Ebola Survivors Clinical Care Guidance

Ministry of Health Liberia

April 2016

ACKNOWLEDGMENTS

The Ministry of Health is very pleased with the active participation of all of our partners who contributed in various ways to the development of this guidance. We are especially grateful to the World Health Organization for providing technical guidance, financial and logistic support for the validation workshop and printing of the document. We also specifically want to extend our appreciation to the following institutions and individuals:

Initiated the discussions

Baller April, WHO, Mahoney J. Frank, CDC, Massaquoi Moses, MoH, Rosenberg Ron, CDC and Soka J. Moses, MoH.

Principal contributors

Baller April, World Health Organization Bemah
K. Philip, Case Management deputy, IMS
Fankhauser John, ELWA Hospital EVD Survivor Clinic
Massaquoi Moses, Case Management chairman, IMS
Mawanda P. Michael, World Health Organization
Soka J. Moses, MoH Survivors clinical network chairman, IMS

Validation meeting (August 2015)

Baller April, WHO, Bemah K. Philip, Case Management, Bhutto Ahmed Ashfaq, WHO, Brown Jerry, ELWA Hospital, Camanor Watta Sia, Pediatrician, JFK Hospital, Cooper Janice, Carter Center, Faley S. Patrick, Survivor Network, Fankhauser John, ELWA Survivor Clinic, Flumo Hilary, Prevail Gargu K. Catherine , MoH Eye Care, Glaweon Meekie, EOC Survivor Network, Henwood Trish, ACCEL, Kollie Jomah, WHO, Mawanda Michael, WHO, Nelson Thelma, IMS, Paygar A. Allision, MoH, Soka J. Moses, MoH, Van Düyl Marjolein, WHO, Vitek Megain, IMC.

Contributors

Allen Denise, CDC, Arafa Sherif, IOM, Baldauf M., IMC, Berakoetxea Imanol, ECHO, Blaehit Alexander, BRAC, Bhutto Ashfaq, WHO, Bonarwolo Korlia, Survivor Association, Choi Mary, CDC, Cooper Janice, Cummings Anne, USAID, CZerniewska Alexandria, CHAI/IMS, Dahnyea Prince, Survivor Network, DeCock Kevin, DART, Dennis Gerald, Survivor Association, Gallah Foday, Survivor Network, Gasasira Alex, WHO, Gavi Samuel, WHO, Glaweon Meekie, EOC Survivor Network, Goehle Ruth, IMC, Hooley Ted., IMC, Kamram Ahmed, IOM, Kesavan R., WHO, Khan R. Amera, CDC, Knust Barbara, CDC, Kohar T. Henry Sr. MoH, Kutalek Ruth, WHO MHPSS, Ladele S. Victor, WHO, Lane Cliff, NIH, Larson Gregg, NIH, Levin A., IMC, Luwaga Lilliane, WHO, Mabeye S. Fatoumata, WAHA International, Mahmoud Nuha, WHO, Mahoney J. Frank, CDC, Mawanda Michael, WHO, Mills Jody---Anne, WHO, Musa O. Emmanuel, Musa S. Peter, Carter Centre, WHO, Nakao Jolene, CDC, Nakyeyune Phiona, WHO, Nelson Thelma, MOH, Niemiec Monika, MSF France, Nnadi Massa, IMC, Nyakoon Tarr Angie , MGSWCP, Ojok Francis, IOM, Omedian Patricia, WHO PSS, Orone Romeo, SIM/ELWA, Pearson Duane, Phillips Sarah, IMC, Pillai K. Satish, CDC, Rosenberg Ron, Shantha Jessica, Shauna Mettee, DCD, Siefeldin Redda, WHO, Sonii Adoley, Sight Savers, Stone Mardia, WHO, Thomas Timothy, Athena Healthcare, Tony D. Henry, Survivor Network, Ul Khak Nisar, IOM, VenderEnde Christin, CDC, Verhenne Leen, MSF---Belgium, Virginia Lee, MSF---F, Wells Janessa, SOS Clinic, Williams E. Desmond, CDC, Wolfe Caitlin, WHO, Yeh Steven, Zaway W. Victoria, MGSWCP.

We appreciate your continued support and commitment to the management of the EVD sequelae in Liberia.

Francis Kateh, MD, MHA, MPS/HSL, FLCP
Deputy Minister/Chief Medical Officer, Republic of Liberia

TABLE OF CONTENTS

ACRONYMS

BMI	Body Mass Index
CBC	Complete blood count
CDC	Centre for Disease Control
EOC	Emergency Operation Centre
EPI	Expanded Program for Immunization
ETU	Ebola Treatment Unit
EVD	Ebola virus disease
HIV	Human Immunodeficiency Virus
IMCI	Integrated Management of Childhood Illnesses
IMS	Incident Management System
IPC	Infection prevention control
mhGAP	Mental Health Gap Action Plan
MOH	Ministry of Health
NSAID	Non---steroidal anti---inflammatory drug
PHQ	Patient Health Questionnaire
PS	Psychosocial support
PTSD	Post Traumatic Stress Disorder
RDTs	Rapid diagnostic test
STIs	Sexually transmitted infection
TSH	Thyroid Stimulating Hormone
UNICEF	United Nations Children's Fund
WHO	World Health Organization

FOREWORD

As Liberia emerges from the devastating 2014 – 2015 Ebola virus disease outbreak, we are faced with a new and special group of persons who have recovered from the disease but still suffer significant residual physical and psychosocial health complications requiring focused medical care.

EVD survivors face challenges in accessing appropriate and quality healthcare, while healthcare workers lack clinical guidance when offering care to survivors; based on current available evidence, growing EVD experience and knowledge, these guidelines will help bridge this gap.

This guide will support both primary and secondary service providers. The approach herein aims to empower frontline healthcare workers to identify significant EVD sequelae requiring medical care, at the same time pointing out important signs and symptoms that require referral to a higher level of care where necessary.

As demonstrated in this document, the Ministry of Health is committed to helping EVD survivors recover completely and lead a normal and fully productive life. I invite you to utilize this guidance to bring this vision to reality.

Francis Kateh, MD, MHA, MPS/HSL, FLCP
Deputy Minister/Chief Medical Officer

1. INTRODUCTION

In this guidance, an EVD Survivor is defined as: "*A person with a confirmed positive result on RT---PCR testing for Ebola virus on any body fluid who subsequently recovered; AND/OR who is IgM and/or IgG positive on serological testing for EVD and has not been vaccinated against Ebola virus*"[1].

Nevertheless, considering the local context where such evidence may not be readily available, the national Ebola survivors care and support policy defines an EVD survivor as: *"A person who has had Ebola and survived, registered or not. It is not limited to those listed on a 'survivors registry' or officially discharged with EVD Survivor's Certificates from the ETUs, but also those who recovered at home or had been treated at health facilities but are without appropriate accompanying documentation".*

In Liberia there are an estimated 1560 Ebola virus disease survivors. Many suffer disabling and persistent symptoms related to EVD. In 2001, Wendo et al. reported 50% of EVD survivors developed medical conditions requiring follow up after discharge, and at one year following discharge 25% of patients were still experiencing medical problems related to their disease. Symptoms that have been reported include visual impairment, musculoskeletal pain, headaches, fatigue, sexual dysfunction, memory loss, abdominal pain, neuropathy, and psychiatric disorders such as anxiety, depression, and post---traumatic stress disorder.

---

[1] WHO. Interim Guidance: Clinical Care for Survivors of Ebola Virus Disease. 22 January 2016

Ebola survivors who are suffering with one or more of these symptoms will require ongoing care of their medical conditions. Optimal treatment for some of these conditions remains unclear.

TARGET AUDIENCE

What follows is guidance for post---EVD care to assist general practitioners, physician assistants, and nurse practitioners caring for these patients in the general medical clinic.

UPDATING THE GUIDANCE

This guidance is aligned with the WHO Interim Guidance: Clinical Care for Survivors of Ebola Virus Disease --- January 2016. The guidance was aligned and adapted taking into consideration the feasibility of the Liberian context.

These recommendations are based upon the best available information at the time of publication. Continued research is needed in many areas pertaining to Ebola survivors and related topic areas. As such, updated guidance will be provided as more information becomes available.

2. INTEGRATED CARE AND REFERRALS

INTEGRATED CARE

Prior to the 2014 --- 2015 West Africa EVD outbreak, EVD medical services in Liberia were non---existent. This was identified as a critical gap during the outbreak, and as the outbreak was controlled focus shifted on how to best address these medical needs in what was essentially a new medical field. From the onset of these deliberations, Ebola survivors persistently advocated for medical care to be incorporated and delivered as an integrated service within the routine healthcare system, to minimize stigma.

In alignment with the national Ebola survivors care and support Policy, clinical care for EVD survivors shall be freely accessible and integrated within the existing healthcare services in accordance with the National Health Policy and Plan. Frontline clinicians will provide clinical management in accordance with the available guidance. However, in areas where the necessary services do not exist or are inaccessible to EVD survivors, establishment of EVD survivors---specific services may be necessary e.g. eye care.

Survivors who become pregnant after recovery from EVD may require referral hospital follow up due to the potential higher risk of spontaneous abortion. In the short term, a designated hospital may be required to address the current need for e.g. maternal care and neonatal services.

REFERRALS

Primary care clinicians will provide the majority of care to survivors, and this guidance has been developed in recognition of their critical contribution. There will, however, be circumstances where specialized care is required; when EVD sequelae are not responding to first---line treatments. A referral criteria summary is described in details in the individual sections.

3. FOLLOW UP VISITS

PRIOR TO DISCHARGE FROM THE ETU

After an EVD survivor's condition stabilizes, but prior to discharge from the ETU, he or she should receive education and counseling regarding the possible sequelae and psycho---social challenges faced during convalescence

With permission, it is ideal to include consultation with the survivor's close family members, explaining in simple terms the common sequelae and what is known about how Ebola virus can and cannot transmitted during convalescence *(see section 5; Monitoring for persistent Ebola virus infection in survivors: Guidelines for testing and counseling)* and what measures they can take to avoid virus transmission *(see section 7; Infection prevention and control considerations in EVD survivors).*

EVD survivors should be given a follow---up appointment to see a care provider within 2---weeks after discharge and specific instructions about who to contact if they encounter health problems or have questions (see table 1). Issues such as confidentiality, avoiding stigmatization, and cost of follow---up care should be addressed.

In cases when significant mental health problems are noted before discharge or anticipated afterwards, it may be appropriate to refer patients directly to a mental health care provider.

AT DISCHARGE FROM THE ETU

- EVD survivors should be provided with documents containing their unique patient ID, name, age, symptoms at presentation, and any convalescent symptoms at discharge, a brief record of their test results and treatment in the ETU, and their government or laboratory---issued EVD Survivor's Certificate.

- This information will serve as a 'transfer of care' document for their outpatient management.
- Survivors should be instructed to bring these documents, as well as documents recording past vaccination, to all future clinic or hospital visits.
- Sexual health education and counseling should be offered to all EVD survivors, both male and female, at discharge and at follow---up visits. The potential for Ebola virus persistence in the semen and the measures to prevent transmission should be explained to male EVD survivors as well as their partners *(see below under Semen Testing and Counseling for Male EVD Survivors).*
- Pregnant survivors should receive counseling on the risks of Ebola virus---associated maternal and fetal complications as well as virus persistence and transmission *(see below under Considerations for special populations: Pregnant women).*

General medical history*

1. History of presenting complaint (complete history of illness)
2. Past Medical History
3. Drug History
4. Symptom review including
    - Blurred vision
    - Eye pain
    - Muscle pain
    - Joint pain
    - Headache
    - Fatigue
    - Abdominal pain
    - Memory loss
    - Numbness of fingers/toes
    - Hearing loss
    - Sleep problems
    - Erectile disorder
    - Amenorrhea
    - Decreased libido
    - Anxiety
    - Mood change

5. Psychosocial evaluation including:
    - Family members affected or lost
    - Any recent change in social history (e.g. housing)
    - Sexual history
    - Vocation
    - Resources (financial, emotional, and spiritual support)
    - Stigma (past and current)

6. Consultation with social worker to address the following:
    - Economic status and employment
    - Shelter and food security
    - Stigma issues
    - Dependents
    - Social support (family, friends, religious community)
    - Potential substance misuse or dependency (alcohol, marijuana, cocaine, heroin and tobacco)
    - Identification of vulnerable individuals (children, disability, domestic abuse, etc.) for follow up/notification

In some settings, a home visit would provide an opportunity to better assess psychosocial issues.

Comprehensive physical exam – see table 1 + 2
Labs to be considered at the initial visit **---** see table 1 + 2

SCHEDULING FOLLOW UP VISITS

Because some EVD sequelae may appear weeks or months after resolution of acute disease and persist for years, regular follow---up of survivors is recommended for at least one year, regardless of presence or absence of symptoms at discharge or initial outpatient evaluation. The schedule in Tables 1 and 2 are proposed for healthcare facilities in Liberia:

Table 1: History and examination at first visit post ETU discharge

Visit	Recommended Actions	Laboratory work

Initial outpatient evaluation within 2 weeks	- General medical history* (see below)
	- Physical examination, including vital signs:
	  o Temperature
	  o Blood pressure
	  o Heart rate
	  o Respiratory rate
	- Nutritional evaluation
	- Musculoskeletal evaluation
	- Ocular evaluation
	  o Slit lamp
	  o Visual acuity
	- Auditory evaluation
	- Abdominal evaluation
	- Neurological evaluation
	- Mental health evaluation
	- Sexual health evaluation
		Routine laboratory tests:
		- Complete blood count
		- Creatinine
		- Blood Urea Nitrogen
		- HIV test with routine pre and post test counseling
		Optional tests as indicated:
		- Ebola RT---PCR or IgG or IgM antibody
		- Liver function tests (ALT, AST and amylase)
		- Thyroid function tests
		- Erythrocyte sedimentation rate or C---reactive protein
		- Pregnancy test
		- Malaria rapid diagnostic test
		- Stool examination for ova, cysts, and parasites
		- Urine dipstick for protein
		- Syphilis test (according to national guidelines)
		- HIV test (according to national guidelines)

Table 1: Subsequent follow up visits

Subsequent follow---up visits	Recommended actions	Laboratory work
1. Monthly follow---up for 6 months 2. Follow---up every 3 months to complete one year 3. Continued follow---up as needed and agreed upon by patient and care provider.	• Detailed evaluation similar to that described for the first visit post---ETU discharge • For males, follow---up visits should be coordinated with visits made for semen testing. • In regions with a prevalence of *Onchocerca volvulus* microfilaria infection >5%, ensure that patients are linked with the neglected tropical diseases eradication program for mass drug administration of ivermectin	- Review labs from initial/ previous visits. - If lab abnormalities are noted on initial visit or new symptoms develop, repeat labs at next visit or consider referral.

NOTE: *The patient and care provider may wish to adjust this schedule based on the patient's particular condition and needs.*

4. COMMON EVD RELATED SEQUELAE

For treatment of common conditions seen in general medical clinic that are not EVD related, please refer to "National Therapeutic Guidelines for Liberia".

MUSCULOSKELETAL

Post---EVD patients often have musculoskeletal pain. Characteristics include symmetrical and migratory in nature, affecting large joints with no inflammatory signs. One important goal in evaluating patients is distinguishing between inflammatory and non---inflammatory pathology. A small number of survivors will have inflammatory arthritis. This is currently the minority, but requires intervention.

History:

Define location and type of pain (burn, ache, dull), symptoms duration, factors making pain better or worse and any history of injury. Evaluate for systemic symptoms (fever, weight loss).

Table 3: Inflammatory Arthritis

Features of Inflammatory Arthritis Include:	
Aggravators and alleviators	(1) Onset after infection, (2) improvement with exercise, (3) no improvement with rest, (4) pain at night (with improvement upon getting up), (5) Increased pain and/or stiffness with prolonged sitting
Arthritis / Enthesitis	Past or present swelling of joints or tendon sheaths. Pain around shoulder girdle, hips & knees are common in survivors.
Uveitis anterior	Past or present uveitis anterior
Good response to NSAIDs	Pain relief after 48 hours of full dose NSAID
Duration	Greater than 3 months of inflammatory symptoms

Physical exam to evaluate for signs of inflammatory arthritis:

- Palpate all peripheral joints for obvious signs of swelling, warmth, or tenderness
- Also assess all peripheral joints range of motion
- Examine waist including sacroiliac joints, insertion of gluteal muscles, lateral ischial crest

Differential diagnosis:

- Rule out septic joint, gout, and osteoarthritis

Management:

Inflammatory Conditions:

i) First line therapy:

Adult dose: NSAID (ibuprofen 400 mg tid, diclofenac 50 mg bid or tid, or naproxen 440---500 mg bid)

Pediatric dose: ibuprofen 10mg/kg tid

*If response is inadequate, consider adding paracetamol as below or using different NSAID.

ii) Second line therapy:

Once daily NSAID if available (i.e. meloxicam, piroxicam, celecoxib, etodolac XL)

* This becomes first---line treatment if clear diagnosis of inflammatory arthritis is made and drug is available. Additional medications may be available at a referral center, seek specialty consultation as needed.

In patients not responding to NSAIDS after 7--- 10 days;

- Give Prednisolone 20mg orally daily for 7 days (if no improvement, refer)

Non---inflammatory musculoskeletal conditions:

i) First line therapy

Adult dose: Paracetamol 1 gm qid

Address psychosocial issues that may be contributing

Conservative measure (exercise, stretching, warm compress)

Pediatric dose: 15mg/kg qid

ii) Second line medication therapy

NSAID (Ibuprofen 400 mg tid or Diclofenac 50 mg bid)

With both conditions, if adult patient still has inadequate response consider:

- Referral
- Addition of Amitryptiline 25 mg once nocte
- Or addition of tramadol 50---100 mg prn

Table 2: Indications for specialist referral

- Recurrent or persistent arthralgia that significantly impedes daily activities and quality of life and is refractory to at least 3 weeks of NSAID therapy and one week of prednisone therapy
- Spondyloarthropathy (i.e. spine and sacroiliac joint involvement)
- Arthritis with systemic illness or if suspicion of septic joint requiring aspiration, laboratory testing of aspirate and possible intravenous antibiotics.
    - Joint aspiration should be performed under IPC precautions for EVD as described under *Infection prevention and control considerations in EVD survivors below* and the aspirate sent for RT---PCR test for Ebola.
    - If negative for Ebola, perform white blood cell count, gram and AFB stains, polarized light microscopy, and cultures for bacteria and TB as indicated and available
- Referral to a rehabilitation specialist may be required for survivors for people with prolonged musculoskeletal pain and fatigue

In children, if symptoms persist consider referral for further evaluation. In adults, for moderate to severe pain, not responding to treatment and/or lasting longer then 4---6 weeks consider referral. Of note, for severe cases or cases that resemble spondyloarthropathy (i.e. spine and sacroiliac joint involvement and history of uveitis) consider immediate referral.

Patient should be advised to take NSAID with food to avoid gastritis. If giving an NSAID for more than 2 weeks, serum creatinine should be obtained with follow up monitoring every 6 months.

Non---pharmaceutical management:

If the person is experiencing significant mobility activities, they may benefit from a walking aid, such as a cane, walking frame or wheelchair, and should be referred to a local provider.

Patient education for self---management of musculoskeletal pain and fatigue can also be beneficial (see annex 2).

OCULAR

Eye problems are one of the most common complaints of EVD survivors. Eye conditions range from mild conditions such as dry eye syndrome to urgent conditions that can lead to blindness, namely uveitis.

When ocular complaints arise, early treatment is essential. Early referral to an eye specialist should be considered where specialist services are available. It is of critical importance that the provider is able to identify signs and symptoms of serious eye conditions. Urgent referral to an eye care provider and appropriate treatment can prevent blindness.

Guidelines for clinical evaluation

1. Evaluate for eye pain, irritation or redness, increased tearing or dry eye, light sensitivity, and decreased visual acuity.
2. Test of visual acuity by Tumbling E chart Snellen chart: Check unilateral and bilateral at presentation and with best correction.
3. Pupillary exam, specifically testing for relative afferent pupillary defect.

Within the first month after ETU discharge, when possible all patients should be referred to an eye specialist for a full examination, including:

- Dilated funduscopic examination
- Slit lamp examination
- Measurement of intraocular pressure

Differential diagnosis of eye pain/redness/irritation:

- Bacterial, viral, or allergic conjunctivitis
- Dry eye syndrome
- Ocular surface disease from sunlight exposure
- Corneal ulcer
- Acute angle closure glaucoma;
- Scleritis
- Trauma
- Uveitis due to other viruses

Differential diagnosis of decreased visual acuity:

- Cataract
- Refractive error (presbyopia, myopia, hyperopia, and/or astigmatism)
- Retinal scars from other pathogens (such as *Toxoplasma gondii*, *Treponema pallidum* [i.e. syphilis], *Onchocerca volvulus*, and measles virus)
- Post---traumatic pathology (e.g. corneal scars or optic nerve damage)
- Vitamin A deficiency

- Glaucoma
- Retinal detachment

Management of eye pain/redness/irritation:

- When possible, exclude other infectious aetiologies such as syphilis and HIV through serologic testing of the blood
- If ocular surface disease suspected, treat with artificial tears for topical lubrication
- If uveitis suspected, immediate treatment is required, with immediate referral to an ophthalmologist or other eye care specialist where available. While referral is being arranged, the following treatment should be implemented:
    - Prednisone 1% eye drops every 1---2 hours (reduce as improvement) AND
    - Cyclopentolate 1% eye drops, 1 drop four times a day
- If no resolution after 7 days of topical prednisone and cyclopentolate, or if predominantly posterior/intermediate, or if panuveitis is suspected, consider adding systemic corticosteroids (adults) or methotrexate (children), following dosages and considerations as described under *Treatment of Arthritis.*

Table 3: Indications for referral to eye specialist

Urgent referral is indicated if EVD---survivors are presenting with any of the following:

- Evidence of Uveitis especially intermediate, posterior or pan---uveitis and all cases of uveitis that do not respond to 7 days of topical therapy as described above.
- These are medical emergencies for which oral corticosteroids (adults) or methotrexate (children) may be required.
- All children <10 years of age (since it may be difficult to ascertain a history of ocular symptoms in this group)
- Pain in one or both eyes
- Decreased visual acuity based on Snellen test
- Absent red reflex in one or both eyes
- Decreased vision or vision loss of any cause following EVD
- Pupillary abnormalities or optic nerve dysfunction (i.e. optic disc edema/swelling, optic nerve pallor)

AUDITORY

Tinnitus and hearing loss have been reported in up to 27% of EVD survivors, although the causal link between these findings and EVD remains to be determined. The course and duration of these complications is not yet well described.

It is important to appropriately evaluate a survivor when they present with an auditory disorder so that treatment options may be made available.

Tinnitus

Tinnitus is the perception of sound in the absence of an external auditory stimulus; as such, tinnitus is a symptom, not a disease. It is often high pitched but may present as a whistling, hissing, humming or buzzing sound. It is may be only heard by the patient (subjective or objective when heard through a stethoscope placed over head and neck structures near the patient's ear.

Symptoms associated with Tinnitus:

- Difficulty getting to sleep or maintaining sleep
- Difficulty concentrating (i.e. reading)
- Increased anxiety, stress
- Depression/suicide/hopelessness
- Work may be affected
- Sensitivity to sound
- Pressure/fullness in ears
- Difficulties with balance

Evaluation of Tinnitus:

- History taking including; questions of onset, description, location, possible cause (noise, drugs – e.g. Quinine, stress) and severity.
- Physical exam; Otoscopy to evaluate the ear canal and tympanic membrane.

Differential diagnosis and/or hearing loss:

- Otitis Media
- Accumulation of wax
- Drug side effects – e.g. Quinine
- Temporal Mandibular Joint Disorders

Management plan:

- Counseling and psychosocial support to reassure the client
- Sound therapy –
    - Relax and listen to natural sounds, instrumental music, ticking clock in the room, experiment with different sounds until you find a sound that works for you.
        - Avoid silence
- Tinnitus Retraining Therapy (TRT)
- Hearing Aids
- Use of Maskers or Tinnitus instruments
- Medication – e.g. anti---depressants, anxiolytics

- Protection from loud noises
- Support Groups
- Stress Management

Hearing loss

It may be unilateral or bilateral.

Evaluation of a patient with hearing loss:

- History and physical examination, including assessment for decreased hearing, tinnitus, aural fullness, and vertigo
- Whispered voice screening test
- Tuning fork tests (Weber and Rinne testing): 256 Hz and 512 Hz
- Otoscopic examination of ear canal and tympanic membrane
- If present, determine if hearing loss is uni--- or bilateral.

Differential Diagnosis:

- Pre---EVD existing diminished hearing
- Acute labyrinthitis
- Cerumen accumulation (i.e. “ear wax”)
- Otitis media

Treatment:

Once the above differential diagnosis is excluded, addressing hearing loss may involve strategies to help family, friends and teachers communicate better with the affected person (see 3).

Treatment of acute labyrinthitis

Treatment of acute labyrinthitis is most efficacious when administered within 10 days (and ideally 72 hours) after symptom onset. Patients should therefore be educated upon ETU discharge to seek immediate medical attention if auditory symptoms develop. Acute labyrinthitis will often resolve on it’s own.

The vestibular sedative Prochlorperazine may be given to reduce vertigo while awaiting resolution:

- Adults: 5---10 mg orally 3---4 times daily
- Children, dose based on weight:
  - Under 10 kg: not recommended
  - 10---13 kg: 2.5 mg orally 1 or 2 times daily (do not exceed 7.5 mg per day)
  - 13---18 kg: 2.5 mg orally 2 or 3 times a daily (do not exceed 10 mg per day)
  - 18---39 kg: 2.5 mg orally 3 times daily or 5 mg 2 times daily (do not exceed 15 mg per day)
- Oral corticosteroids are sometimes prescribed for acute labyrinthitis, although their efficacy is unclear. Decisions to use corticosteroids for this condition should generally be left up to specialists in otolaryngology.

Treatment of otitis media

- Amoxicillin:
  - Adults: 250 mg orally 3 times daily for 10 days
  - Children, dose based on weight:
    - 40---90 mg/kg orally in 2 or 3 divided doses daily for 10 days
    - If over 40 kg, use adult dose

Table 4: Indications for ENT specialist referral

- Persistent hearing loss or tinnitus necessitating audiometry if not otherwise available
- Need for ear wax removal or hearing aids
- Sensorineural hearing Loss – evidenced by Rinne, Weber, Whisper/Voice test
- Conductive hearing loss, after confirmed clear auditory canals
- Referral to a rehabilitation specialist may be required for people with permanent or severe hearing loss, as well as training resources on primary ear and hearing care

ABDOMINAL

While abdominal complaints are common in EVD patients, little is currently known about post---EVD specific abdominal pain. Therefore, one should first consider urgent or common conditions causing abdominal pain and perform appropriate history and examination.

History:

- Location (epigastric or specific quadrant)
- Exacerbating conditions (eating, movement, lying down),
- Characteristics (cramping, burning, stabbing)
- Associated GI symptoms (diarrhea, constipation, bloody stools, mucus, fever, bitter taste in mouth)
- Duration
- Association with systemic symptoms such as fever, chills, weight loss, prolonged anorexia

Physical Exam:

- Vital signs (fever with normal pulse, consider typhoid), jaundice
- Crepitations (can get referred pain from pneumonia)
- Bowel sounds, distention, rebound or guarding (signs of peritonitis)
- Point of maximum tenderness, overlying skin changes

- Organomegaly (hepatosplenomegaly)

Laboratory evaluation:

- CBC
- ESR
- malaria smear or rapid malaria test
- liver function tests
- Widal test.

Management:

I. **Post EVD Abdominal Pain and Cramping** – common complaints. First rule out all other diagnoses.
   a. Unclear which regimen is most effective at this time. Consider a trial of antispasmodics if available. Consider starting omeprazole, cimetidine, ranitidine and/or paracetamol. Avoid NSAID's in patients with gastritis or GERD.

II. **Acute abdomen** – rebound or guarding, decreased bowel sounds, pain with heel tap
   a. Surgical Consult

III. **Typhoid** – Widal 1:160 or greater, fever with relative bradycardia
   a. Ciprofloxacin. Adult: 500–750 mg every 12 hrs for 5–14 days. Child: 10–15 mg/kg per dose
   b. Co---trimoxazole, 480 mg tab. Adult: 960 mg every 12 hrs for 14 days. Child: 24 mg/kg per dose or Chloramphenicol. Adult: 1 g IM, IV or oral every 6 hrs for 14 days. Child: 25 mg/kg per dose. *Remember risk of aplastic anemia with chloramphenicol.
   c. If peritoneal signs or concern for perforation, immediately refer for surgical evaluation.

IV. **Helminthes (worms)** – consider empiric treatment
    a. Mebendazole, Adult: 500 mg, single dose. Child <2 yrs: 250 mg, single dose
    b. Albendazole, Adult: 400 mg, single dose; pediatric: 200mg for 12---23 months old.

V. **Gastritis and Gastroesophageal Reflux** – epigastric, pain worse at night, initially relieved by food then recurs, GERD associated with bitter taste
    a. Omeprazole 40 mg po qhs
    b. Consider dietary and behavior modifications (evaluation triggering food or alcohol consumed, avoid eating before bedtime)

VI. **Appendicitis** --- Right lower quadrant pain. May start in upper abdomen or periumbilical and migrate to the right lower quadrant. Associated with anorexia, fever, elevated white blood cell count. Will generally progress to perforation and a surgical abdomen if untreated.
    a. If suspicious, refer for ultrasound or CT scan if available, surgical evaluation at a minimum.

VII. **Diverticulitis** – Left lower quadrant pain and tenderness
    a. Co---trimoxazole, Adult: 960 mg every 12 hrs. for 14 days. Adult: 1 g IM, IV or oral every 6 hrs. for 14 days. Adult: 500–750 mg every 12 hrs. for 5–14 days. *This is not a condition seen in the pediatric population.
    b. Can be associated with abscess or perforation so if severe pain, associated with peritoneal signs, or fever refer for surgical evaluation

VIII. Always consider other causes of abdominal pain, especially those that may require surgical management including ovarian or

testicular torsion, ectopic pregnancy, incarcerated hernias, young children <6 years may also present with intussusception.

RENAL DISEASE

When investigated, proteinuria along with acute renal insufficiency characterized by elevated blood urea nitrogen and creatinine can be seen in both the early and late stages during the clinical course of EVD. However, there is paucity of data regarding the long---term kidney complications among EVD survivors.

Anecdotal reports in Liberia reveal that there is a proportion of EVD survivors presenting with generalized body swelling.

As part of routine follow---up, assessment of kidney function should be done through detailed history, physical examination and laboratory investigation – see laboratory tests at follow---up

Table 5: Indications for referral to specialist physician

- Peripheral and/or facial body swelling
- Proteinuria noted on 2 or more tests
- Elevated or worsening creatinine levels on 2 or more tests

NEUROLOGY

Headache, memory impairment, peripheral neuropathy, and tremor appear to be common after EVD recovery. Less common neurologic sequelae include myopathy, seizures, and Parkinsonism. The causal link of these conditions with EVD remains to be determined. Biological factors as well as stress, depression, and other psychosocial mediators may be implicated. Mental health sequelae are specifically discussed in the section below.

Headache

Headache may be localized (frontal +/--- parietal) and intermittent in character with no obvious aggravating factors. Assessment is important, as there are multiple etiologies.

History:

- Location
- Frequency and timing (waking from sleep, wake with headache or develop throughout day, gradual or acute onset)
- Type of pain (knife like, band of pressure, pounding)
- Precipitating factors
- Evaluate for and have increased concern if associated visual symptoms, altered mental status or other neurologic symptoms, associated nausea, seizures or concomitant fever

Physical exam:

- BP
- tenderness to palpation
- nuchal rigidity
- fundoscopy exam for papilledema
- assess for focal neurologic deficits, refer if present.

Laboratory evaluation:

- malaria smear or rapid malaria test
- consider blood count and chemistry depending on associated symptoms

*If patient has fever, vision changes, severe and sudden onset or focal neurologic deficits consider meningitis, encephalitis, hemorrhagic or ischemic stroke, or tumor and treat or refer as indicated further evaluation. If features are benign, see below.

Management:

- Paracetamol – adult: 500 mg qid, pediatric: 15mg/kg qid
- Address psychosocial issues that may be contributing
- Conservative measure (exercise, sleep habits, improve diet)
- If response is inadequate, consider

  Addition of NSAID (ibuprofen 400 mg tid or Diclofenac 50 mg bid) for 7---14 days.

If patient responds, continue NSAID for at least 4 weeks and reassess.
* If giving an NSAID for more than 4 weeks, serum creatinine should be obtained.

- If patient still has no response, for adults consider;

  addition of amitriptyline 10---50 mg qid

  addition of fluoxetine 20 mg daily

  or addition of tramadol 50---100 mg q 6 hr.

Differential diagnosis of headache:

- Migraine, tension, or cluster headache,
- Headache related to other infections (sinusitis, influenza, etc), acute meningitis/meningoencephalitis,

- Chronic meningitis,
- Idiopathic intracranial hypertension,
- Intracranial tumour, hydrocephalus, subarachnoid haemorrhage, temporal arteritis

Peripheral Neuropathy

Differential diagnosis of peripheral neuropathy:

- Nutritional deficiencies (B12 and other B vitamins),
- Infections (HIV, syphilis),
- Endocrine abnormalities (diabetes mellitus, hypothyroidism), exposures (heavy metals),
- Compression neuropathies (carpal tunnel syndrome),
- Autoimmune, paraproteinaemia

Treatment of peripheral neuropathy:

- Amitriptyline, as described above

Tremors

Differential diagnosis of tremors:

- Parkinson disease,
- Liver dysfunction,
- Metabolic dysfunction (hyperthyroidism),
- Enhanced physiologic tremor, benign essential tremor,
- Alcohol withdrawal, intoxications
- Exposures (heavy metals such as manganese)

Treatment of tremors:

Postural/action tremor similar to benign essential tremor that interferes with activities of daily living: Propranolol as described above, titrating up to 120 --- 320mg total daily as needed and tolerated.

Seizures

Differential diagnosis of seizures:

- Idiopathic seizures,
- Metabolic derangement (hypoglycaemia, uraemia, hypocalcaemia, etc.),
- Alcohol withdrawal,
- Stroke---related
- Post---traumatic
- Infection---related (meningitis, encephalitis),
- Intoxications/medication---related.

Treatment of seizures:

- First line: Phenytoin 100 mg orally nightly, increasing up to 400 mg daily as needed
- Second line: Carbamazepine 200 mg orally twice a day, increasing as needed by 200mg/day at weekly intervals to a maximum of 1600 mg/day
- Considerations:
  - These drugs may case severe rash, blood dyscrasias, and hepatotoxicity
  - Long term use of phenytoin can lead to osteopenia
  - CBC and LFTs should be monitored after initiation of either drug
  - Both drugs are contraindicated in pregnancy. In females of childbearing potential, consider supplementation with folic acid.
  - If seizures are untreated or refractory to medication, patients should not drive or operate heavy machinery, and should not do certain activities (such as swimming) without supervision.
  - For an acute seizure lasting more than 2 minutes, 10 mg rectal diazepam can be given

Table 6: Indications for referral to neurologist

- Refractory or worsening headaches, headaches with focal deficits, headaches with papilledema on exam
- Headache accompanied by meningeal signs, including fever, neck stiffness, or altered consciousness (this is a medical emergency)
- Refractory neuropathic pain or muscle weakness
- Seizure lasting more than 10 minutes (this is a medical emergency) or episodes of altered consciousness, confusion, jerking or limbs which may be indicative of seizures
- Suspicion of Parkinson's disease

MENTAL HEALTH

Anxiety disorders, depression and post---traumatic stress disorder

People, who experienced very painful emotional events due to Ebola, often develop expected psychological distress. Yet, most people begin to recover from these effects with community support. It is important to assess and identify persisting symptoms of psychological distress and difficulties experienced by survivors in their work or interactions with other people. It is important to see if the person integrates well in his or her environment.

All primary health workers should be able to screen Ebola survivors for persisting symptoms of psychological distress. Two screening tools can be used to identify patients with these psychological distresses that could be indicative of anxiety disorders, depression or PTSD.

Guidelines for clinical evaluation:

- Always check for physical conditions that may underlie or contribute to mental health problems, such as, for example, anemia for depression
- Ask and look for symptoms and signs of emotional distress (anxiety, mood changes, fatigue), alcohol and drug use, and psychosis (hallucinations, delusions)
- Ask regarding impairment in daily functioning (i.e. is daily functioning impaired to the extent that the person cannot care of themselves or for child/elderly family members?)
- Ask regarding suicidal ideation. If yes, ask for plan and intention
- If and only if treatment for depression is available/accessible, administer the PHQ---9 survey for depression (See Annex 4)
- Ask regarding social support from family and community members.

In some settings, a home visit may provide an opportunity to better assess psychosocial issues, especially in the context of children who have lost their primary caregiver. For details, see *WHO mhGAP Humanitarian Intervention Guide for Mental, Neurological and Substance use Disorders in Non---specialized Health Settings*

A toolkit to assist social mobilizers and communicators in confronting stigma associated with EVD is available.

Differential diagnosis:

- Normal reactions to extreme stress (acute stress, grief)
- Depression
- Post---traumatic stress or anxiety disorder
- Psychosis
- Alcohol use disorders
- Drug use disorders

Treatment:

- In the context of post---EVD sequelae, a PHQ---9 score of 10 or higher should be considered an indicator of moderate---severe depression requiring treatment
- Treatment options for moderate---severe depression as well as other mental health disorders can be found in the *WHO mhGAP Humanitarian Intervention Guide: Clinical management of mental, neurological and substance use conditions in humanitarian emergencies*
- Frequent visits by a community health worker and/or phone check---ins by a mental health worker are advised.
- Group counseling and/or peer support groups may also be useful.

Table 7: Indications for referral to mental health specialist

- Imminent risk of suicide (current thoughts, plans or acts of suicide; history of thoughts or plans of self---harm in the past month or acts of self---harm in the past year in a person who is now extremely agitated, violent, distressed or uncommunicative)
- Psychotic symptoms, such as hallucinations, delirium, or aggressive behavior
- Any mental disorder not responding to treatment
- Any child exhibiting symptoms of depression of a mental health disorder should be managed medically by a specialist with experience in children's mental health problems
- Moderate or severe depression *(According to PHQ9 described below)* not responding to treatment for 4 weeks

Assessment tools:

PHQ9:

Patient Health Questionnaire (PHQ9) is a questionnaire that offers a concise screening tool for depression (annex 4). Diagnosis of depression or other anxiety disorders is made on clinical grounds, taking into account how well the patient understood the questions, as well as relevant information about loss of social functioning. If the total score is above 10 points, we can consider that the patient is clinically depressed and requires treatment.

TSQ:

Traumatic Screening Questionnaire (TSQ) is used to identify cases of PTSD (annex 5). We consider that a score of 5 or above (out of 10) in the first part and at least 1 in the second part allows us to decide that the patient suffers from PTSD.

Both these questionnaires should be filled in by the health professional (not by the individual patient).

Management plan:

1. Counseling and psychoeducation:
   --- Educate the patient about the symptoms and the medication
   --- Encourage the patient to continue social interaction and to do activities they used to enjoy
   --- Encourage the patient to be active in the everyday life
   --- Counsel the patient to deal with the current psychosocial problems using skills of problem resolving

2. Medications:
   ---Amitriptyline 50 to 100 mg/day. Avoid if patient has vision problems, urination problems, suspected heart, kidneys or liver disease.
   In these cases, use fluoxetine (20 mg/day), or refer.
   Refer patients who don't improve after 4 weeks of treatment.

   Monitor for side effects and do not use when allergic to drug, using a MAO inhibitor, or recovering from a heart attack

   * Do not prescribe Amitriptyline and Fluoxetine for patients under 12 years of age. First line for pediatric patients is providing psycho education to parents, addressing stressors present, and referring for further evaluation as needed.

3. Suicide Risk:
   Please immediately refer patients with eminent risk of suicide. Following are indicators of high risk of suicide:
   --- Current suicide thoughts
   --- Current suicide plan
   --- Previous suicide attempts
   --- Non communicative patients

--- Agitated or restless patients with suicide thoughts

Psychosis

Psychosis is a severe form of mental disease that causes unusual behavior (actions), unusual beliefs (delusion) and distorted information processing (hallucinations). Psychotic patients are conscious, but have lost sense of reality. They often loose the capacity to socialize, work, and/or self---care.

Suspect psychosis in a patient with the following symptoms:

- The patient is suspicious that other people have plans to harm him/her
- Unusual behavior such as neglected self---care, interrupting activities of other people, standing or staring in one position for long time…
- Speech that is difficult to understand or follow
- The patient reports hearing voices or in conversation with nobody

All patients suspected to have psychosis should be referred to a healthcare worker trained to use the mhGAP intervention guide (WHO manual for mental health, 2010) or a mental health clinician.

Substance misuse and dependency

Ebola survivors, in attempt to cope, use harmful substances including alcohol, marijuana, cocaine, heroin and tobacco. Health workers should ask all the survivors about use of these substances with the following scale:

Do you use any of the following substances: alcohol, tobacco, marijuana, or others (tar, cocaine or heroin)?

If yes, ask the following:

- Have you ever taken alcohol (or other substances) first thing in the morning?
- Have you gotten angry when people talked about your alcohol (or other substances) consumption?

- Have you ever felt guilty about your alcohol (or other substance) consumption?
- Have you tried to cut down your alcohol (or other substances) consumption?

Considering that each *Yes* is scored 1, the score of 2 or greater is considered clinically significant. You can then add the following question:

- Has this consumption affected your work, your family relationship or/and your personal plans?

In any cases of patient using any of these substances, please provide counseling to explore the benefits of using these substances and the actual harmful effects.

When the score is 2 or above, refer to a healthcare worker trained to use the mhGAP intervention guide or to a mental health clinician.

SEXUAL HEALTH

Sexual Counseling

All survivors should benefit from sexual counseling and training in correct use of the condom. The importance of abstinence as the most effective means of preventing sexual transmission should be emphasized. Ideally, trained and experienced counselors should carry out counseling. Counseling should target male survivors and where feasible their partners. Counseling should include safe sexual practices and reviewing with the patient and the sexual partner(s) the symptoms and signs of EVD and who to contact should a sexual partner develop symptoms. The importance of condoms in preventing HIV and other STIs should also be emphasized during counseling. Patient privacy and confidentiality must be respected.

Sexual history:

- Presenting complaint (site, duration, dyspareunia)
- Number and sex of partners
- Sexual practices (genital, anal, oral)
- Evidence of vascular disease, diabetes, history of Erectile dysfunction prior to EVD
- Methods of protection (male/female condoms etc.)
- Past history of STIs
- Pregnancy prevention methods
- Social history: age, smoking status, alcohol

Physical examination:

- Includes abdominal and pelvic examine

Management:

I. Decrease interest in sex, change in sexual function or pain during intercourse:

If YES→ screen for psychological factors

1. PTSD → see specific algorithm
2. Depression → see specific algorithm
3. Grief → see specific algorithm
4. Anxiety → individual PS counseling

II. Impotence

Impotence is a relatively common complaint among male survivors. In some it resolves with psychosocial counseling, while in others it persists and seriously affects quality of life. In these refractory cases comprehensive history and physical assessment to rule out other causes is critical, as well as regular follow up.

Premature ejaculation, other change in ejaculation if
psychogenic → refer for individual PS counseling
if possibly organic → address modifiable factors (alcohol,

smoking, etc.), seek urological advice if available,
consider pharmacotherapy → provide information and offer individual PS counseling

III. Discharge (urethral, vaginal) or genital ulcers or other skin abnormalities?

If YES → see STI (Genital Infections) section in Liberian National Therapeutic Guidelines

IV. Genital/pelvic pain or sensory change

If mild or improving spontaneously → trial of symptomatic treatment (see pain algorithm)

If evidence of infection →treat according to Genital Infections section of Liberian National Therapeutic Guidelines

If moderate to severe, worsening or not resolving → seek urological advice

V. Menstrual abnormalities

Amenorrhea

- Calculate BMI → Offer nutritional support if indicated
- Evaluate for anemia/Fe---deficiency → supplement if indicated
- If possible evaluate pituitary---ovarian axis, including TSH → replacement therapy if available

Reassure patient that amenorrhea is common after any serious illness.

Menorrhagia/metrorrhagia

- Examine +/--- pelvic ultrasound to exclude adnexal, uterine or cervical pathology
- Evaluate for anemia/ Fe---deficiency → supplement if indicated

- If no contraindication → consider trial of oral contraceptive pill

Table 8: Indications for specialist referral

- Dyspareunia in women not responding to treatment
- Worsening pelvic or groin pain in men
- Suspected psychological cause of Erectile dysfunction (after modifiable factors have been addressed)
- Menorrhagia/Metrorrhagia in women not responding to treatment or if post menopausal

5. MONITORING FOR PERSISTENT EBOLA VIRUS INFECTION IN SURVIVORS: GUIDELINES FOR TESTING AND COUNSELING

RELAPSE DUE TO PERSISTENT VIRUS & EVALUATION OF NEW ONSET FEVER

EVD survivors readily clear Ebola virus from the blood as the acute symptoms resolve but the virus may persist for months, and in some cases perhaps up to a year or more, in body sites that are harder for the immune system to reach ('immunologically privileged sites').

These sites include:

- The inside of the eye
- The central nervous system (brain and spinal cord)
- Testicles in males.
- In women who have been infected while pregnant, the virus may persist in the;
    - Fetus, amniotic fluid and placenta,
    - Breast milk

*There is presently no evidence that women who become pregnant after they have recovered from EVD run the risk of persistent Ebola virus infection in the developing pregnancy (fetus, amniotic fluid, or placenta).

- Virus may also persist in the breast milk of women who were infected while breastfeeding.

Although arthralgia is very common in EVD survivors, it is unknown whether Ebola virus persists in the joints. Although considered rare, relapse due to EVD has been reported. In one case, a survivor developed meningitis nine months after recovery from acute EVD. Ebola virus was detected by PCR in the CSF and at a lower lever in the blood, which was thought to represent "leakage" from the active replication in the central nervous system.

Guidelines for clinical evaluation:

- In most cases a RDT for malaria is indicated
- In addition to standard precautions, IPC measures for EVD (see details below) should be implemented for clinicians examining EVD survivors with acute febrile illnesses or other clinical manifestations suspected to reflect potential EVD relapse, as well as when possible exposure is anticipated to blood or any body fluid or tissue of an EVD survivor who is again ill

  * Clinicians should consider more common causes of fever in the region, such as malaria and typhoid fever, as well as relapse due to persistent Ebola virus in survivors who present with new onset fever.
- Uveitis and meningitis (if the patient presents with neurological symptoms, including fever, headache, neck stiffness, photophobia, altered mental status, and/or seizures) may be particularly suggestive of EVD relapse.
- Blood should be tested for Ebola by RT---PCR
- If meningitis is suspected, a lumbar puncture should be performed and the CSF tested for Ebola by RT---PCR. This should be done even if the patient's blood has previously tested negative.
- RT---PCR testing of other body fluids relating to observed focal symptoms, such as joint fluid in patients with inflammatory arthritis or aqueous humour of the eye in patients with uveitis, may occasionally be indicated.

Differential diagnosis:

- Malaria
- Typhoid fever
- Rickettsial infection
- Bacterial, TB, or other viral (i.e. non---EVD) meningitis

Treatment:

- Malaria treatment if confirmed by RDT or highly suspected
- Antibiotics for suspected typhoid fever or bacterial meningitis
- Anti---TB drugs if confirmed or suspected TB (note that, when possible, the Xpert MTB/RIF rapid test on CSF is preferred over conventional microscopy and culture in persons with suspected TB meningitis) (http://www.who.int/tb/publications/xpert_policyupdate/en/)
- Doxycycline for suspected Rickettsial infection

Table 9: Indications for specialist referral

- Persons confirmed or highly suspected to have relapsed EVD should be immediately referred to an ETU
- Persons with unprotected direct exposures to potentially infected body fluids and tissues of EVD survivors who have relapsed should be considered potential contacts and monitored for 21 days after exposure.

SEMEN TESTING AND COUNSELING FOR MALE EVD SURVIVORS

Transmission of EVD can occur during unprotected sexual intercourse with a male survivor who is still harboring live viruses in his semen. This event can cause ongoing transmission and prolong an EVD outbreak. Even a small percentage of survivors who transmit EBOV to their sexual partners could prolong clusters of infection or spread EBOV to new communities. Additionally, it may remain the potential source of new outbreak in a population long after the end of one outbreak.

The blood---testes barrier makes the testes immune---protective and therefore protects EVD viral particles from destruction by the immune system for a long period after the virus has disappeared from the blood. The duration of infectivity of male survivors harboring live viruses in their semen is not precisely known but has been shown to occur for up to 14

months as of the writing of this document.

All male survivors should abstain from sexual intercourse. If not possible, condoms must be used at all times. Abstinence should continue for 12 months from the time of ETU discharge. Beyond this period, sexually active male survivors should continue to abstain or engage in protected sexual intercourse, by using condoms, and receive semen testing for EVD by RT---PCR until the semen is confirmed negative for the Ebola Virus. Males who test positive should continue to benefit from semen testing. Where testing is not available, male survivors should consider sustaining their abstinence or appropriate condom use for sexual intercourse for as long as possible. Recommendations may change as new evidence becomes available.

RT---PCR testing of semen helps male EVD survivors assess whether or not they are potentially at risk of transmitting EBOV through sexual contact and empowers them to make informed decisions to protect their intimate partners. Semen testing promotes safe sex.

Clients should be asked not to ejaculate for 2 days prior to specimen collection.

VAGINAL FLUIDS TESTING AND COUNSELING FOR FEMALE EVD SURVIVORS

Ebola virus RNA has been detected by RT---PCR in vaginal fluid from one woman 33 days after symptom onset. However, live virus has never been isolated from vaginal fluids and no suspected cases of female---to male sexual transmission have been reported. Therefore, routine testing of vaginal fluids is currently not recommended. Additional information and guidance may be available after more research is performed.

BREAST MILK TESTING, BREASTFEEDING, AND COUNSELING FOR FEMALE SURVIVORS

Ebola virus RNA has been detected at low levels in breast milk up to 16 months after onset of symptoms. More evidence is needed to know the precise duration and infectivity of Ebola virus persistence in breast milk. Due to the possible risk of virus persistence in breast milk, EVD survivors who are lactating are encouraged to have their breast milk tested for Ebola virus by RT---PCR. Based on this current evidence and keeping in mind the practical applicability of testing the following recommendations are advised in the context of Liberia.

When testing is available:

- If RNA is not detectable, continue breastfeeding;
- If RNA is detected, it's recommended to discontinue breastfeeding and repeat the test every 48 hours until the RNA is not detectable in 2 consecutive samples.
  Meanwhile infant feeding guidance and psychosocial support should be given to mothers. Infant formula milk may be used (see http://www.ennonline.net/operationalguidanceiycfv2.1).

When testing is not available:

- Mother should be counseled
- Replacement feeding is only recommended when affordable, feasible, accessible, sustainable and safe (AFASS).

At the same time, mothers should be supported to keep up their breast milk production and enable them to resume breastfeeding once two consecutive milk samples test negative. Other psychosocial support should be provided to the mother and family as needed.

6. CONSIDERATIONS FOR SPECIAL POPULATIONS

PAEDIATRICS (CHILDREN ≤ 15 YEARS OLD)

The Ebola Virus Disease outbreak had a devastating impact on the pediatric population. It affected the wellbeing of children physically, psychological and socially. As of mid --- September 2014 children less than 15 years of age comprised approximately 14% of all confirmed and probable cases (Kourtis, Appelgren, Chevalier, & McElroy, 2015). The case fatality rate for children <15 years was 74% with children less than five years being more likely to die than older children. The outbreak resulted in approximately 4000 orphans with the social ramifications that cannot be ignored.

Unfortunately, there is lack of evidence on disease severity, prognosis and complications in children in comparison to adults. All Child EVD survivors should have a comprehensive pediatric history and examination because the physical, psychological and social problems are different from adults.

General pediatric care should be followed in line with National Therapeutic Guidelines for Liberia, with particular attention to Growth and Monitoring, Neurodevelopment, Immunization, Nutrition and Social problems (Orphans).

History and Physical Assessment of Child EVD survivors

During the first visit at facility a comprehensive history must be obtained including the following:

- Antenatal
- Natal
- Post---Natal
- Developmental Milestones
- Immunization
- Feeding
- Familial

- Social--- if orphans, who the primary care givers must be ascertained (orphanage, extended family, foster care and vulnerable children)

Physical Examination:

- At birth, serial APGAR, and full neonatal exam
- Evaluate nutritional and growth parameters; weight, length/height and head circumference and plot on the growth chart at each visit.
- Nutrition: Children with signs of Failure to thrive or malnutrition must be carefully assessed and all signs documented (Mid Upper Arm Circumference <6 Months---5 years).
- Neurodevelopment (Pediatric survivors between the ages of 0 ---5 years must be properly assessed to rule out Cerebral Palsy, Brain Injury or other forms of neurological sequalae).
    - Head Circumference must be measured on every visit.
    - Neurodevelopment milestones must be done and recorded for every visit (Gross motor, fine motor, speech and hearing, social and behavioral).
- Social: Children should be evaluated for signs of abuse and neglect (food security, child labor, and school attendance). Determine primary care---giver (parents, extended family, foster care, orphanage, vulnerable children).

Laboratory evaluation:

- Will be done based upon physical exam findings.
- Perform RDT for malaria if persistent fever or anemia

Differential diagnosis of suspected malnutrition, faltering growth, or neuro---developmental delay:

- Malnutrition (e.g. iron, folic acid, vitamin A and B12, or other vitamin deficiencies)

- Faltering growth (consider testing for other acute and chronic infections such as malaria, TB, HIV/AIDS, gastrointestinal helminthic and parasitic infections, and thyroid abnormalities)
- Neuro---developmental delay due to previous brain injury due to EVD and/or seizure disorder
- Underlying co---morbidity due to malignancy, diabetes mellitus, or immune---compromised state

Management:

- Dietary advice and supplemental feeding provided to all children with signs of malnutrition. Malnutrition should be managed according to IMCI guidelines (see WHO Pocket Book for the management of Childhood illnesses, 2013).
- Patients with signs of failure to thrive should be assessed for malnutrition, coexisting metabolic, inherited, chronic infections (e.g. tuberculosis, HIV) and other causes of growth deals.
- Check that vaccinations are up to date, including any that the child may have missed during the EVD epidemic. Vaccinations should be given as per routine schedule remembering that children with evidence of immunosuppression or severe acute malnutrition who have active TB or HIV infection should not receive live organism vaccines until their disease is under control.
- Also ensure all children are up to date with any mass drug administration program for eradication of neglected tropical diseases and vitamin A supplementation.
- Children showing signs of neurodevelopmental abnormalities should be counseled and referred to Pediatricians for further care.
- Close collaboration with Social Services department is recommended for holistic management of orphan EVD survivors.

Table 10: Indications for referral to pediatrician

- Failure to thrive, after instituting therapeutic food
- Neurodevelopmental abnormalities
- Mental health disorders (refer to a mental health specialist)

NEONATES BORN TO SURVIVORS WHO WERE INFECTED WHILE PREGNANT

All neonates born to women who were pregnant at the time of EVD infection in previous outbreaks have died within the first 19 days of life; one newborn survived after receiving experimental therapy.

Following delivery:

- The newborn should also be managed using Ebola IPC precautions for 21 days following birth, regardless of laboratory results or presence or absence of symptoms, since EVD in neonates may be atypical or not evident early in infection. Recommendations on breast---feeding and breast milk testing are described in section 5 above.
- New born babies who have been breastfed by a mother whose milk tests positive should be monitored as a contact for 21 days since the last day of breastfeeding of the RT---PCR positive milk.
- Newborn babies who become symptomatic during the 21---day follow---up period after exposure (at birth or to RT---PCR positive breast milk) should be managed as EVD suspects and treated appropriately.
- Routine care for such newborns includes:
    - Immunization: All newborns must be immunized according to the Liberian EPI schedule.
    - Growth monitored and documented (Growth Charts) upon every EPI visit.

i) Head circumference
ii) Weight
iii) Length

FEMALE SURVIVORS WHO BECOME PREGNANT FOLLOWING RECOVERY

Although it is known that acute Ebola virus disease during pregnancy is associated with a much higher mortality rate, little is known about the course of pregnancy in Ebola survivors. Guidance for pregnancy care should be taken from National Therapeutic Guidelines for Liberia which address malaria in pregnancy as well as WHO's document entitled "*Pregnancy, childbirth, postpartum and newborn care*" which is available online.

Antenatal follow up

Due to concerns regarding increased risk of stillbirth in survivors, consider pregnancy as high risk, therefore recommend more frequent ante---natal follow up in a secondary level facility.

- EVD survivors who are considering pregnancy or who are pregnant should be placed on ferrous salt and folic acid as well as a multiple vitamin.
- Monthly weights should be obtained with a goal of 5 pounds of weight gain in the first 5 months and one pound each week thereafter.
- Consideration should be given to early ultrasound followed by ultrasound every 6---8 weeks to assess fetal growth, as well as referral as required.
- Intermittent preventative treatment (IPT) of malaria should be provided using curative doses of sulfadoxine---pyrimethamine starting as early in the second trimester as possible and repeated every 4---6 weeks until delivery. *(Reference: Updated WHO Policy*

Recommendation (Oct. 2012); Intermittent Preventive Treatment of malaria in pregnancy using Sulfadoxine--- Pyrimethamine)

Delivery and Obstetric care

- Standard obstetric IPC precautions should be used when exposure to bodily fluids is possible during childbirth and/or management of complications.
- Complications related to pregnancy in EVD survivors should be reported to Liberia Ministry of Health.

7. INFECTION PREVENTION & CONTROL CONSIDERATIONS IN SURVIVORS

STANDARD IPC PRECAUTIONS FOR ROUTINE CLINIC VISITS

Standard IPC precautions should be maintained at all routine clinic visits. (http://www.who.int/csr/resources/publications/standardprecautions/en/) With EVD survivors, the risk lies in handling their body fluids therefore adherence to standard precautions should be maintained at all times. This includes;

- Proper hand hygiene (*My Five moments for hand hygiene approach*) (http://www.who.int/gpsc/5may/hh_guide.pdf)
- Appropriate use of PPE
- Sharps safety
- Appropriate waste and linen management
- Environmental cleaning and decontamination protocols of reusable medical equipment.

EVD IPC PRECAUTIONS AND PPE WHEN HANDLING POTENTIALLY INFECTIOUS SPECIMENS

Health workers collecting or handling potential Ebola virus---infected specimens from EVD survivors, including semen specimens and specimens collected from patients with possible relapse, should always wear full PPE.

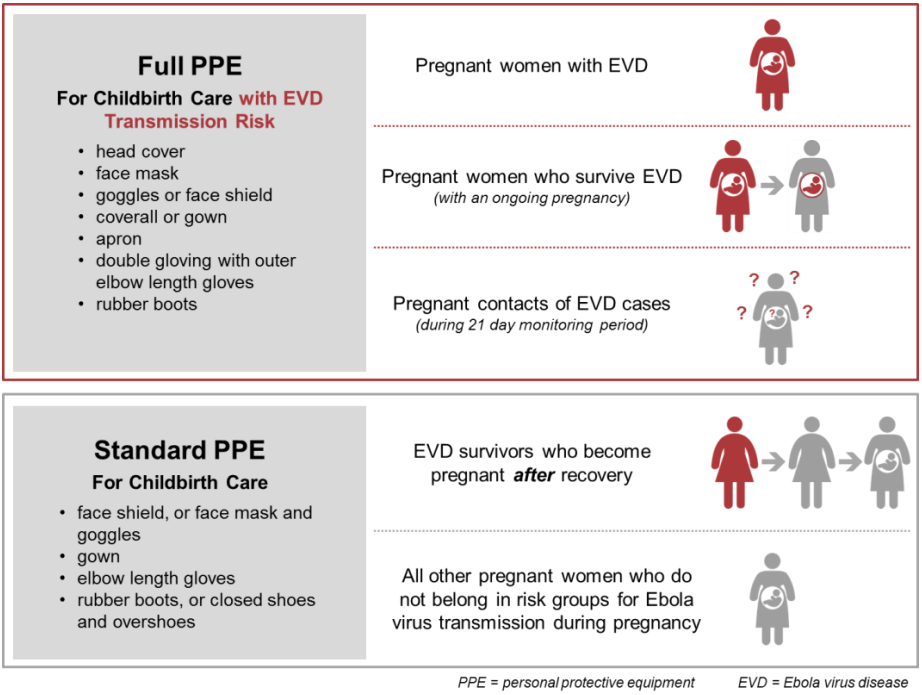
This includes, but is not limited to:

- While attending to deliveries of women who were infected with Ebola virus while pregnant (see Figure below);
- Performing surgical procedures that involve the eye, male genito---urinary tract, brain and spinal cord, or female breast;
- Aliquotting specimens or performing centrifugation.

PPE should include head cover, face mask, goggles or face shield, boots, coverall or gown, apron, and double gloves (with outer gloves being elbow length for deliveries).

For additional guidance on the types of EVD PPE to be used and instructions for putting on and removing and waste management and environmental cleaning guidance, please refer to *WHO Interim Infection Prevention and Control Guidance for Care of Patients with Suspected or Confirmed Filovirus Haemorrhagic Fever in Health---Care Settings, with focus on Ebola*.

Figure 1: PPE



DISPOSING OF INFECTIOUS WASTE

All waste potentially infected with Ebola virus should be collected in designated containers and leak proof bags (two if necessary) and stored in a safe place away from children and animals until it can be collected and incinerated, preferably on site, according to waste management recommendations for EVD care. If waste is moved offsite, it is critical to understand where and how it will be treated and destroyed. If incineration is not possible, then burning and/or burying, followed by covering with soil, is recommended. For more information refer to WHO's guideline on *Safe Management of Wastes from Health---Care Activities*

IPC GUIDANCE FOR SURVIVORS AT HOME

Breast milk from lactating EVD survivors and semen from male EVD survivors are two body fluids in which Ebola virus may persist for many months. Women and men whose breast milk or semen are PCR positive or have not been tested should practice good hand and personal hygiene by immediately and thoroughly washing with soap and water after any contact with these body fluids. Any other potentially contaminated objects or surfaces should be washed with water and soap and then decontaminated by soaking them in a

1.5% chlorine solution for 15 minutes. Contaminated bed sheets or clothing should be safely disposed of and incinerated. All potentially contaminated materials should be collected in designated containers and safely disposed of as described in the section on *Disposing of infectious* waste above. If this is not possible, these materials should first be laundered with detergent and water, then rinsed and soaked in 0.05% chlorine solution for 15 minutes. Survivors should be informed that this handling may damage the materials.

ELECTIVE SURGERY AND MANAGEMENT OF PENETRATING TRAUMATIC INJURY

Although more evidence is needed, the available data indicate that Ebola virus may persist for a year or more in certain immunologically privileged body sites (including the eye; male genitourinary tract; brain and spinal cord; fetus, amniotic fluid, placenta, and breast milk of women infected during pregnancy; and potentially the joints). Elective surgery on any of these immunologically privileged body sites in EVD survivors should thus be performed only after careful consideration of the risk---benefit to the patient and the surgical team and supporting health workers. In most cases, it is advisable to delay elective surgery until at least one year after resolution of acute EVD. In cases where it is deemed essential to proceed with surgery involving a known immunologically privileged body site for Ebola virus, the procedure should be done under full EVD IPC precautions. In addition, in order to appropriately assess and manage risk post---operatively, swabs of the implicated body site or fluid should be taken and tested for Ebola by RT---PCR. The same approach should be taken when attending to penetrating trauma to the immunologically privileged body sites in EVD survivors.

8. RISK COMMUNICATION CONSIDERATIONS

HOW RISK COMMUNICATION AFFECTS CLINICAL CARE

Risk communication is the exchange of information and concerns between the expert (the health care team) and the persons at risk (the Ebola survivor). It is a dynamic process and must be part of the clinical care provided to survivors.

One of the key challenges of risk communication is that experts and those affected do not necessarily assess risk in the same way. Many subjective factors (e.g. familiarity of a hazard, magnitude of a hazard, previous experience, traditional beliefs, fear and controllability) lead to risk perception. This makes the work of clinical teams challenging as survivors will not always follow expert advice.

The second challenge in risk communication is that trust must be present in order for people to take expert advice. Trust can be eroded if those delivering health care are not credible, are not perceived to have expertise, do not show empathy or do not keep their promises. Therefore, all risk communication must aim to strengthen trust in the clinical care teams and services.

Effective risk communication improves utilization of health services, increases compliance with treatment and care, and builds trust and confidence in health professionals. Ultimately, it contributes to good outcomes in survivors and can help prevent further transmission. Risk communication is an integral part of clinical care.

RISK COMMUNICATION CONSIDERATIONS

Ebola survivors and their families have all inevitably undergone great suffering and challenges. They have survived, but have many fears, concerns and questions. Their understanding of Ebola and what it means to
be a survivor are influenced by their previous experiences and their social and cultural contexts. Therefore, it is important that health care providers, health facility personnel, those providing community and family level care, and health policy and planning officers use good risk communication practice.

When people are consumed by their worries they cannot listen to or take the advice we give, however reasonable. It is important to listen and acknowledge people's fears, concerns or anger before providing
advice. In risk communication, misperceptions, misinformation and rumors arise and they must be identified and addressed quickly and with empathy.

GOOD PRACTICE

Tips for effective risk communication in the clinical management of survivors include:

1. Try to understand how the Ebola survivor and their family perceive their health status and identify their main concerns – stigma, inability to find employment, worries about transmitting the disease through sexual contact or from mother to baby.
2. Elicit these concerns as part of a conversation, before giving advice or instructions. Provide opportunities – prompted or spontaneous – for them to ask questions.
3. Use language that is appropriate for the educational level of the survivor. Explain scientific terms and avoid using jargon. Use the language of the survivor and their community.
4. Use pictures and posters to reinforce what you say and to provide another way to convey your messages and advice.

5. Work with community level health workers, volunteers and other groups and adapt your advice as needed (e.g. content, language, modes of delivery).
6. Engage community leaders, religious figures and other trusted persons to help you get your messages across and to reinforce the advice given by clinical care personnel.
7. Find ways to get feedback on how survivors and their families perceive your communications and make regular improvements to the way you communicate risk.
8. Work closely with risk communications experts to deal with challenges such as "resistance" and rumors and if possible, enlist them to train clinical teams on risk communication. There are often critical points in the interactions between the Ebola survivor, their family and health care personnel at which effective risk communication is very important.

Pre---clinical stage:
Good risk communication encourages and motivates survivors to seek clinical care and support.

First visit to a care facility or service:
Good risk communication by all personnel (e.g. doctors, nurses, receptionists, gatekeepers, cleaners) influences the perception that the survivor will develop about receiving health care and following the advice and treatment given.

Subsequent visits or interactions:
Good risk communication during subsequent visits can strengthen the trust and confidence the survivor develops about the services provided, and allows for opportunities for the clinical care team to address persisting and new concerns. If the experience is positive, the survivor may become a champion within their community and encourage other survivors to seek care.

9. REFERENCES

WHO. Ebola haemorrhagic fever in Zaire, 1976. Report of an International Commission. Bull World Health Organ 1978;56:271---93.

Wendo C. Caring for the survivors of Uganda's Ebola epidemic one year on. Lancet 2001;358:1350.

Bwaka MA, Bonnet MJ, Calain P, et al. Ebola hemorrhagic fever in Kikwit, Democratic Republic of the Congo: clinical observations in 103 patients. J Infect Dis 1999;179 Suppl 1:S1---7.

Clark DV, Kibuuka H, Millard M, et al. Long---term sequelae after Ebola virus disease in Bundibugyo, Uganda: a retrospective cohort study. The Lancet Infectious Diseases 2015;Apr 21:pii: S1473---3099(15)70152---0.

WHO. Clinical care for survivors of Ebola virus disease; Interim guidance http://www.who.int/csr/resources/publications/ebola/guidance---survivors/en/

Emond RT, Evans B, Bowen ET, Lloyd G. A case of Ebola virus infection. Br Med J 1977;2:541---4.

Formenty P, Hatz C, Le Guenno B, Stoll A, Rogenmoser P, Widmer A. Human infection due to Ebola virus, subtype Cote d'Ivoire: clinical and biologic presentation. J Infect Dis 1999;179 Suppl 1:S48---53.

Jampol LM, Ferris FL, 3rd, Bishop RJ. Ebola and the Eye. JAMA Ophthalmol 2015.

Kibadi K, Mupapa K, Kuvula K, et al. Late ophthalmologic manifestations in survivors of the 1995 Ebola virus epidemic in Kikwit, Democratic Republic of the Congo. J Infect Dis 1999;179 Suppl 1:S13---4.

Nanyonga M, Saidu J, Ramsay A, Shindo N, Bausch DG. Sequelae of Ebola Virus Disease, Kenema District, Sierra Leone. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America 2015.

Rowe AK, Bertolli J, Khan AS, et al. Clinical, virologic, and immunologic follow---up of convalescent Ebola hemorrhagic fever patients and their household contacts, Kikwit, Democratic Republic of the Congo. Commission de Lutte contre les Epidemies a Kikwit. J Infect Dis 1999;179 Suppl 1:S28---35.

Varkey JB, Shantha JG, Crozier I, et al. Persistence of Ebola Virus in Ocular Fluid during Convalescence. The New England journal of medicine 2015;372:2423---7.

Mora---Rillo M, Arsuaga M, Ramirez---Olivencia G, et al. Acute respiratory distress syndrome after convalescent plasma use: treatment of a patient with Ebola virus disease contracted in Madrid, Spain. Lancet Respir Med 2015.

De Roo A, Ado B, Rose B, Guimard Y, Fonck K, Colebunders R. Survey among survivors of the 1995 Ebola epidemic in Kikwit, Democratic Republic of Congo: their feelings and experiences. Trop Med Int Health 1998;3:883---5.

Mohammed A, Sheikh TL, Gidado S, et al. An evaluation of psychological distress and social support of survivors and contacts of Ebola virus disease infection and their relatives in Lagos, Nigeria: a cross sectional study --- 2014. BMC Public Health 2015;15:824.

Christie A, Davies---Wayne GJ, Cordier---Lasalle T, et al. Possible sexual transmission of ebola virus --- liberia, 2015. MMWR Morb Mortal Wkly Rep 2015;64:479---81.

Qureshi AI, Chughtai M, Loua TO, et al. Study of Ebola Virus Disease Survivors in Guinea. Clinical infectious diseases : an official publication of the Infectious Diseases Society of America 2015.

Liddell AM, Davey RT, Jr., Mehta AK, et al. Characteristics and Clinical Management of a Cluster of 3 Patients With Ebola Virus Disease, Including the First Domestically Acquired Cases in the United States. Ann Intern Med 2015.

Shultz JM, Baingana F, Neria Y. The 2014 Ebola outbreak and mental health: current status and recommended response. JAMA 2015;313:567---8.

Evans DK, Popova A. West African Ebola crisis and orphans. Lancet 2015;385:945---6.

Reardon S. Ebola's mental---health wounds linger in Africa. Nature 2015;519:13---4.

Formenty P, Libama F, Epelboin A, et al. Outbreak of Ebola hemorrhagic fever in the Republic of the Congo, 2003: a new strategy?. Med Trop (Mars) 2003;63:291---5.

Hunt L, Gupta---Wright A, Simms V, Tamba et.al. Clinical presentation, biochemical, and haematological parameters and their association with outcome in patients with Ebola virus disease: an observational cohort study. Lancet Infect Dis. 2015;15(11):1292.

Wolf, T, Gerrit Kann G, Becker S, et. al, Severe Ebola virus disease with vascular leakage and multiorgan failure: treatment of a patient in intensive care. Lancet, 2015; (11) **385**,1428

10. ANNEXES

10.1 ANNEX 1: MEDICATIONS, MEDICAL EQUIPMENT, DIAGNOSTIC TESTS

These medications are the basic medications that are needed in serving EVD Survivors. Some of the medications are for general medical conditions also seen in Survivors. Certain parenteral medications are more appropriate for inpatient settings.

Medicines, medical equipment and diagnostic tests listed in italics are considered essential for EVD Survivors clinical care according to WHO Clinical care for survivors of Ebola virus disease; Interim guidance February, 2016.

Analgesics

Paracetamol
Ibuprofen
Diclofenac
Tramadol
Meloxicam*
*Consider piroxicam, celecoxib, etodolac XL (alternative long acting NSAIDs)

Anti---Infective Medicines

Anti---helmithentics

Mebendazole
Albendazole

Antibacterials

Beta Lactams

Amoxicillin
Ceftriaxone
Cefuroxime

Benzathine penicillin
Oral Penicillin

Other Antibacterials
Chloramphenicol
Ciprofloxacin
Co---trimoxazole
Doxycycline
Erythromycin
Gentamycin
Metronidazole
Nitrofurantoin

Antifungal Medicines
Fluconazole
Ketoconazole
Miconazole Nystatin

Anti---amoebic and Anti---giardiasis Medicines
Metronidazole

Antimalarial Medicines
Artesunate
Artemether
Artemether + Lumefanthrine
Artesunate + Amodiaquine
Quinine sulfate
Sulfadoxine + Pyrimethamine

Steroids
Dexamethasone
Hydrocortisone

Prednisolone
Triamcinolone acetonide injectable

Vitamins and Minerals
Ferrous fumarate
Ferrous salt + folic acid
Multiple Vitamins
Vitamin C

Antihypertensive Medicines
Atenolol
Captopril
Furosemide
Hydralazine
Hydrochlorothiazide
Nifedipine

Respiratory Medicines
Salbutamol
Aminophylline
Beclomethasone aerosol

Anti---diabetic Agents
Metformin
Insulin preparations (long and short acting)

Gastrointestinal Medicines
Aluminum hydroxide + magnesium trisilicate
Ranitidine
Omeprazole
Buscopan (hyosine butylbromide)
Bisacodyl

Anti---allergics

Chlorpheniramine

Medicines Used in Psychotic Disorders

Chlorpromazine

Haloperidol

Anti---convulsants

Carbamazepine

Clonazepam

Diazepam

Phenobarbitone

Phenytoin

Medicines Used in Mood Disorders

Amitriptyline

Fluoxetine

Dermatological Medicines

Topical Antifungal Medicines

Clotrimazole

Nystatin

Topical Anti---bacterial Medicine

Neomycin + bacitracin

Topical Anti---inflammatory Medicine

Hydrocortisone

Ophthalmologic Medication (for eye providers)

Anti---inflammatory Agents

Prednisolone eye drops

Dexamethasone eye drop
Atropine drops 1%
Cyclopentolate 1%
Timolol drops 0.5%
Artificial tears

Antibacterial Agents
Tetracycline eye ointment or drops
Gentamicin eye drops

Others drugs
Digoxin
Sulfasalazine
Metoclopramide

Diagnostic tests
Molecular---based assays for Ebola virus RNA (i.e. RT---PCR)
Malaria rapid tests
Urine pregnancy tests
HIV tests

Equipment
Slit lamps
Tonometers to measure intraocular pressure
Ophthalmoscopes
Audiometers
Tuning forks
UNICEF country specific growth charts
MUAC tapes

10.2 ANNEX 2: MUSCULOSKELETAL PAIN AND FATIGUE

Returning to work and household activities:

Reducing the amount of energy you spend on a task and the strain on your body can allow you to maintain or return to meaningful activities. Some ways of helping to do this include:

- Eliminate unnecessary activities
- Sit instead of stand to complete tasks whenever possible, such as washing or preparing food
- Avoid remaining in one position for long periods of time
- Spread tasks over the week and avoid working in the heat of the day
- Pace yourself, take regular brief rest breaks and avoid working too quickly
- Ensure you get enough sleep and nutrients to fuel your body
- Avoid heavy loads and repetitive movements
- Try and take a gradual return to work and your regular routine so that your body can get used to being active again. Start with the lightest duties possible and work your way up as your body allows.

Protecting joints:

- Store things for everyday use in easy to reach places to avoid unnecessary stooping, bending and reaching
- Avoid scrubbing floors while on your knees
- Use problem solving methods to find the right activities and ways of doing them that avoid aggravating your pain
- Sometimes applying warm or cold compress to a painful joint can reduce discomfort. Work out what feels best and make sure what you apply is safe and your skin is protected.

Exercising*:*

- Regular low---impact exercise such as walking and gentle stretching will help you maintain strength and fitness. Becoming weaker can make your fatigue worse
- Exercise can help you maintain your joint range of motion and avoid stiffness and injury
- Never exercise a joint when it is painful. Work out when the best time of day is for you to exercise depending on your symptoms and routine.
- Never force joints beyond your comfort range and avoid jerky movements

10.3 ANNEX 3: AUDITORY SEQUALAE

Strategies for the person with uni--- or bilateral hearing loss

- When sitting in a busy place, such as a social gathering, try sit in the corner or near the wall with the ear that hears better facing the room. This way people talk towards the ear with better hearing and will also help you work out where sounds are coming from.
- Try standing close to people and look at their mouths, expressions and gestures when they talk to you. This can give you clues to fill in any information you did not hear.
- When you have hearing loss it is very important to be careful in traffic situations and look carefully when crossing the road.

Strategies for family and friends

- Face the person or stand towards the side of the ear that can hear better and talking clearly, making sure you do not cover their mouth.
- Stand close to the person when speaking to them.
- Get the person's attention before you start speaking to them.
- Try get rid of other distracting noises, like the television or radio
- Be patient and repeat words and or instructions if needed

Strategies for at school

If the child is in school, consider asking if someone can visit the classroom to talk to the teacher and classmates about what can be done to make sure that the child can continue to participate and learn well.

- Talk to the teacher about the need to face the children rather than the board when talking and giving instructions and to speak clearly.
- Ask the other children in the classroom to slow down and face the child when they are talking and playing
- Put the child's desk at the front of the classroom and to the side of the ear with hearing loss so that most of the sound is coming towards the ear that can hear better.

- The child should be encouraged to turn their seat so that the ear with better hearing is more directly facing the teacher. This will mean that they may not hear other children as well when they talk, so the teacher should be encouraged to summarize what is said before moving on.
- Make sure the classroom is well lit so that the child can more easily lip read.
- Ask the teacher to try and summarize key points and write instructions on the board.

Be aware that hearing loss can affect confidence and self---esteem and as a result, people with hearing loss may withdraw and be hesitant to participate in activities. Everyone should handle this sensitively and children especially should be given a lot of gentle encouragement and praise.

10.4 ANNEX 4: PHQ – 9

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

Over the last 2 weeks, how often have you been bothered by any of the following problems? *(Use "✔" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____

=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

10.5 ANNEX 5: TSQ

Figure 3: Trauma screening questionnaire (TSQ)

Trauma Screening Questionnaire (TSQ)

Your own reactions now to the traumatic event

Please consider the following reactions which sometimes occur after a traumatic event. This questionnaire is concerned with your personal reactions to the traumatic event which happened to you. Please indicate (Yes/No) whether or not you have experienced any of the following at least twice in the past week.

		No	Yes
1.	Upsetting thoughts or memories about the event that have come into your mind against your will		
2.	Upsetting dreams about the event		
3.	Acting or feeling as though the event were happening again		
4.	Feeling upset by reminders of the event		
5.	Bodily reactions (such as fast heartbeat, stomach churning, sweatiness, dizziness) when reminded of the event		
6.	Difficulty falling or staying asleep		
7.	Irritability or outbursts of anger		
8.	Difficulty concentrating		
9.	Heightened awareness of potential dangers to yourself and others		
10.	Being jumpy or being startled at something unexpected		

Part II:

1. Have these symptoms affected interactions of the patient with others?

2. Have these symptoms affected activities at home or at work?