NETCARE

Crimean Congo Haemorrhagic Fever - IPC management

September 2025 l Compiled by Rileen Strauss

Providing YOU with the best and safest care.

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Patient history

- Patient (46yrs, male) presented at GP 25/09/2025 in Springbok with history of fever, drowsiness, mild headache, poor appetite and tachypnoea. Symptoms started on 24/09/2025. When at GP:

  Temp = 40,8 °C

  Glucose = 7,2mmol/l

  Pulse = 94 bpm

  BP = 131/75 mmHg

  Sats = 91%; 98% on 2L/min NPO_2
- Works at SAPS, but also a Farmer in his spare time
- Regular tick bites and ticks removed by wife – also particularly in the last week before presenting to GP
- Regularly self medicates with Doxycycline for tick bite fever
- Diagnosis = Tick bite fever

Patient history

- Patient then transferred to local hospital until arrangements were made for transfer to Western Cape hospital.
- Ambulance service was arranged for 26/09/2025.
- Ambulance service informed Netcare General Manager for Emergency - Trauma - Transplant and CSI regarding transfer (Head office)
- HO then informed the Regional IPC Manager, Hospital Manager and other team members to BE AWARE of history and possibility of Crimean Congo Fever…
- Site started to prepare
- WhatsApp group started for general communication and support needed (NICD, Procurement, Doctors, IPC, OHS, Senior management etc.)

Tick bite fever vs. Crimean Congo Heamorrhagic fever

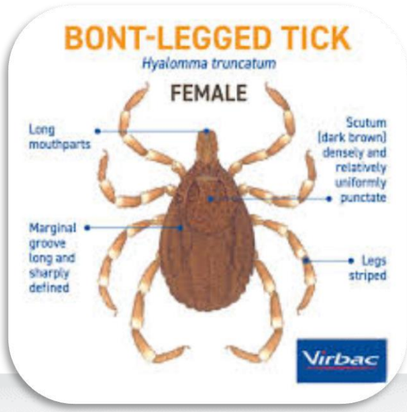
Feature	Tick Bite Fever (TBF)	Crimean-Congo Haemorrhagic Fever (CCHF)
Causative organism	Rickettsia conorii (bacterium)	Nairovirus (RNA virus, family Bunyaviridae)
Type of infection	Bacterial (rickettsial infection)	Viral (haemorrhagic fever virus)
Vector (carrier)	Hard-bodied dog tick (Rhipicephalus sanguineus)	Hyalomma tick species
Reservoir	Dogs and rodents	Domestic and wild animals (cattle, sheep, goats)
Incubation period	5–7 days after tick bite	1–3 days after tick bite (up to 9 days after contact with blood)
Geographical distribution (SA)	Common in South Africa, especially rural areas	Endemic in some rural farming areas of SA (rare cases). More than half of SA cases come from Northern Cape and Free State

Tick bite fever vs. Crimean Congo Heamorrhagic fever

Feature	Tick Bite Fever (TBF)	Crimean-Congo Haemorrhagic Fever (CCHF)
Onset of illness	Sudden fever, headache, muscle pain	Sudden fever, headache, severe muscle pain
Eschar (black scab at bite site)	Characteristic dark scab (tache noire)	Usually absent
Bleeding tendency	Absent	Prominent (nosebleeds, bruising, internal bleeding)
Laboratory findings	Mild leukopenia (↓WBCC), thrombocytopenia (↓Platelet count)	Severe thrombocytopenia, elevated liver enzymes (ALT & AST), coagulation abnormalities
Diagnosis	Serology or PCR for *Rickettsia*	PCR or serology for CCHF virus (NICD)
Treatment	Doxycycline (very effective)	Supportive care only (no specific antiviral; Ribavirin may be used)

Tick bite fever vs. Crimean Congo Heamorrhagic fever

Feature	Tick Bite Fever (TBF)	Crimean-Congo Haemorrhagic Fever (CCHF)
Isolation precautions	Standard precautions	Strict isolation; contact and droplet/airborne precautions (aerosolising procedures)
Person-to-person transmission	No	Yes – via blood/body fluids
Mortality rate	Very low (<1%)	High (10–40%)
Prevention	Avoid tick bites (repellents, clothing, check for ticks)	Same, plus avoid contact with animal blood and infected patients



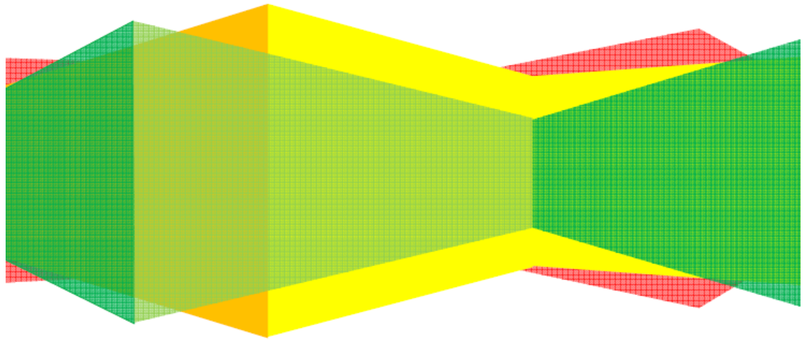
Tick bite fever vs. Crimean Congo Heamorrhagic fever

If in doubt – even if there is “hope” that it’s not CCHF – take **all** **precautions** needed until CCHF is ruled out. Don’t wait for a diagnosis confirmation to use appropriate PPE.

HIGH SECURITY BIO-SAFETY ISOLATION OF AFRICAN VIRAL HAEMORRHAGIC FEVER PATIENTS:

The Three Step Guide

Theo Ligthelm



8 THE RULE OF THREE

This manual uses a basic Three-Step approach to establish and operate effective isolation facilities. The basic principles in implementing high security isolation can be summarised as "**The Rule of Three**1" (Ligthelm 2004).

- Three (3) areas for patient care.
- Three (3) groups of staff.
- Three (3) layers of protective clothing.
- Three (3) steps in supplying equipment.
- Three (3) steps in decontamination when leaving the area.
- Three (3) layers to isolate waste.
- Three (3) layers to isolate a body.
- Three (3) layers to isolate a specimen.

This manual addresses the establishment and operation of an Isolation Facility within a health care facility such as an existing hospital. Although the principles are applicable in establishing Field Treatment Units certain procedures may need to be adapted for field conditions.

THREE AREAS FOR PATIENT CARE

Single room in which the patient is isolated

Ante-room as barrier between isolation room and external environment

Clean rest area and administrative area

18

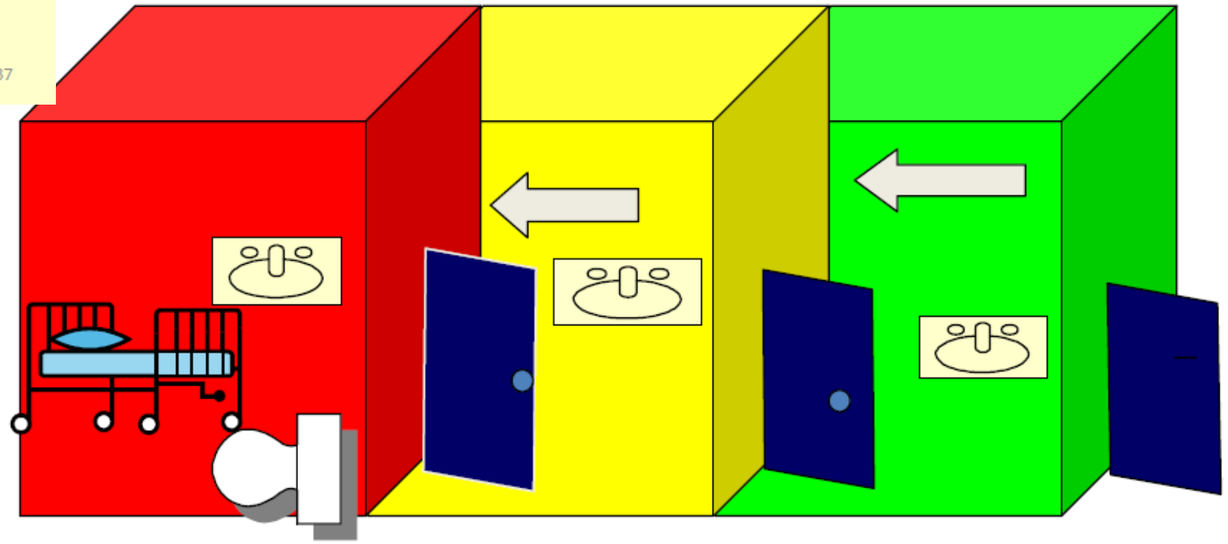


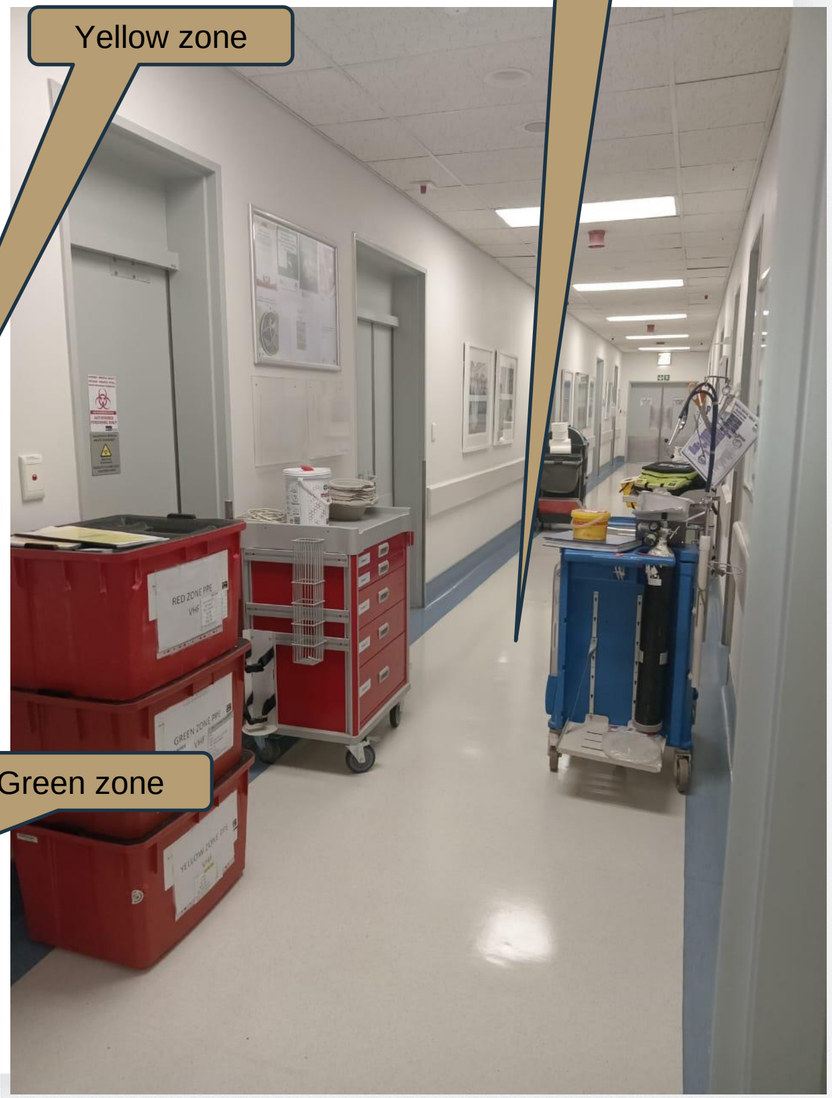
Figure 1: Outlay of an Isolation Area

Preparing the area

- We had a whole ward open without patients due to lower occupancy in hospital – double sided sword: bigger area for donning room, PPE room, but bigger area to clean afterwards.
- We had TIME to prepare – informed Friday morning 08:59, patient arrived 14:15
- Patient was stable – no bleeding, on Nasal prong oxygen – only 1 person needed in the red zone
- Prepared staff
- Red zone = Patient area: remove any unnecessary equipment, furniture etc. Cover equipment that can't be removed, but not going to be used
- Yellow zone = Doffing and cleaning of visor etc.
- Green zone = PPE and donning area


Minimal items in the room (red zone)


Cover monitors
Red zone
COVID
Air Scrubber Unit
Linen Savers


Yellow zone
Neutral zone (also green)
Green zone
RED ZONE PPE
GREEN ZONE PPE
YELLOW ZONE PPE

Arrival at hospital

- We planned the route on the outside of the hospital – to enter via the exit door into the yellow zone

BUT….

- We were expecting a specific ambulance, but a subcontracted ambulance arrived
- When we next saw – the patient came through the hospital to the ward's front door. Ambulance staff x2 plus porter – No PPE. They did not receive the communication of possible CCHF


Door enters
Yellow zone
EXIT

PPE

- Ensure you have enough packs for yellow and red zones for a weekend or longer to procure more packs when needed.
- If surrounding hospitals also have packs to borrow from while waiting on procurement – best scenario.
- Someone need to manage and keep an eye on the PPE.
- Coloured aprons really helped

What is needed per shift (12 hours) for an unstable patient?

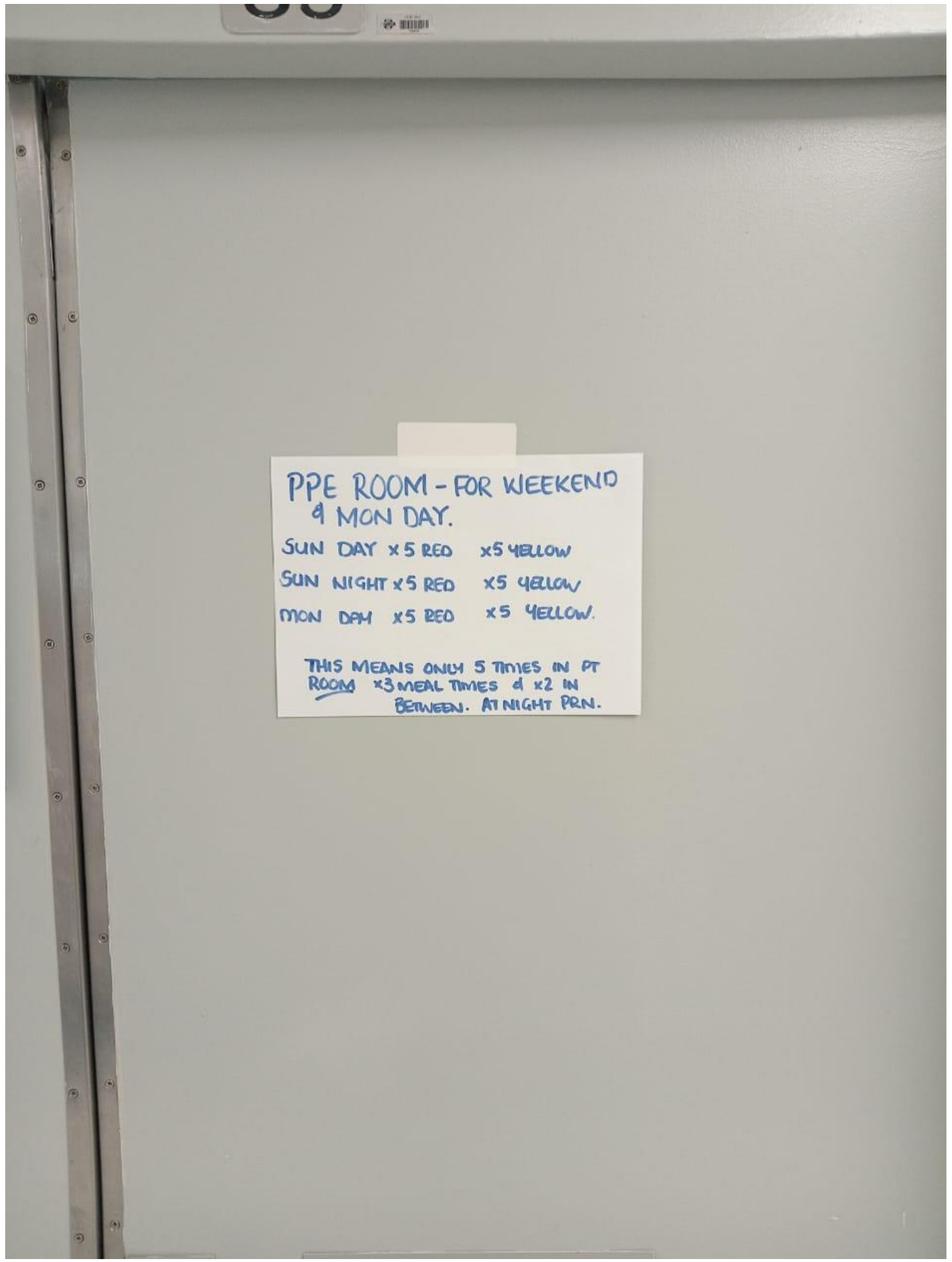
- Nursing: 6 packs per red (4-hour sessions), 3 packs per yellow (4-hour sessions), 1 - 3 for green (disposable scrubs and green apron)
- Extras for Doctor, radiology, but try to keep contacts as low as possible
- Thus: At least 20 VHF packs per 24 hours
- To prepare for over a weekend: 80 packs will keep you 4 days


MONDAY DAY
PPE.
ONLY INTO ROOM
X5 TIMES.
Dräger
SIZE: LARGE (8-9)
DERMAGRIP


SUNDAY DAY
PPE
ONLY INTO ROOM
X5
SIZE


MONDAY DAY
PPE.
ONLY INTO ROOM
X5 TIMES.


DONNING
ROOM.
PLEASE PUT YOUR
CLOTHE IN A CLEAR
BAG NEATLY ON BED.


PPE ROOM - FOR WEEKEND
& MON DAY.
SUN DAY x5 RED x5 YELLOW
SUN NIGHT x5 RED x5 YELLOW
MON DAY x5 RED x5 YELLOW.
THIS MEANS ONLY 5 TIMES IN PT
ROOM x3 MEAL TIMES & x2 IN
BETWEEN. AT NIGHT PRN.

PPE – Donning principles

Before entry into the patient care area PPE must be donned correctly in proper order. PPE should not be later modified while in the patient care area. A trained observer must directly observe these donning activities.

PPE must remain in place and be worn correctly for the duration of work in potentially contaminated areas.

PPE should not be adjusted during patient care.

PPE – Doffing principles

Removing used PPE is a high-risk process that requires a structured procedure, a trained observer, a doffing assistant in some situations, and a designated area for removal to ensure protection.

PPE must be removed slowly and deliberately in the correct sequence to reduce the possibility of self-contamination or other exposure to the virus.

Double-gloving provides an easy way to remove gross contamination by changing an outer glove during patient care and when removing PPE.


EXIT


Green Area - Decontamination
Green Area
1st Layer of Protective Clothing
• Theatre Scrubs
• Proper Shoes

Green Area
1st Layer of Protective Clothing

Disposable

- Theater Scrubs
- Proper Shoes

- Apron added to protect clothing when required

© T. Ligthelm

Yellow Area
2nd Layer of Protective Clothing

- Don over clothing worn in Green Area plus:

- Overall
- First pair Booties/ Overshoes
- Yellow Plastic Apron
- 1st pair Gloves

- Mask with visor worn when receiving or transferring items to and from Red Area and decontaminating staff from Red Area
  - Dispose
  - Replace when needed

© T. Ligthelm

Red Area
3rd Layer of Protective Clothing

- Don over clothing worn in Yellow Area plus:

- Disposable gown
- Full face visor
- 2nd pair Gloves
- Second Pair of Booties / Overshoes

- Apron is worn to protect gown and is ripped-off when contaminated and replace

© T. Ligthelm

Red Area Decontamination

- Move as close as possible to exit of red area
- Wash hands over both pair of gloves
- Helper spray visor and wipe-off
- Remove outer overshoes and dispose in red bag-drum
- Rip-off apron and dispose
- Wash hands over both pair of gloves
- Remove gown with cross-arm technique, roll-up soiled side inside and place in red bag
- Remove 2nd pair of gloves with cross hand action and place in red bag
- Wash hands over 1st pair of gloves
- Move to yellow area

Yellow Area Decontamination

- Wash hands over gloves
- Yellow Area Helper spray and wipe-off face visor again and remove. Place in drum with hypo-chloride
- Remove/ Rip-off mask and dispose
- Decontaminate zipper
- Lift-off cap, fold backward
- Take-off overall, touching only inside parts and dispose in yellow bag
- Remove paper overshoes and dispose in yellow bag
- Wash hands over gloves
- Remove gloves with cross-hand action and dispose in yellow bag
- Wash hands
- Move to green area

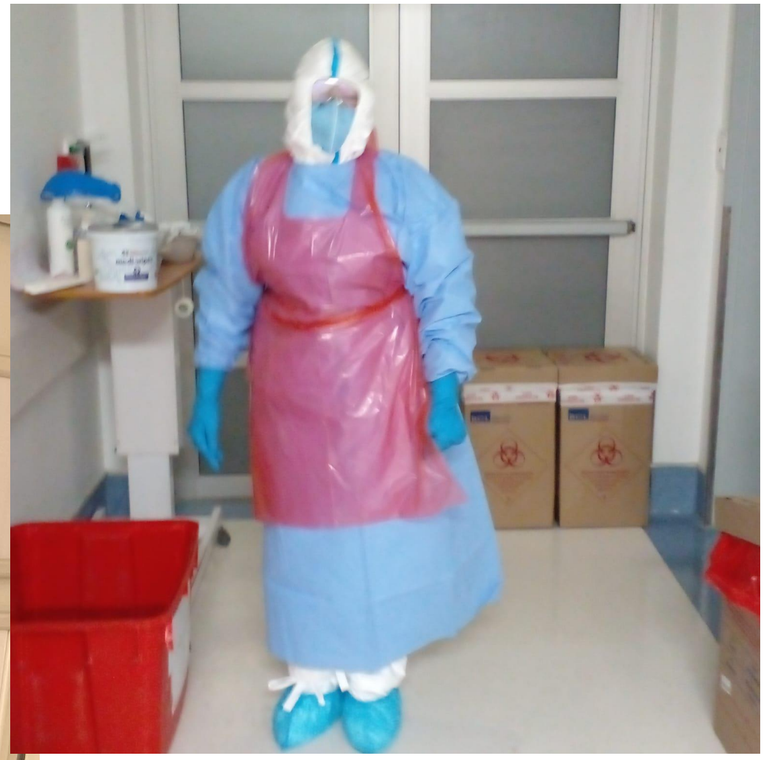
Green Area Decontamination

- Wash hands

- Before leaving area - take a shower and change into clean clothes
  - Dispose theater scrubs in green bag

- Wash hands
- Leave isolation area

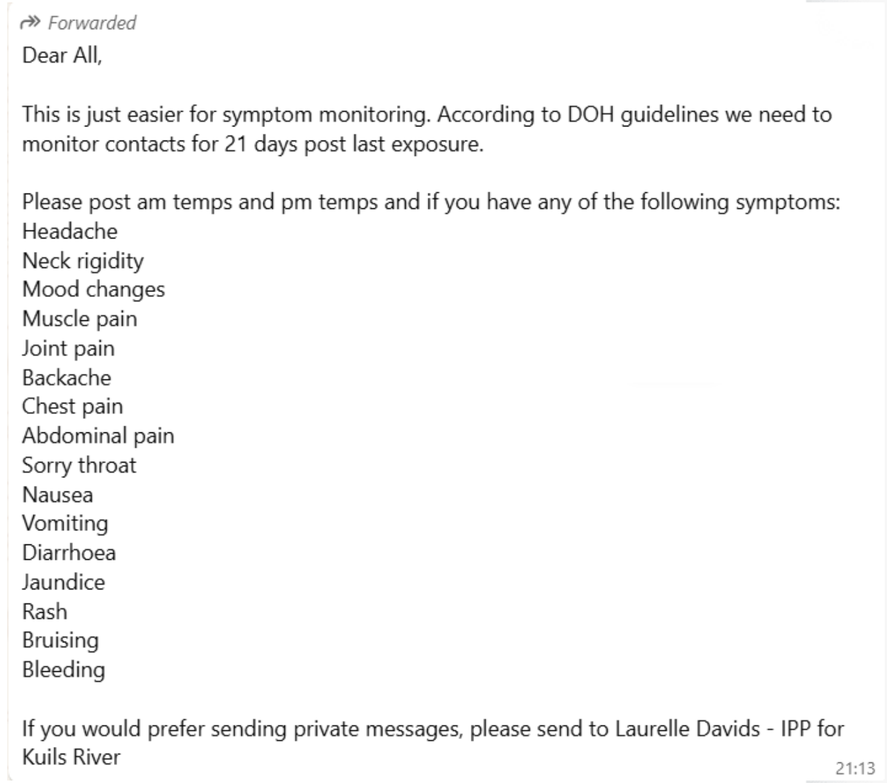
Visor cleaning



Contact tracing

- Start immediately when patient arrives – porter, ambulance staff
- Add everyone entering the ward/area as they are scheduled or needed for procedures (radiology)
- Start a symptom and temp monitoring WhatsApp group – easier than to check in with everyone
- OHS to do contact tracing and monitoring
- Temp and symptom monitoring 21 days after last contact
- Ensure contacts have thermometers to self-monitor

- What to do if a contact gets symptoms….? WCA process


Forwarded

Dear All,

This is just easier for symptom monitoring. According to DOH guidelines we need to monitor contacts for 21 days post last exposure.

Please post am temps and pm temps and if you have any of the following symptoms:
Headache
Neck rigidity
Mood changes
Muscle pain
Joint pain
Backache
Chest pain
Abdominal pain
Sorry throat
Nausea
Vomiting
Diarrhoea
Jaundice
Rash
Bruising
Bleeding

If you would prefer sending private messages, please send to Laurelle Davids - IPP for Kuils River

21:13

High risk procedures

- Anything with sharps – extremely careful handling
- Aerosolizing procedures (physio, nebs, suctioning) – avoid if possible, mitigate risk
- Blood from blood bank – no need to send specimens (universal blood used)
- Specimen collection and sending to lab – 3 layers
- Urine and stool handling

Patient progression and de-isolation

- Arrived 26/09/2025 14:15
- FBC, LFTs done and showed low platelets and raised ALT & AST
- Blood then sent to NICD for CCHF
- Received results on evening of 27/09/2025 = positive
- Bloods done again on Monday 29/09/2025 to test serology
- Received results on 30/09/2025 = seroconverted and we could de-isolate – sent to the ward on 01/10/2025
- Reminder – environment and waste in red and yellow zone high risk for exposure
- Patient discharged on 03/10/2025


KEEP THIS DOOR LOCKED
IT BANGS WHEN IT IS OPEN AND STAFF MOVE THROUGH THE DOOR
ATTENTION
SHEQ policy


Going in now to clean.
New respect for housekeeping!!


EXIT
This chair was condemned!

Lessons learnt

- From admission – look out for the patient, not the ambulance
- Don’t be caught with your pants down – tighten your disposable scrubs pants PROPERLY
- Have cold water available when staff leave the green zone
- Have a big enough room to keep waste inside as long as possible
- Have enough PPE packs in the vicinity (surrounding hospitals) to keep you for 5 days (+/- 20 packs per 24 hours). Because of course the patient comes on a Friday afternoon
- The spotter read step-by-step when red and yellow doffed PPE
- Need at least 4 people per shift for a **stable** patient
- Make a roster with IPP/OHS to be the spotters (doffing = high risk)
- What do you do with patient belongings?
- Family and staff support and debriefing
- The other IPP issues do not stop = have the back-up IPP manage it

Feedback from staff

Thank you for the opportunity to engage myself to risky situations.... I'm so proud of my self.
Thank you team for participating and engaging with dedication. We learn everyday.
Now I can face this CCHF anywhere with Isolation protocols I got from our IPC. 🙏 13:32

❤️ 👍 7

Found my old ama shake shake
Temp = 36.3
Thank you very very much for this opportunity, made good friends , laughed a lot but gained tremendous experience that no book or leaflet can teach you
A very big thank you to the IPC and SR Di because without you it would not have been possible
Thank you for every colleague that I met , it means a lot as this experience will maybe not come again for me as I am also a few tears from pensioner , but if it does then I am in 100 %
22:12

❤️ 3

> Thank you for the opportunity to engage myself to risky situations.... I'm so proud of my self. ...

I totally agree . I could practice & experience what we read about in the policy for nursing a patient with haemoragic fever disease. I am only a few years away from retirement , and so glad for this opportunity . Thank you to my colleagues for keeping me save . And thank you to the rest of the teem for all your support and keeping us save . Praise the Lord for healing the patient.
Keep well .
14:05

❤️ 5

Teamwork makes the dream work

- The IPP and ED Unit manager were forces to reckon with!
- Each and every manager, staff member, doctor, physio involved – you did a fantastic job!

Letter of appreciation from the treating doctor

I wish to extend my sincere gratitude to all staff members who played an essential role in the recent management of [redacted] from Springbok, Northern Cape, admitted on Friday, 26 September 2025 with a suspected diagnosis of Crimean-Congo Fever.

From the initial transfer and safe transport of the patient from Springbok, to his careful admission into our isolation unit in [redacted], and through the diligent tracking and tracing of all possible contacts, the response was exemplary. Every step reflected the highest standards of infection prevention and patient care.

I want to specifically acknowledge the critical contributions of Sr Laurelle, our Infection Prevention Manager, and Sr Dianne Coetzer, our Unit Manager from the Trauma Unit. Their leadership, coordination, and meticulous oversight ensured that protocols were implemented flawlessly. In addition, I would like to commend Sr Davids and Sr Coetzer for the massive role they played in the organization and execution of all measures related to this patient's care. Their commitment and professionalism have been outstanding.

This experience has served as an invaluable trial run from an infection control perspective, and I am encouraged by the seamless teamwork demonstrated across all levels of care. I look forward to continuing to work alongside this exceptional team on similar cases in the future, confident that our hospital remains well-prepared to manage high-risk infectious diseases.

Thank you once again for your leadership and support in enabling such an effective and coordinated response.

References

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- Ligthelm, T. (2014) High security bio-safety isolation of African viral haemorrhagic fever patients: The three-step guide. [Guideline].
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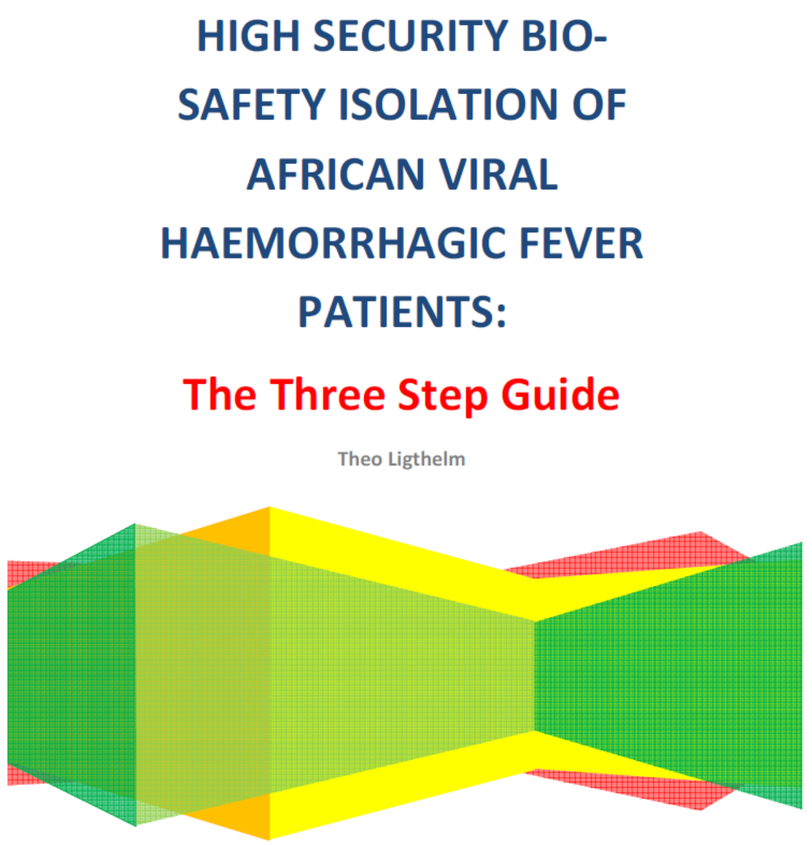
- World Health Organization (WHO). 2024. Crimean-Congo haemorrhagic fever. Available at: https://www.who.int/news-room/fact-sheets/detail/crimean-congo-haemorrhagic-fever [Accessed 15 October 2025].



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Thank you

September 2025

Providing YOU with the best and safest care.