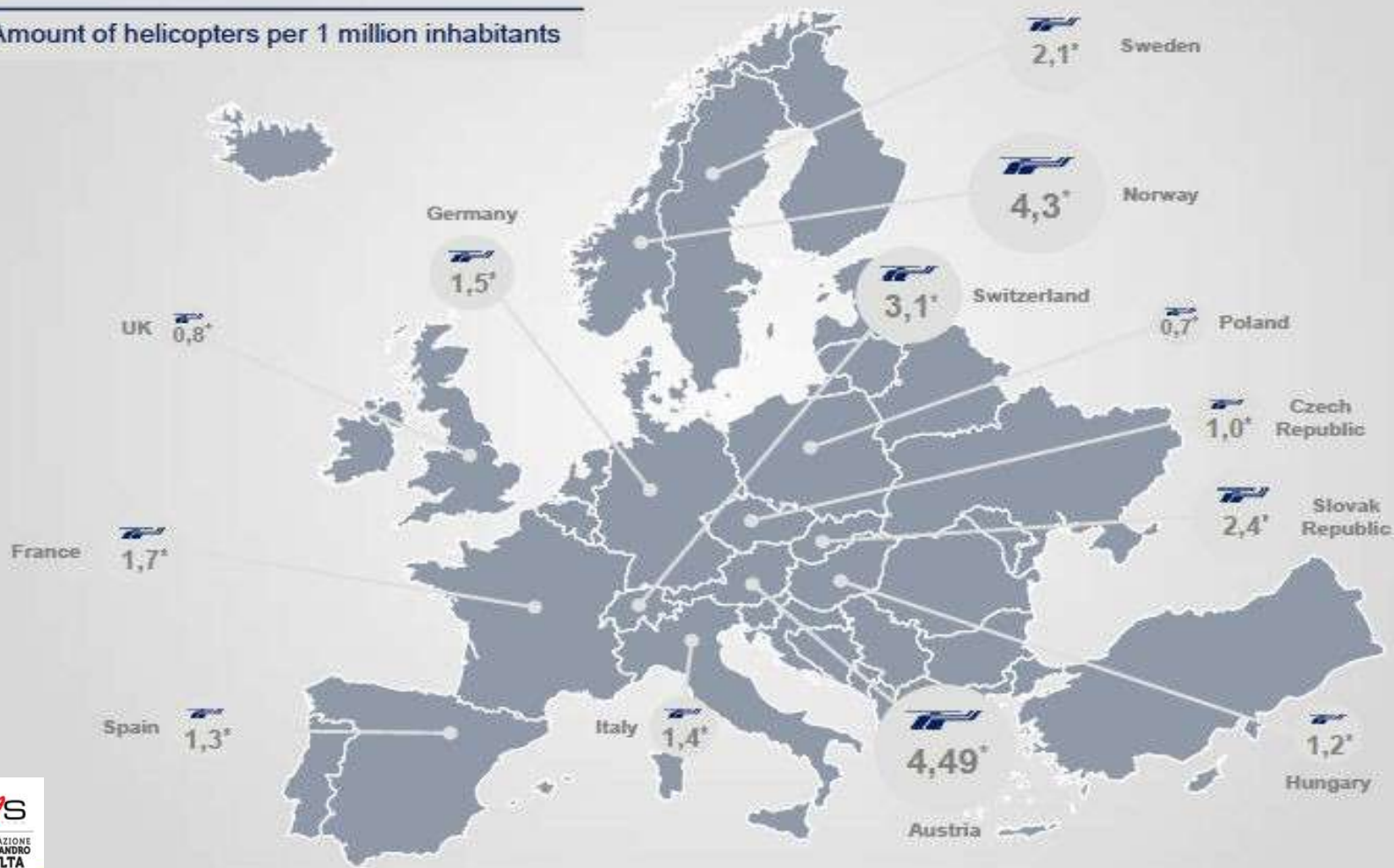
Airbus Helicopters
Bell
Agusta Westland
MD Helicopters

Sikorsky
Russian Helicopters
Others



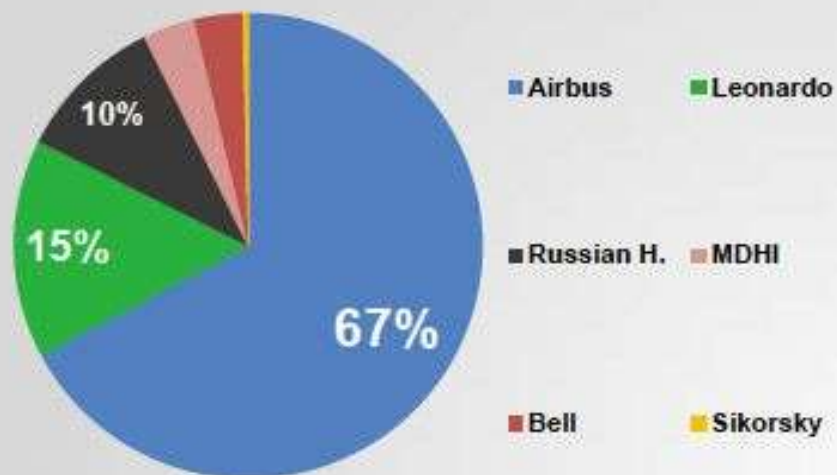
HEMS EUROPE — Fleet Equipment Rate

*Amount of helicopters per 1 million inhabitants

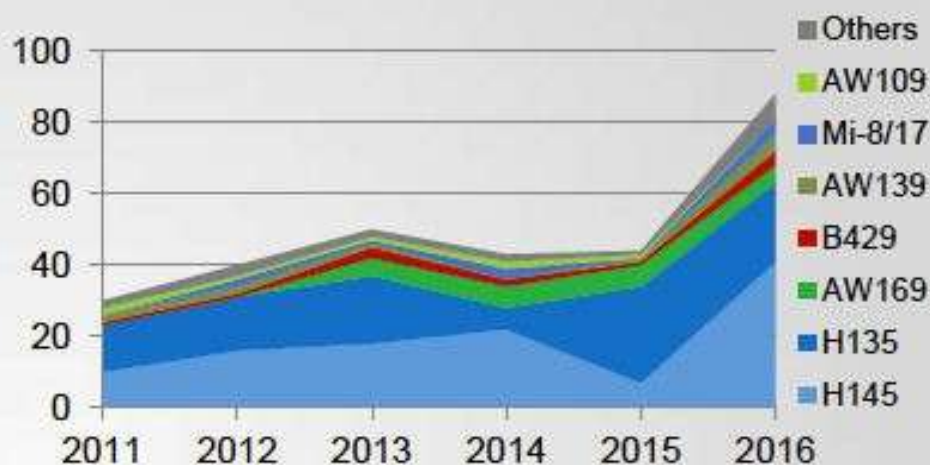


HEMS Europe – Key Data end 2016 = ~800 h/c

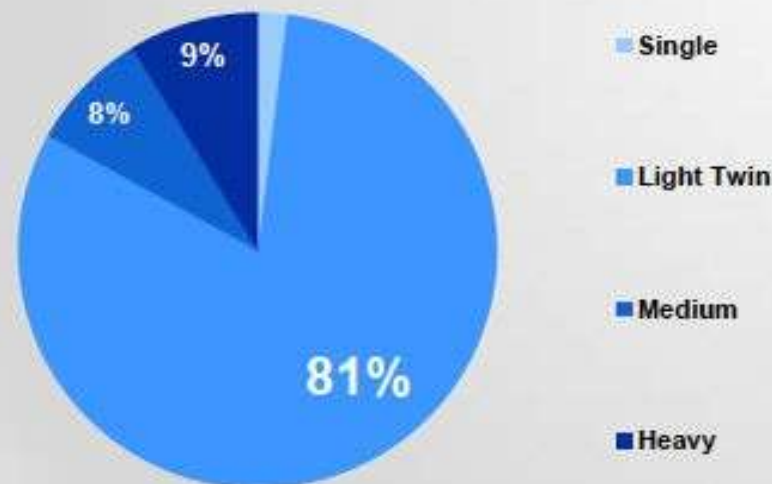
Source: Internal, EVM



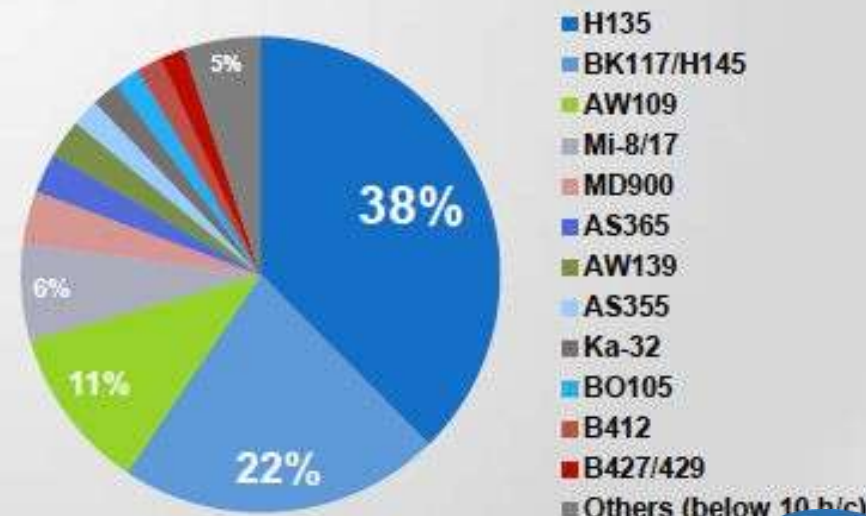
HEMS fleet in Europe



Bookings by type



Fleet share by class



Fleet share by type

Europe

The trend is at consolidating specialized medical centers

- Predictable increasing number of inter-hospital transfers
- Increasing needs for the best first placement of patients after the stabilization

EMS Philosophy

- **Scoop & Run** (*GTHTTH : Get The Hell To The Hospital*) : To bring as fast as possible the patient to the hospital, within the Golden Hour, which is...

...**The Golden Hour** : The first sixty minutes after the occurrence of a multi-system trauma.

- **Stay & Play** : To bring the hospital to the patient. A physician, member of the r/c crew, gives acute medicine care to the patient on the accident site, before transporting him to the hospital or not.



- **Play & Run** : A mix of both previous ones : to stabilize the patient then to treat him as much as possible while transporting him to the hospital.

Two main approaches in providing primary care

Svizzera - REGA

Established 27 April 1952;

Born with the philosophy of bringing medical care directly at the point of 'event';

Year 2016: 3,283,000 Supporting members;

REGA Center Zurich Emergency Number 1414

Interventi primari e secondari (pazienti)

2011 (2010) e differenza risp. al 2010

9'278 (8'778) 5.7%

Incidenti sport invernali 1'615 (1'518) 6.4%

Incidenti stradali 1'000 (920) 8.7%

Infortunati sul lavoro 954 (923) 3.4%

Infortunati in montagna
770 (729) 5.6%

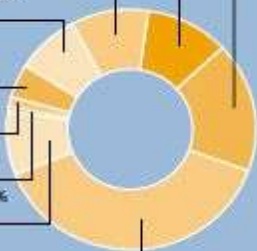
Infortunati sport 409 (351) 16.5%

Incidenti aerei 133 (109) 22.0%

Incidenti valanghe 27 (78) -65.4%

Altri 794 (797) -0.4%

Malattie 3'576 (3'353) 6.7%



Le cifre del 2015

Numero missioni organizzate

con elicotteri

15'053

con aeroplani

11'188

altri interventi

1'167

2'700



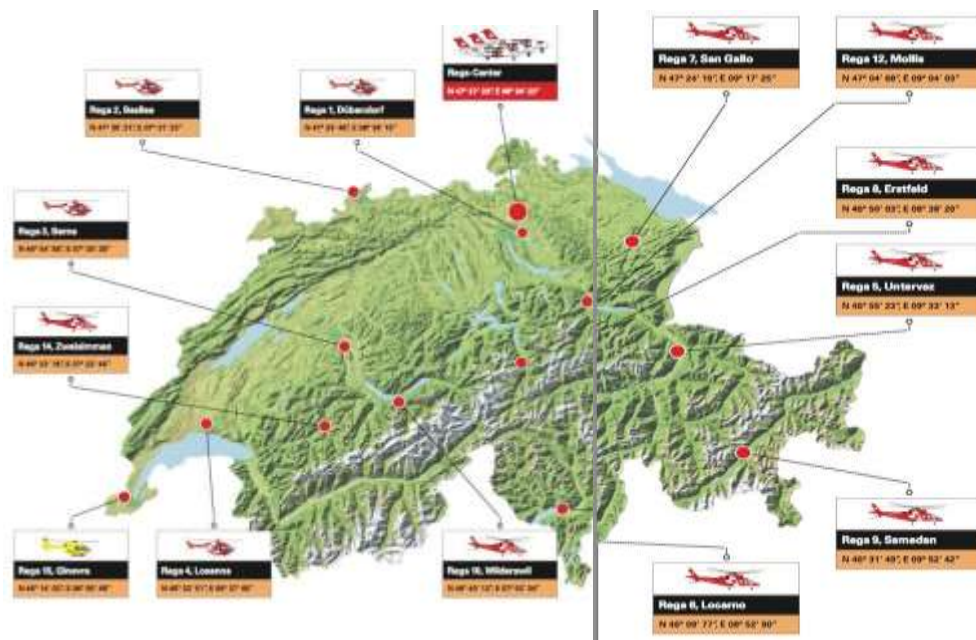
Svizzera - REGA



N 12 Bases HEMS / SAR with the addition of the base in Geneva
Partner;

N 6 Airbus H145 - N 11 AW DaVinci

Please Jet owned (Challenger CL-604) repatriation flights of Swiss citizens

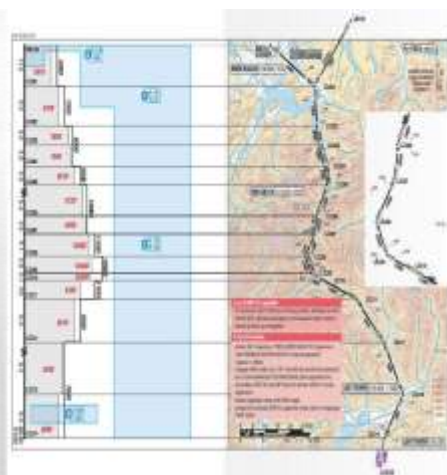
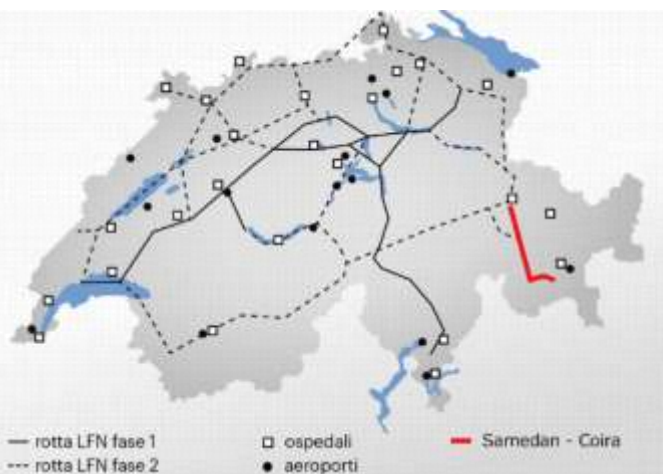


Svizzera - REGA

Icebird Project - Since 2021 N 3 AW 169 - FIPS (Full Ice Protection System);

Since 2018 N 3 New Challenger 650 Jet

Development Routes PBN flight corridors defined to follow through satellite navigation





HEMS France

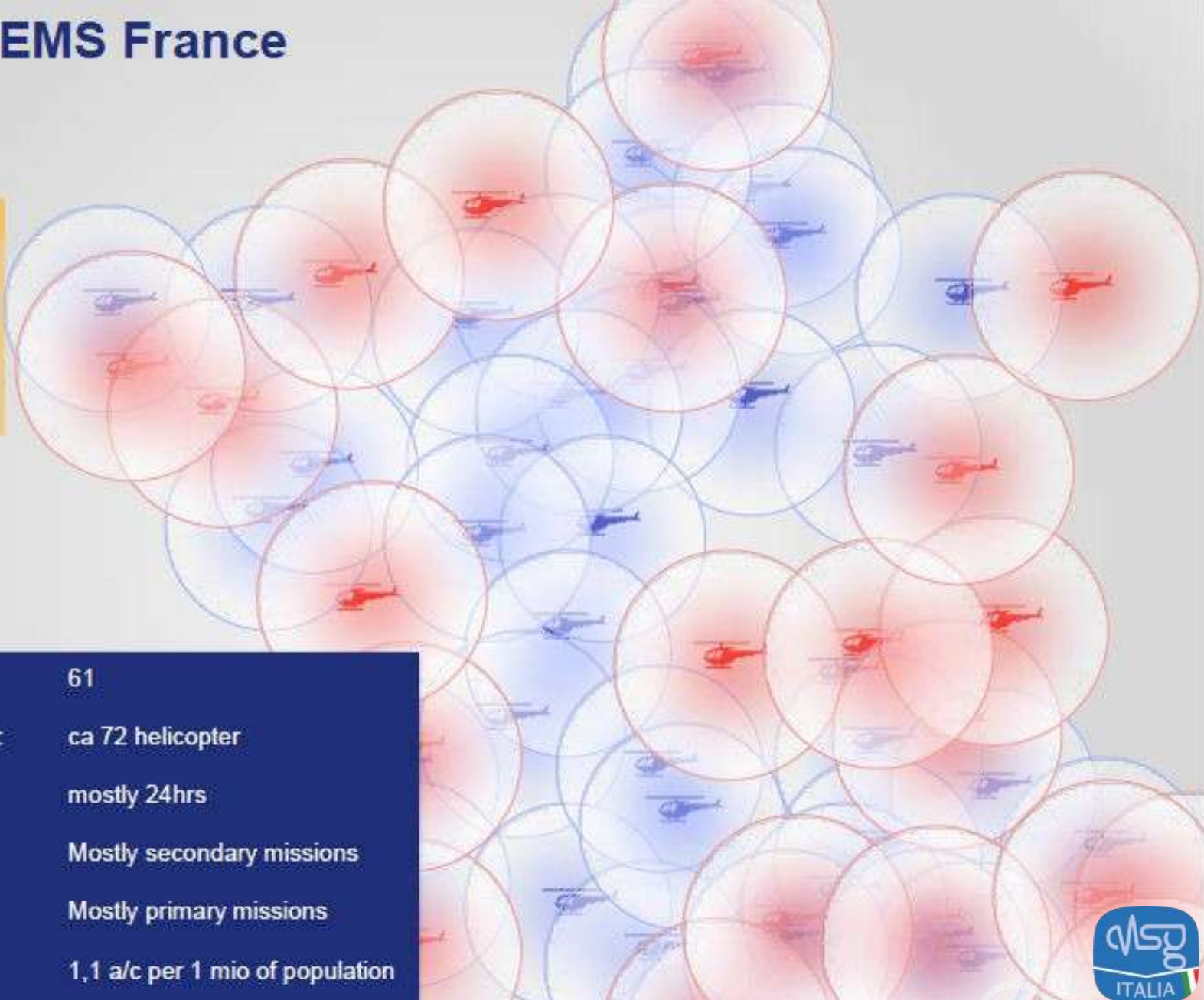
- The first rescue missions are carried out by the gendarmerie and civil Sécurité
- In 1965 he born the SMUR at hospitals and by the late 80s the SAMU with annexed helicopter rescue services
- First MEDEVAC helicopter to Toulouse on Alouette II
- The Operations Center can be reached at the number of Unique Emergency 112, however, the old emergency numbers (15) for the SAMU and (18) for the Sapeurs-pompiers are still in use



Zoom HEMS France

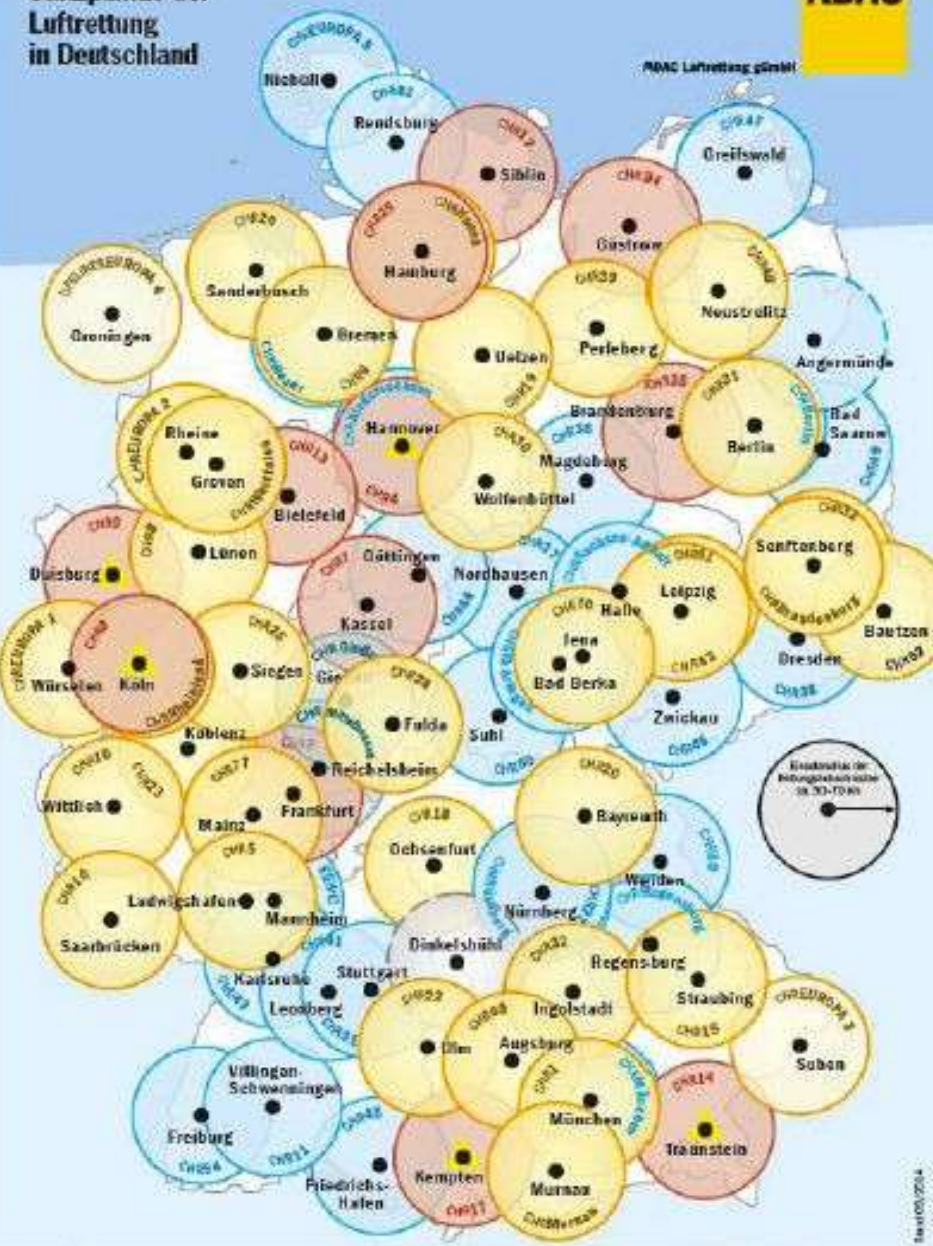
Radius of Action

-  H. Sécurité Civile
-  H. SAMU



- Bases: 61
- Total HEMS Fleet: ca 72 helicopter
- Operation: mostly 24hrs
- SAMU : Mostly secondary missions
- Sécurité Civile: Mostly primary missions
- Density: 1,1 a/c per 1 mio of population





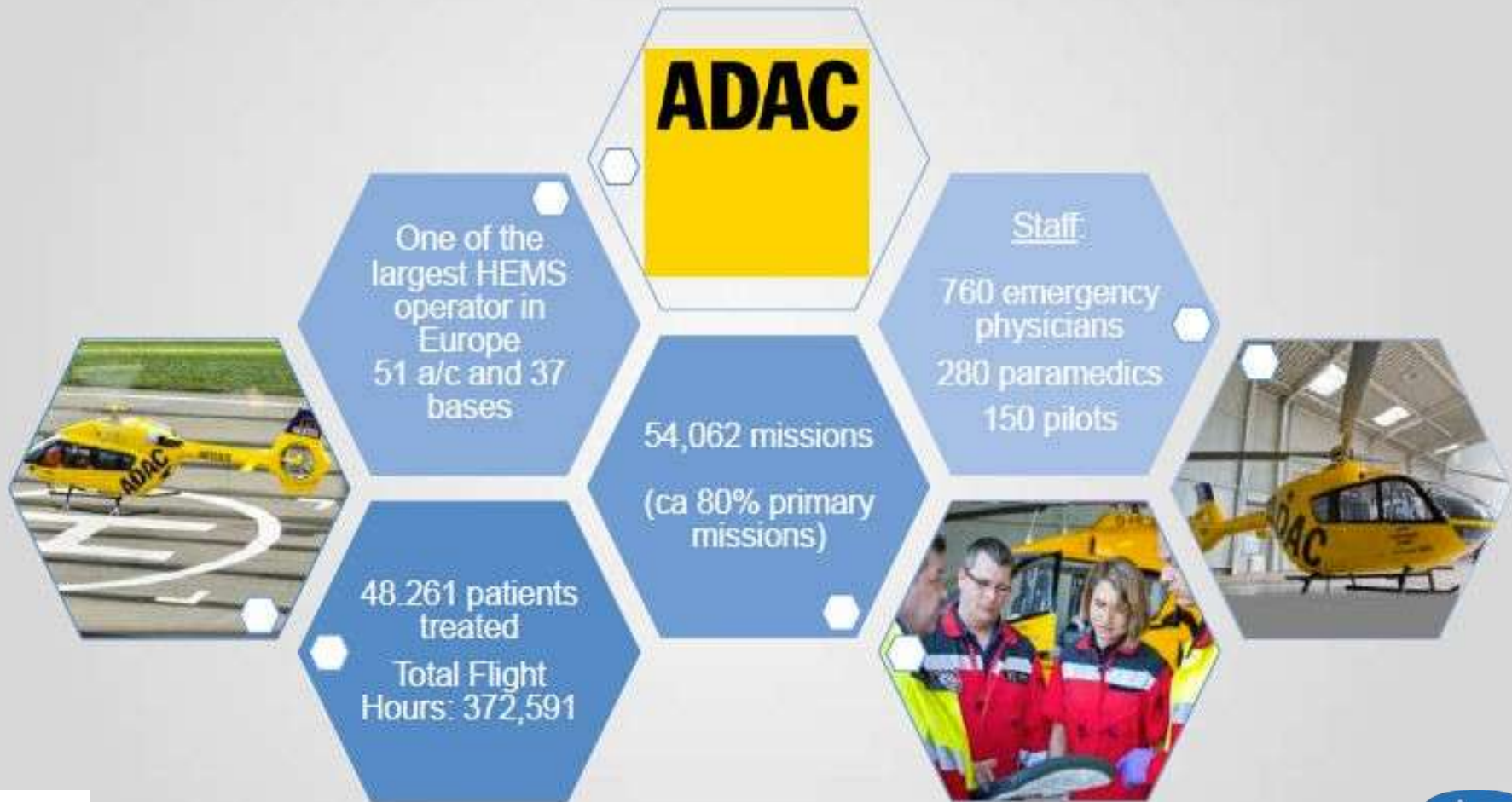
- Bases: 78
 - Total HEMS Fleet: ca120 a/c
 - Fleet Share: AH: 100%
 - Primary Missions: 0700 – Sunset (some 24hrs)
Secondary / Intensive Care Missions: 24 hrs
 - Annual missions: Ca 105.000
 - Annual Patients: Ca 100.000 treated
Ca 35% transported
 - Crew, technician, admin staff: 3.000
- Transport doctor <12-15mins to scene for emergencies!**



Der Rahmen der Rettungsstellenstruktur wird durch die ADAC Luftrettung (ADAC) definiert und wird durch die ADAC Luftrettung (ADAC) definiert und wird durch die ADAC Luftrettung (ADAC) definiert.

25. März 2017

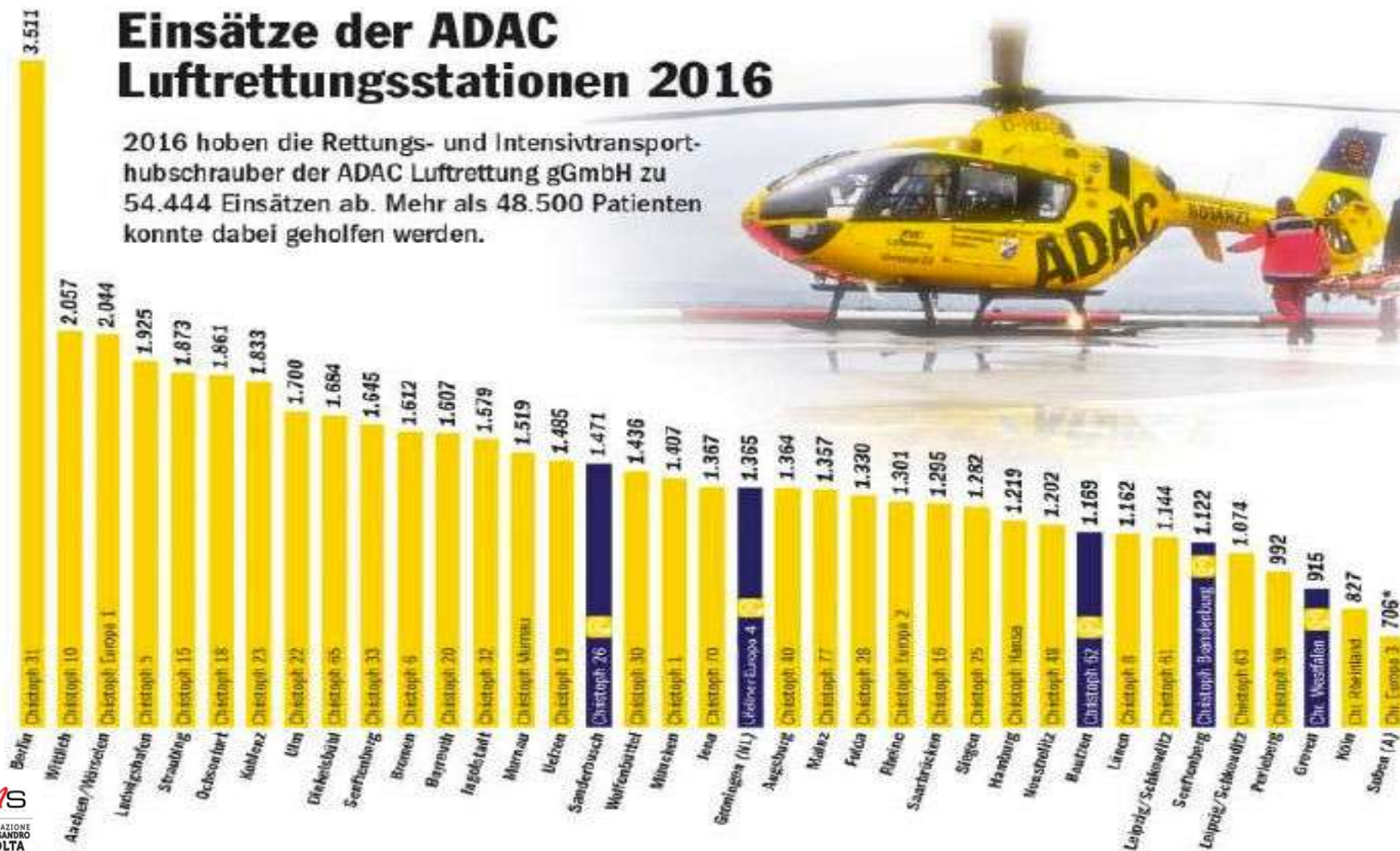
Zoom HEMS Key Customer – ADAC Luftrettung gGmbH



HEMS Germany

Einsätze der ADAC Luftrettungsstationen 2016

2016 hoben die Rettungs- und Intensivtransport-hubschrauber der ADAC Luftrettung gGmbH zu 54.444 Einsätzen ab. Mehr als 48.500 Patienten konnte dabei geholfen werden.



HEMS Spain



- Only **two regions** (i.e. **6 r/c**) have settled a 24-hour-basis service, among which the Canaries.

HEMS Spain

	Spain		Spain
Number	35	Missions per year	
Location	Hospital 30% / Airport 40% / Fire Stations 30%	Primary Missions	50%
Average cost (daylight, per r/c)	euro 900,000	Secondary Missions	50%
Population covered	85%	Average number of missions per r/c	
		Average cost per Mission	

	Spain
EMS Philosophy	Stay & Play
Typical Crew	1 pilot 1 flight attendant 1 physician 1 nurse
Physician origin	Public EMS
Paramedic origin	Public EMS
Pilot Origin	Operator

- HEMS operators are also responsible for **SAR** missions



HEMS Spain

3 civil & several parapublic operators ; 35 r/c

	EC 135	A 109	B 412	B 222	AS 365	Total
Grupo INAER (Helisureste, Heli-Europa, Heli-air, Tavasas, Transportes Aéreos del Sur)	8	8	1	-	3	20
TAF Helicopteros	4	-	-	-	-	4
Coyotair	3	-	-	-	-	3
Regional Governments	-	3	2	3	-	8
<u>Total Spain</u>	15	11	3	3	3	35

HEMS Austria - ÖAMTC



- The Service is born with Police helicopters;
- 1983 active ÖAMTC a helicopter rescue service and in 2001 became the only entity air rescue;
- Rescue requests come to the operating center 112 – Nothilfe 120
- Each Bases HEMS runs from 7 to 10 missions a day – 18 254 missions 2015
- Primary Missions 79%
- Presence of Crew Member HEMS



HEMS Austria - ÖAMTC

- ▶ Christophorus 1 - Innsbruck
- ▶ Christophorus 2 - Krems
- ▶ Christophorus 3 - Wr. Neustadt
- ▶ Christophorus 4 - Reith/Kitzbühel
- ▶ Christophorus 5 - Zams
- ▶ Christophorus 6 - Salzburg
- ▶ Christophorus 7 - Nikolsdorf
- ▶ Christophorus 8 - Nenzing
- ▶ Christophorus 9 - Wien-Aspern
- ▶ Christophorus 10 - Linz-Hörsching
- ▶ Christophorus 11 - Klagenfurt
- ▶ Christophorus 12 - Feldkirchen
- ▶ Christophorus 14 - Niederöblarn
- ▶ Christophorus 15 - Ybbsitz
- ▶ Christophorus 16 - Oberwart
- ▶ Christophorus Europa 3 - Suben
- ▶ ITH - Wr. Neustadt



HEMS UK

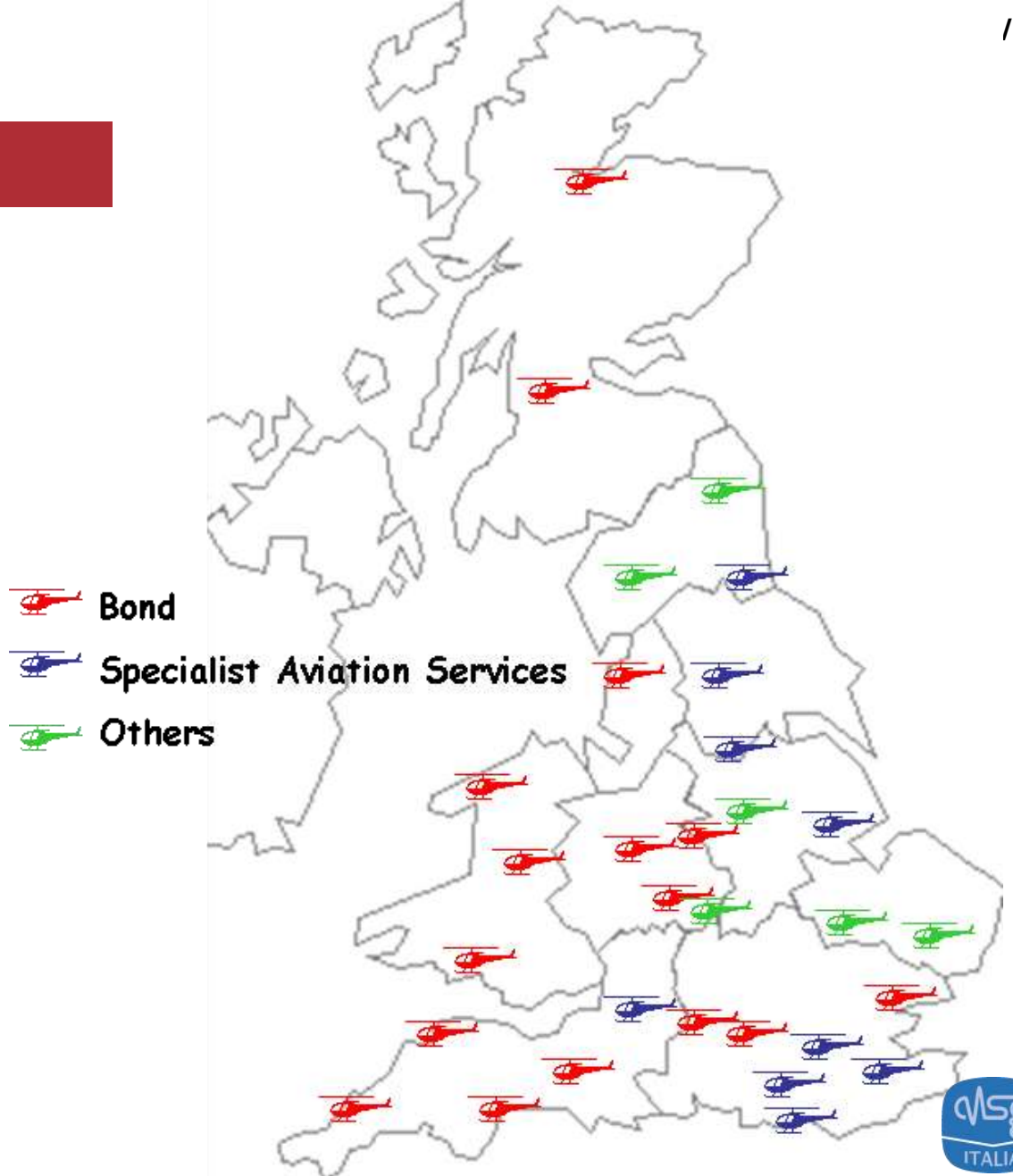
Only civil operators for HEMS in the U.K.

Daylight bases except in Scotland

Vast majority of bases are located at airports except in London

Population covered 80%

70 Missions HEMS a Day



HEMS UK

	EC 135	MD 902	BO 105	BK 117	A 109	SA 365	Total
Bond	10		4				14
Specialist Aviation Services		9					9
Sloane Helicopters					2		2
Sterling Helicopters				2			2
PDG Helicopters			1			1	2
Gama Aviation	2						2
<u>Total U.K.</u>	12	9	5	2	2	1	31

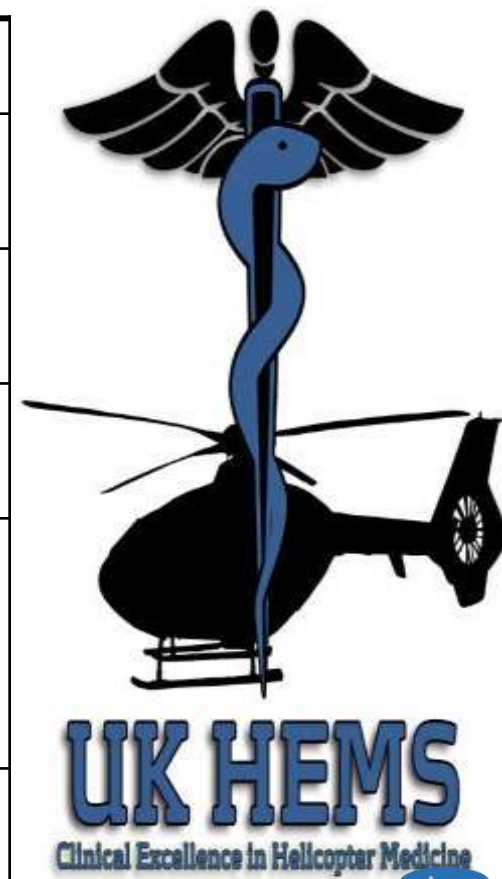
HEMS UK

- 2 main civil operators ; no parapublic operator.
- **21 community-based charterers** among which **18 independent charities** raise funds through social events, legacies, donations.
- 2 parapublic charterers (Police) who also perform HEMS operations, financed by charitable fund-raising.
- 1 public charterer in Scotland, **wholly government-funded**, which can afford a 24-hour-basis service.
- The vast majority are **primary** missions, except for the Scottish Air Ambulance.
- The number of missions flown per year and the daily flown hours by each r/c **depend on the funds available** : from 400 (Sussex AA) to more than 1,500 (London AA, Scottish AA, WNAA).

HEMS UK

	U.K.
EMS Philosophy	Scoop & Run
Typical Crew	1 pilot 2 paramedics
Physician origin	-
Paramedic origin	Public EMS
Pilot Origin	Operator

	U.K.
Missions per year	25,000
Primary Missions	97%
Secondary Missions	3%
Average number of missions per r/c	806
Average cost per Mission	£1,229



HEMS Norway

Majority of bases located along the seaside

All provide round-the-clock operations




Norwegian Air Forces' Sea Kings all have a physician aboard

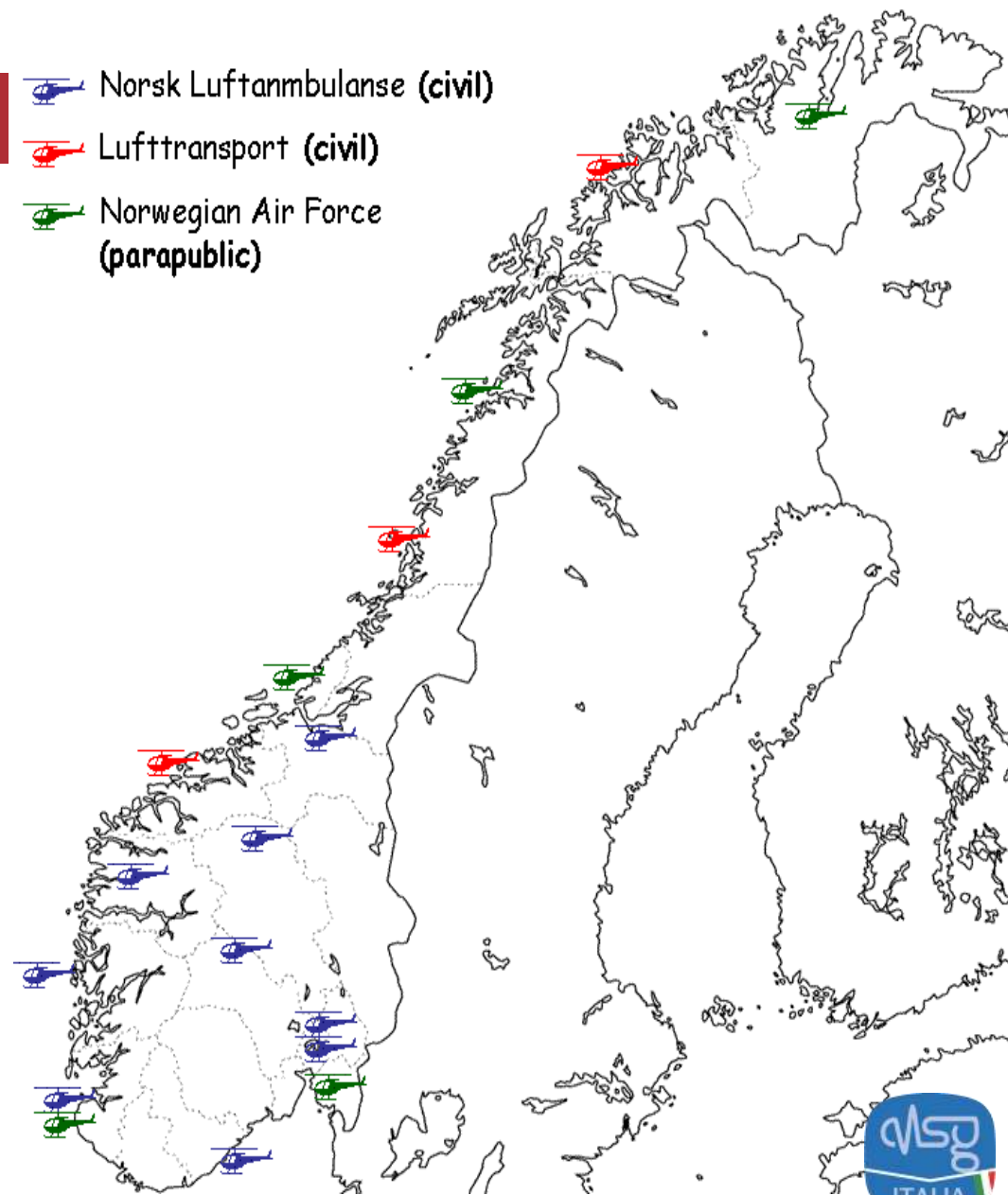
Thin frontier between HEMS & SAR

16 Permanent Bases

Location Bases 75% to Hospital

National Air Ambulance Services

-  Norsk Luftambulans (civil)
-  Lufttransport (civil)
-  Norwegian Air Force (parapublic)



HEMS Norway

Missions per Year: 10.000

	EC 135	AS 365	MK 43 B	EC 145	Total
Norsk Luftambulans	8	-	-	1	9
Lufttransport	-	3	-	-	3
Norwegian Air Force	-	-	4	-	4
Total	8	3	4	1	16

Average number of missions per r/c: 625

EMS Philosophy: Play & Run

HEMSCrew Member Training: Yes

Typical Crew:

1 pilot
1 physician
1 paramedic



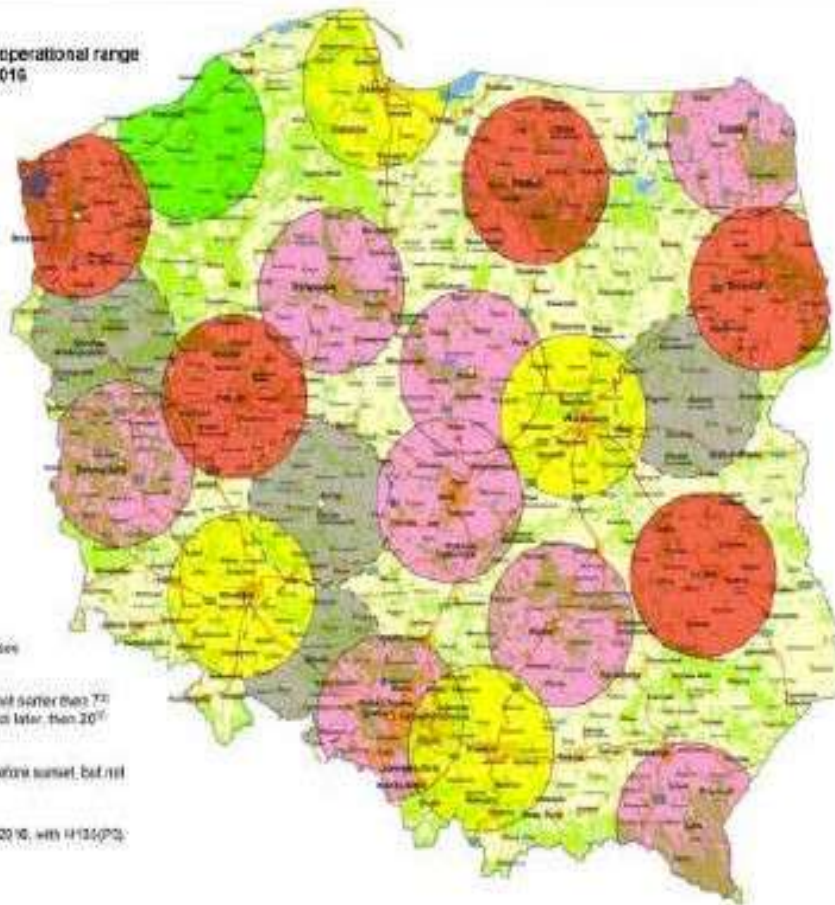
FONDAZIONE
ALESSANDRO
VOLTA



HEMS Poland — Polish Air Rescue



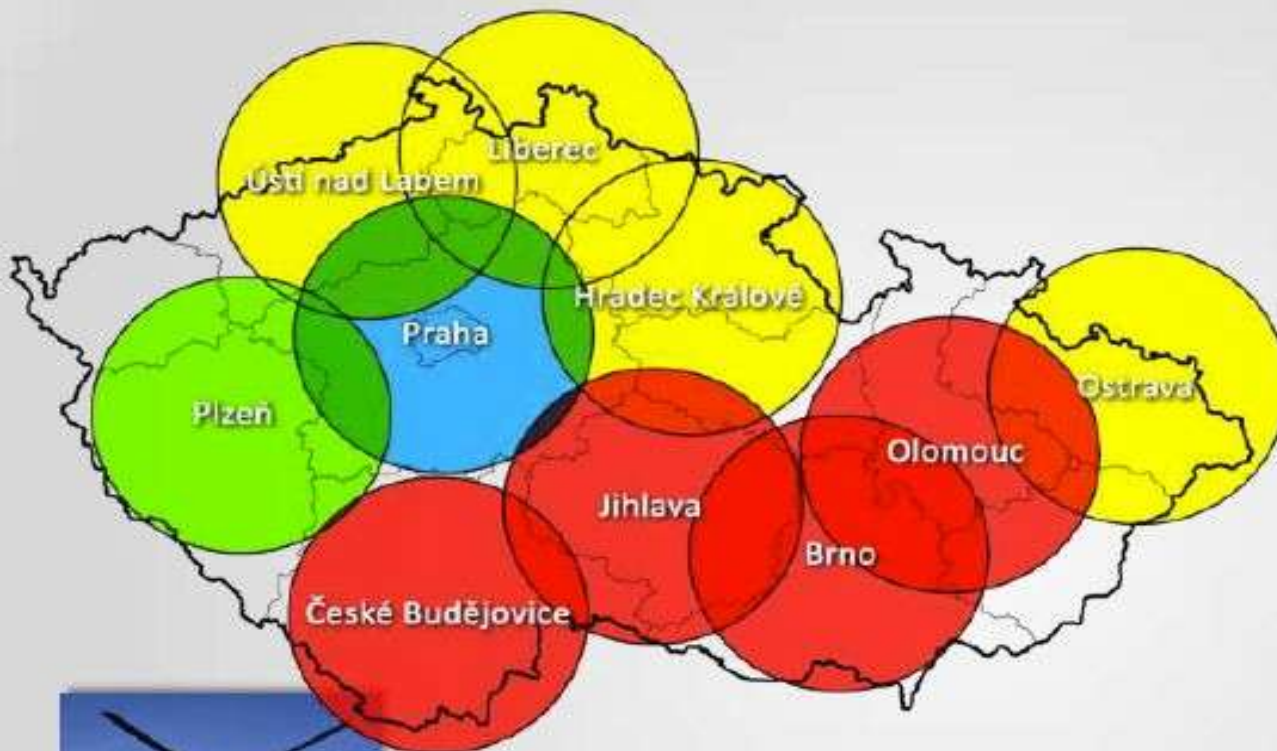
HEMS bases 60 km operational range and shifts time on 2016



- Bases: 23
- HEMS Fleet: 27
- Fleet Share: AH: 100%
- Operation: Pilot, Paramedic/Nurse Physician
- Missions: Primary (70%) & Secondary (30%)
- Total missions: >10.000 per year
- Funding: Government



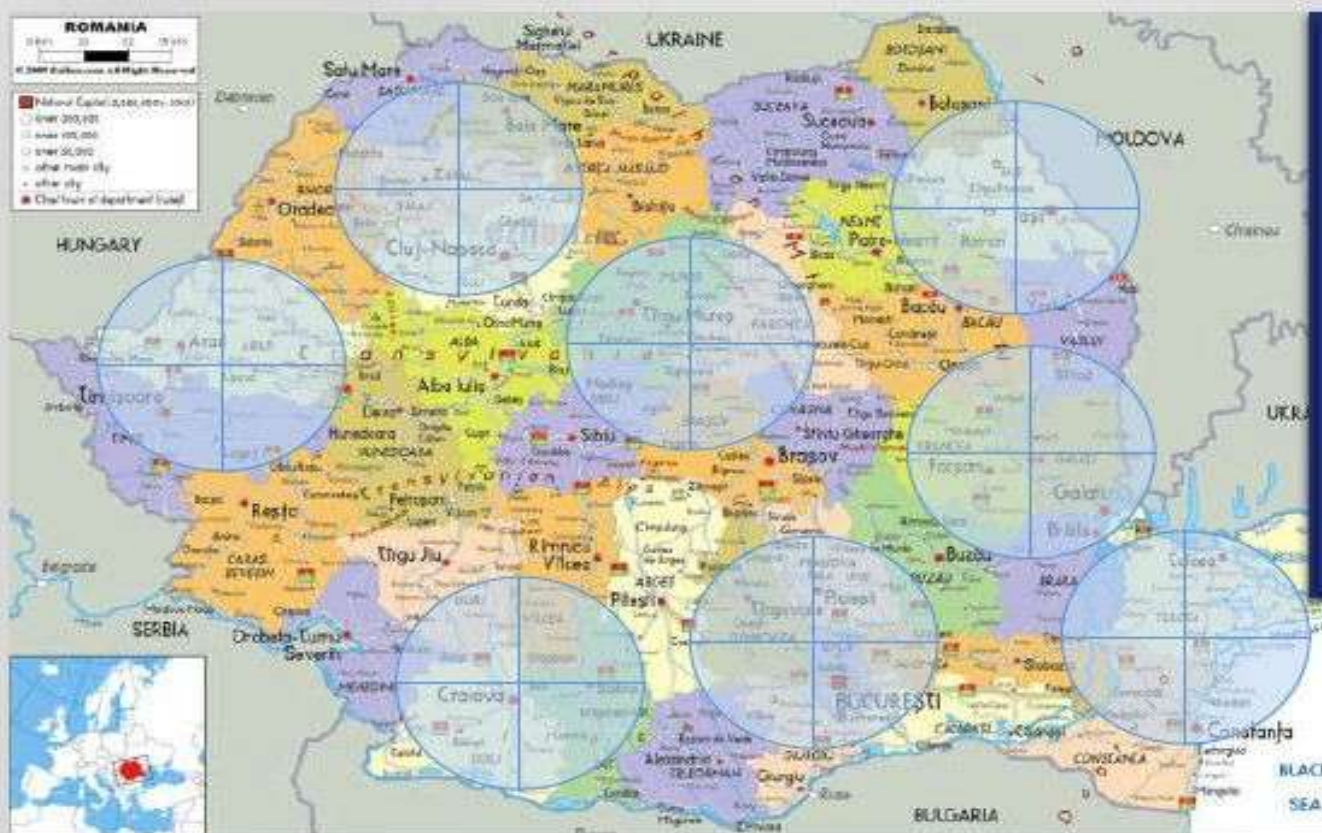
HEMS Czech Republic



- Bases: 10
- HEMS Fleet: 13
- Fleet Share: 70% H135,
- Operation: Pilot, Paramedic, Physician
- Missions: Primary & Secondary
- Total Missions: >6.000
- Funding: Government



HEMS Roumania – SMURD



- Bases: 8
- HEMS Fleet: 10
- Fleet Share: 100% H135
- Operation: 2 Pilots, 1 doctor, 1 med assist.
- Missions: Primary, Secondary, Rescue
- Operation: 24hrs with NVG
- Funding: Government



Grazie per l'attenzione



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