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Agenda

Differences between the Ebola and SARS-COV-2

Virus leading to a different bio security approach

- **Transmission & Symptoms**
- **Applied Crew and Passenger Safety during COVID**
- **Epidemiology and Surveillance**
- **Situational Awareness during the Ebola Outbreak compared to the COVID-19 Pandemic**

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Different Viruses Explained



The Ebola Virus

- ▶ Ebola virus disease (EVD) is a severe, often fatal illness, with a case fatality rate between 50%-90%. It is one of the world's most virulent diseases with a relatively short incubation time between 2-21 days with an average of 8-10 days after infection
- ▶ The infection is transmitted by direct contact with the blood, body fluids and tissues of infected animals or people. Severely ill patients require intensive supportive care.
- ▶ During an outbreak, those at higher risk of infection are health workers, family members and others in close contact with sick people and deceased patients.
- ▶ Ebola outbreaks can devastate families and communities, but the infection can be controlled through the use of recommended protective measures in clinics and hospitals, at community gatherings, or at home.
- ▶ An infected person is only infectious once the individual has developed symptoms

The SARS-COV-2 Virus

- ▶ The SARS-COV-2 virus is an acute severe respiratory syndrome with a relatively low fatality rate (4.1%) compared to Ebola. In the largest Ebola outbreak in West Africa, there were 28,616 cases of Ebola virus disease and 11,310 deaths, for a death rate of 39.5% (low compared to historic death rates for Ebola Zaire). If we only had 28,616 cases of COVID-19, at the current death rate of 4.1%, that would translate to 1,173 deaths.
- ▶ The main difference in the transmission between Ebola and COVID-19 is that the Ebola virus can only be transferred from one person to another through close contact with bodily fluids and secrets whilst the SARS-CoV-2 Virus is based on an airborne transmission through contaminated aerosols.
- ▶ SARS-CoV-2 is also spread through infected individuals who do not develop any symptoms unlike Ebola infection which is always symptomatic except for the Retcon Ebola Variant. Patients are only infectious once they have developed the dry respectively wet symptoms.

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Transmission of Ebola



- ▶ Ebola is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals. In Africa, infection has been documented through the handling of infected chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead or in the rainforest.
- ▶ Ebola then spreads in the community through human-to-human transmission, with infection resulting from direct contact (through broken skin or mucous membranes) with the blood, secretions, organs or other bodily fluids of infected people, and indirect contact with environments contaminated with such fluids.
- ▶ Burial ceremonies in which mourners have direct contact with the body of the deceased person can also play a role in the transmission of Ebola. Men who have recovered from the disease can still transmit the virus through their semen for up to 7 weeks after recovery from illness.

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Transmission of SARS-CoV-2



- ▶ SARS-CoV-2 is transmitted **by exposure to infectious respiratory fluids**. The principal mode by which people are infected with SARS-CoV-2 (the virus that causes COVID-19) is through exposure to respiratory fluids carrying infectious virus.
- ▶ People may also become infected by touching surfaces that have been contaminated by the virus when touching their eyes, nose or mouth without cleaning their hands.
- ▶ The size of the SARS-CoV-2 of 100 Nanometer (0.1um) or 1 Micron thus only the FFP2 and FFP3 mask are effective in protecting individuals.

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Ebola Crew Security & Passenger Safety



All SAS crew are to wear protective gear whilst flying in high risk Ebola regions, to ensure maximum safety

The B1900 that is used in the Ebola region is equipped with a cockpit door which prevents any complications to safety and efficiency of the flight



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Ebola Crew Security & Passenger Safety



SAS crew disinfect aircraft prior boarding before every departure for a safe health environment

Passenger screening is mandatory for all passengers prior boarding SAS aircraft. Unmanned airfields will be accompanied by an SAS team member to do the screening process in order to ensure optimum passenger safety. The screening consisted of temperature control and visual inspection



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Migration in the Response from Ebola outbreak to the COVID 19 Pandemic



In contrast to the Ebola Outbreak during the Covid-19 Pandemic Sahel Aviation Service has identified the need to test each passenger before the flight by the use of COVID-19 Rapid tests conducted in a controlled manner at a designated area at the airport as fully described in P-854-004 and FD-854-001. The COVID-19 Rapid test kits are fully approved by the South African Government and the World Health Organization.



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Handling of positive passengers

Passengers that have tested positive will be guided to Sahel Aviation Service's Corona Quarantine Shuttle, of which all seats are covered in plastic for easy disinfection. The driver of the shuttle is fully covered in a bio-hazard suite, boot covers, gloves, face mask (N95) and eye protection. Passengers will be transported to the medical facility in accordance with the requirements of the Department of Health and stipulated in P-854-004.



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Check-in and Customs

After each passenger has received their negative result with regards to the COVID-19 testing, passengers will be guided to the check-in counters, adhering to social distancing in accordance to FD-854-001 and P-854-004. Baggage will be disinfected before loading onto the aircraft commences.



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Boarding, Seating and En-route



Passengers will be required to sanitize their hands, use face masks and "cough protection" screen before boarding the aircraft. Seating will be done utilizing only the window seats.



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Arrival at destination



Upon arrival at the destination, passengers will disembark row for row from front to back, while still maintaining social distancing, and wearing face masks. Hands will be disinfected upon disembarking. Aircraft will be disinfected once all passengers have disembarked.

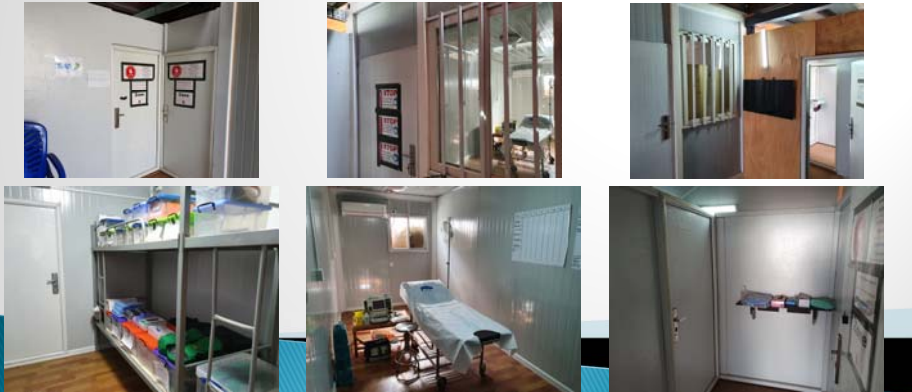


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Covid-19 Quarantine Facilities in Bamako



Sahel Aviation Service has set up a fully functional quarantine facility with an available ICU initial managed by the Bundeswehr Medical Team until Sahel Aviation Service has employed their own medical doctor in May 2020



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Quarantine Facilities in Bamako



Sahel Aviation Service has two quarantine sections available, Section A and Section B. This is to ensure that persons entering the quarantine at different times are kept separate for the full 14-days. Sahel Aviation Service also has a fully functional canteen which delivers food, under strict rules, to the quarantined persons three times a day.



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Epidemiology and Surveillance



Outbreak of the Ebola Virus

- ▶ The Ebola outbreak in West Africa was first reported in March, and has rapidly become the deadliest occurrence of the disease since its discovery in 1976.
- ▶ Up to 18 August 1,350 people had been reported as having died from the disease in four countries; Liberia 576, Guinea 396, Sierra Leone 374 and Nigeria four.
- ▶ Researchers from the New England Journal of Medicine have traced the outbreak to a two-year-old girl, who died on 6 December 2013 in Meliandou, a small village in south-eastern Guinea.
- ▶ In March hospital staff alerted Guinea's Ministry of Health and then the charity Medecins Sans Frontieres, (MSF).

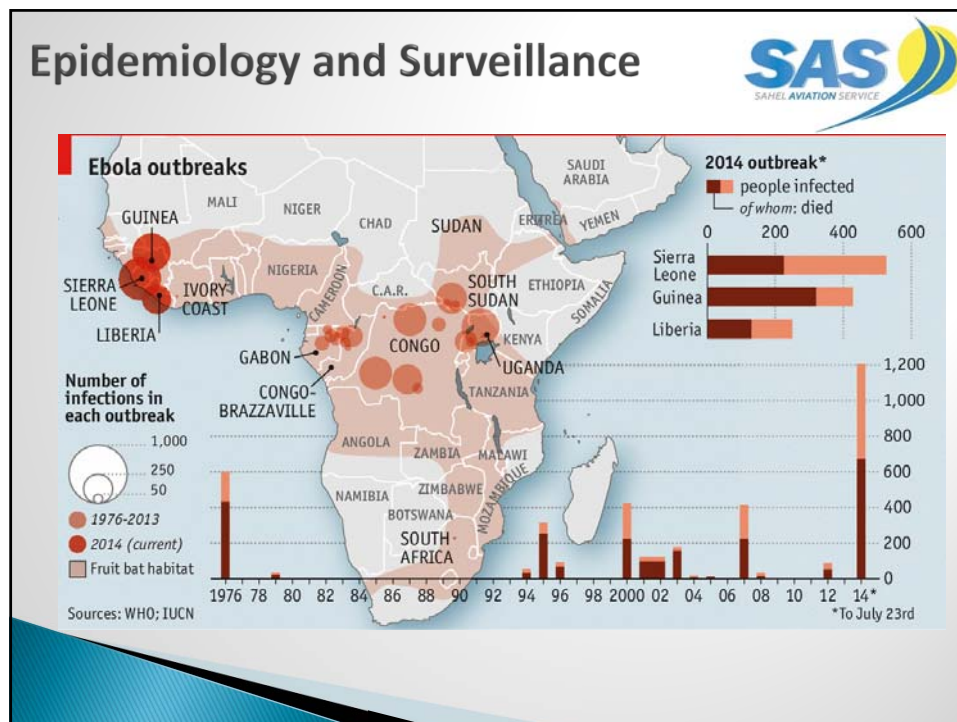
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Epidemiology and Surveillance

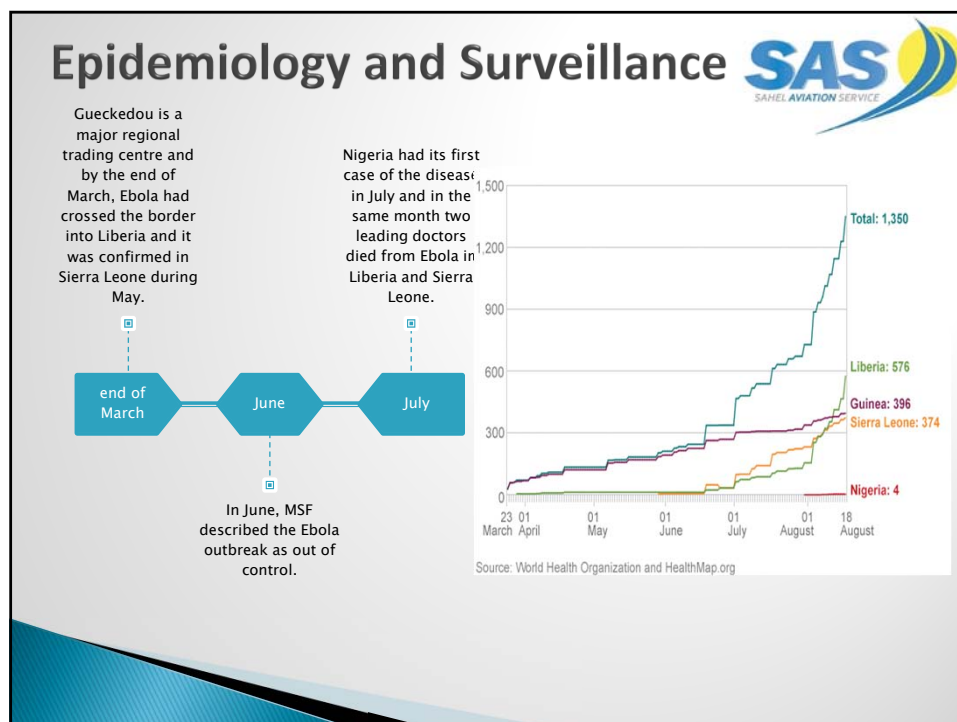


- ▶ They reported a mysterious disease in the south-eastern regions of Gueckedou, Macenta, Nzerekore, and Kissidougou. It caused fever, diarrhoea and vomiting. It also had a high death rate. Of the first 86 cases, 59 people died. The WHO later confirmed the disease as Ebola
- ▶ Laboratory findings include low white blood cell and platelet counts and elevated liver enzymes.
- ▶ People are infectious as long as their blood and secretions contain the virus. Ebola virus was isolated from semen 61 days after onset of illness in a man who was infected in a laboratory.
- ▶ The incubation period, that is, the time interval from infection with the virus to onset of symptoms, is 2 to 21 days.

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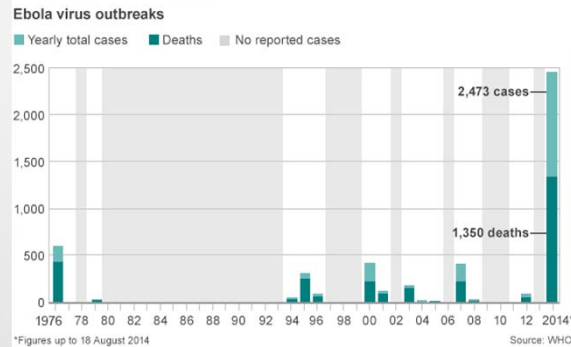


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2014 outbreak in context

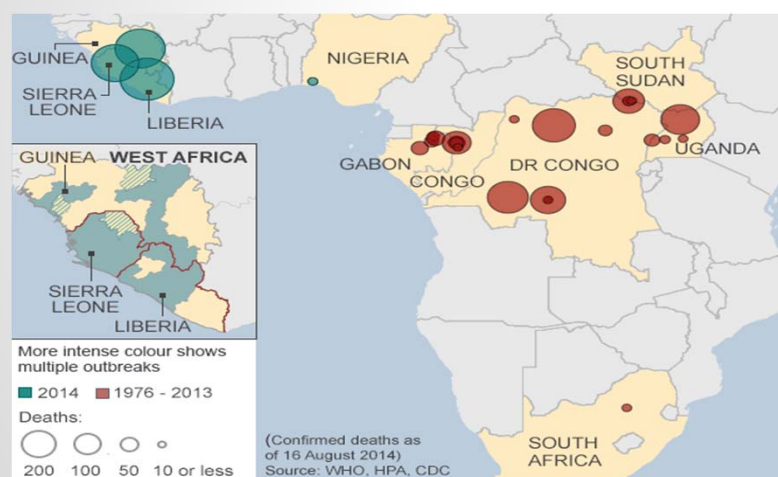


- ▶ Ebola occurs in regions of sub-Saharan Africa, though normally fewer than 500 cases occur each year.
- ▶ No cases at all were reported between 1979 and 1994. The 2014 outbreak dwarfs previous epidemics.



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2014 outbreak in context



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Current Situation of the Ebola Outbreak



- ▶ Between 19 and 20 August 2014, a total of 142 new cases of Ebola virus disease (laboratory-confirmed, probable, and suspect cases) as well as 77 deaths were reported from Guinea, Liberia, Nigeria, and Sierra Leone.
- ▶ Confirmed, probable, and suspect cases and deaths from Ebola virus disease in Guinea, Liberia, Nigeria, and Sierra Leone, as of 20 August 2014
- ▶ The total number of cases is subject to change due to ongoing reclassification, retrospective investigation, and availability of laboratory results. Data reported in the Disease Outbreak News are based on official information reported by Ministries of Health.

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Public Travel Information Ebola crisis 2014/2015



- ▶ "South Africa announced Thursday that all noncitizens travelling there from three of the virus- stricken countries will be turned away, and that South African citizens arriving from the "high-risk" countries of Guinea, Liberia and Sierra Leone will be subject to strict screening, including temperature checks."
- ▶ "Senegal has become the latest country to seal its border with Guinea to ward off the deadly Ebola virus, as the new UN pointsmen on the epidemic said preparations must be made for a possible flare-up of the disease."

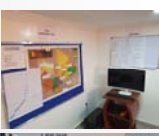


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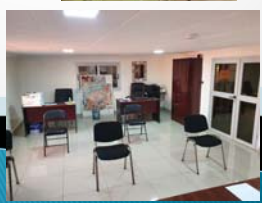
Lessons learnt and applied during Covid-19 Pandemic in Epidemiology and Surveillance



Sahel Aviation Service has set up a Corona Crisis Control Centre like it was done during the Ebola Outbreak in 2014/2015 to centralize the flow of all information with regards to the Corona Virus pandemic. Sahel Aviation Service has also created a 24-hour hotline, which can be contacted with any information or concerns. Sahel Aviation Service's Management meets daily to discuss, evaluate and carefully plan mitigation strategies to minimize the risk of its staff, clients and local population.



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Epidemiology and Surveillance during the COVID-19 Pandemic

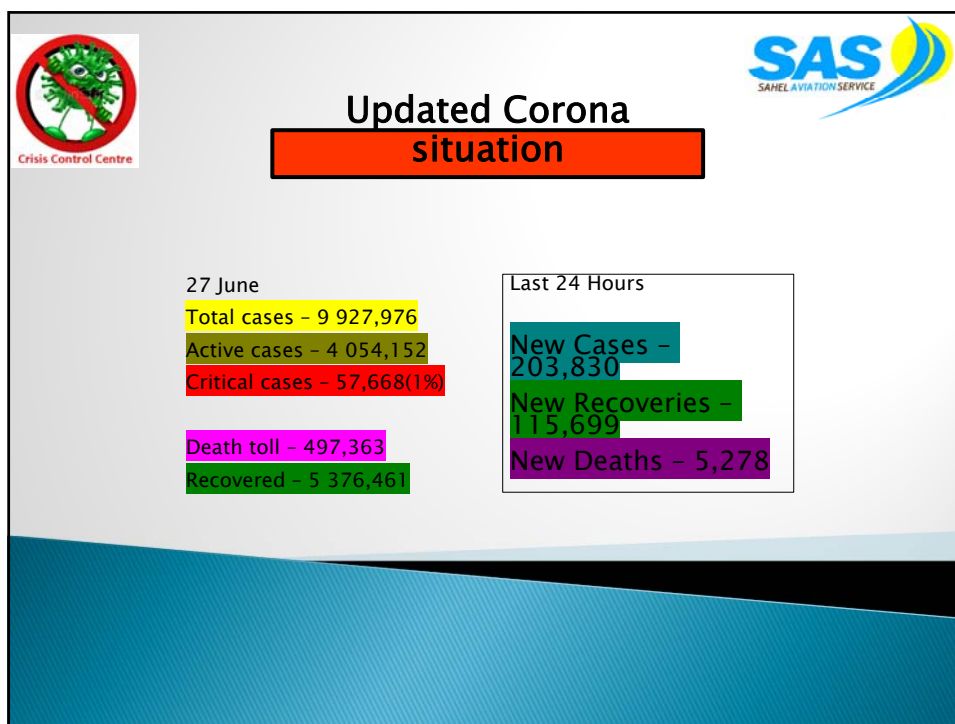


27 June

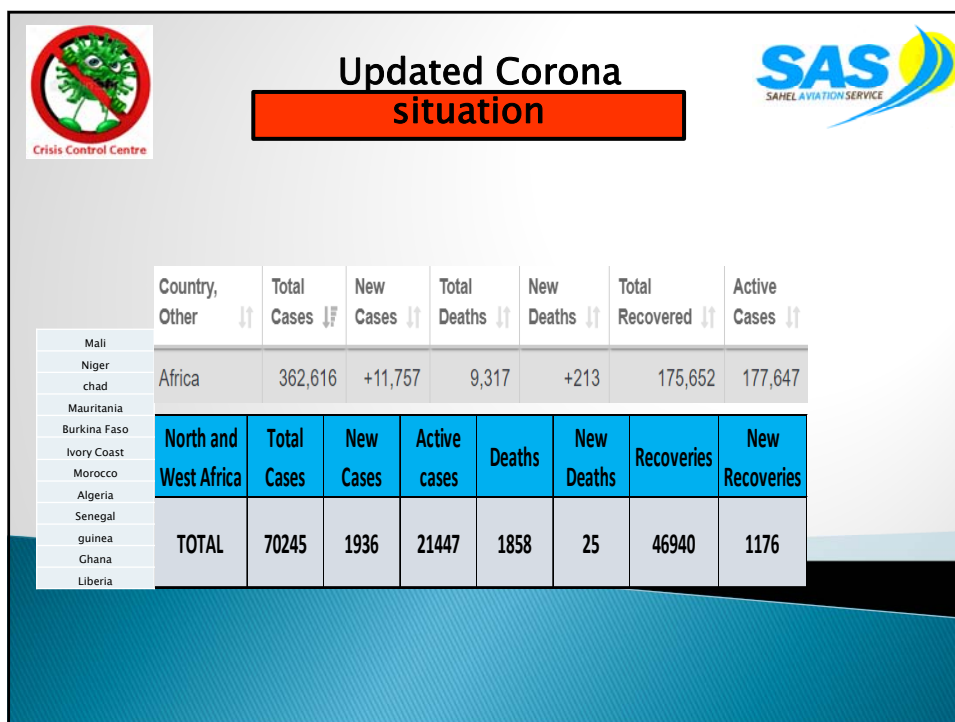
Coronavirus Crisis Control Centre

Mali Lockdown 18 March Days in Lockdown 101	South African Lockdown 26 March Days in Lockdown 93
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Updated Corona situation



Country	Total Cases	Active Cases	New Cases	Deaths	New Deaths	Recoveries	New Recoveries
Mali	2060	560	21	113	0	1387	4
Niger	1062	71	6	67	0	924	7
Chad	865	13	2	74	0	778	4
Mauritania	3907	2507	168	120	1	1280	55
Burkina Faso	941	58	7	53	0	830	4
Ivory Coast	8739	5088	405	64	4	3587	100

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Aircraft Status and seats for a potential Air Evacuation

27 June 2020 SAS Bamako Aircraft Status
2 X Aircraft flying today

	Registration	Seats	Fuel On board	Status	Notes
1	ZS-OKL	19	Mission ready fuel	Serviceable	
2	ZS-PEF	10	Fly today Ready for mission Fuel	Serviceable	
3	ZS-OHE	17	Mission ready Fuel	Serviceable	
4	TZ-PJN	17	Mission ready Fuel	Serviceable	Flying Today
5	TZ-NXX		Mission ready Fuel	Serviceable	
6	TZ-PJM	17	Mission ready Fuel	Serviceable	Flying Today, collecting spares in Accra
7	ZS-SAG		7400 LBS		Spares collected in Accra
8	UR-UZA	36	Mission ready Fuel	Serviceable	
9	V5-WEB	50	Parked with 7200Lbs	Serviceable	
10	V5-WEW	50	Parked with 7200Lbs	Serviceable	
11	UR-UZC	Freight	Mission ready Fuel	Serviceable	
12	ZS-FRA	17			4 blade props back. Final work pack to be completed and submitted.
13	ZS-PWY	17	Mission Ready Fuel	In maintenance	Ready for SA departure
	Total Seats	257			

27 June 2020 Other Bases Aircraft Status
2x Aircraft Flying Today

Ivory Coast:

TZ-PJL			Serviceable	
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Mauritania:

ZS-OLW			Serviceable	
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Military Side Niamey Niger: DYNAMI AVIATION

ZS-OMC			Serviceable	
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Civilian side Niamey Niger:

ZS-TIL			Serviceable	
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Chad: DYNAMI AVIATION

ZS-SGH			Serviceable	
ZS-ONX			Serviceable	Flying Today

Burkina Faso: DYNAMI AVIATION

ZS-NAC			Serviceable	Flying Today
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Security





VILLAGE ATTACK
 2/ ON 24 JUN/ DOUENTZA/ UAM ATTACKED KOIRA BERI VILLAGE (25 KM W OF DOUENTZA). THE SELF-DEFENCE GROUP OF THE VILLAGE RESPONDED. NO CASUALTIES WERE REPORTED.

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Security






RAE ACTIVITY
 3/ ON 25 JUN/ DOUENTZA/ PRESUMED RAE ON SEVERAL MOTORCYCLES REPORTEDLY CAME TO THE WEEKLY MARKED OF N'GOUMA. THE ELEMENTS REPORTEDLY CAME TO RESUPPLY AND DID NOT CARRY OUT ANY ACT OF VIOLENCE ON THE POPULATION.
 IN MAY THE RAE CAME AT MANY TIMES TO THIS MARKET AND THE THREATENED POPULATION AND ESPECIALLY WOMEN TO WEAR BLACK CLOTHINGS TO GET TO THE MARKET.

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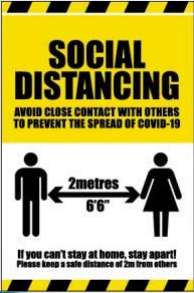
SOAP AND WATER
KEY INGREDIENTS TO SLOW
THE SPREAD OF COVID-19

Wash your hands regularly for 20 seconds, with soap and water or alcohol-based hand rub



PLEASE STAY HOME!

Stay home and self-isolate from others in the household if you feel unwell



SOCIAL DISTANCING
AVOID CLOSE CONTACT WITH OTHERS
TO PREVENT THE SPREAD OF COVID-19

2 metres
6'6"

If you can't stay at home, stay apart!
Please keep a safe distance of 2m from others

Do not Touch your face



COVER YOUR MOUTH & NOSE



Cover your nose and mouth with a disposable **tissue** or flexed elbow when you cough or sneeze

Avoid close contact (1 meter or 6 feet) with people who are unwell

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Disinfection team as a result from a insufficient response during the Ebola out break



Sahel Aviation Service has established a trained disinfection team to disinfect aircraft, baggage, personnel and to dispose of used PPE in accordance with P-854-001. Sahel Aviation Service has acquired sufficient Face Masks, Gloves, Boot Covers, Bio-Hazard Suites, Goggles and disinfection Solution.







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Transportation of contagious patients



From our lessons learnt Sahel Aviation Service immediately purchased and fitted 4 fully functional isolation chambers in 2 Be 1900D, for the transportation of suspected or confirmed COVID-19/Ebola patients, with seating to accommodate medical staff. Each isolation chamber has dedicated 3000 liter oxygen supplies, 12 channel ECG/Defibrillators, Ventilators and vacuum air supplies on board. Exhaled air is filtered through HEPA N14 filtration devices and then expelled through the outflow valves. The patient department is sealed off through a specific firewall from cockpit and the passenger cabin.

