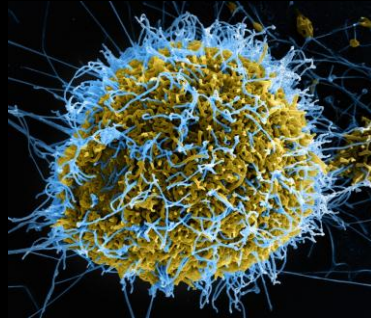


# EBOLA – Next to our door



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**Society for Emergency Medicine, India**  
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# We as EP's - What are our concerns?

- What is Ebola?
- The incidence ?
- Risks for an EP?
- how to prepare and protect ourselves in ER?
- How to treat?
- Travel advice?

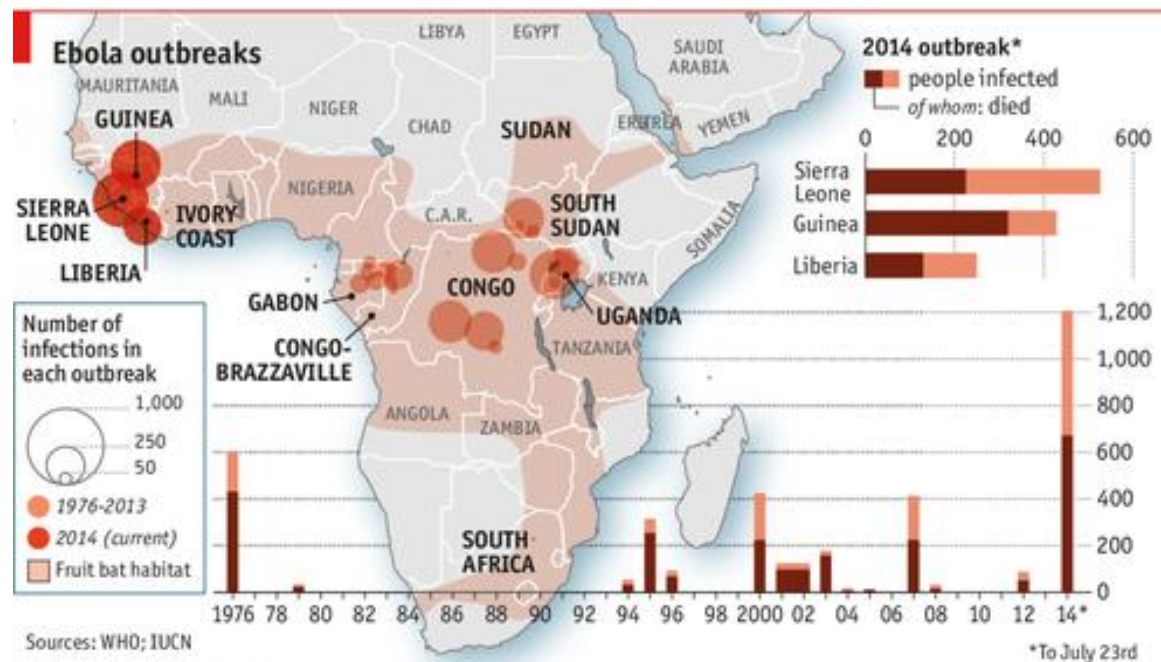
# What is Ebola?

- Filoviridae.
- Genus ebola virus
- 5 species
- 4 causes diseases to humans



# The outbreaks

- 1976 (also the year of discovery) – Sudan and Congo
- 2014 March – west Africa



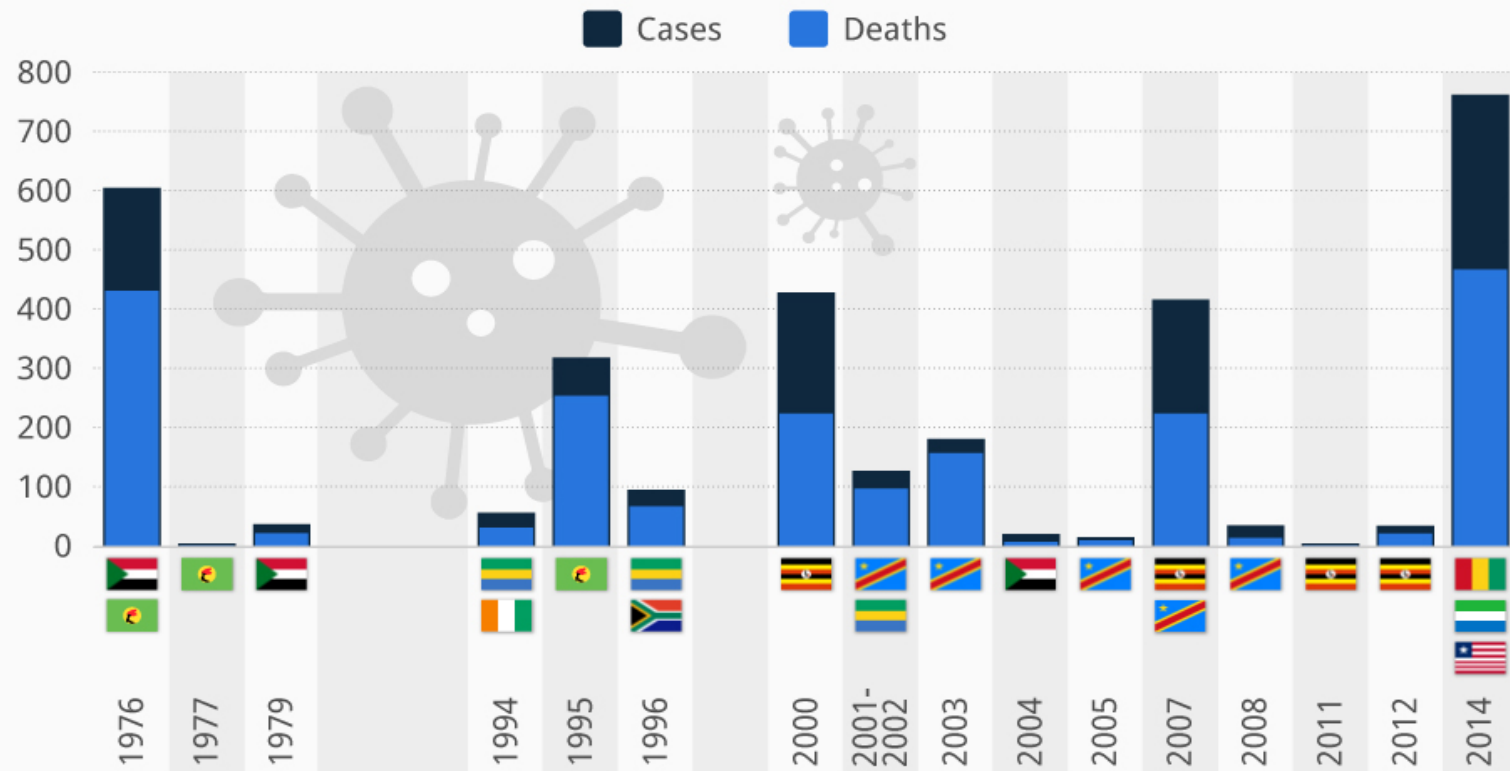
Economist.com/graphicdetail

Dr S Saravana Kumar, Society for Emergency medicine, India

# Why is a lot of concern over it now?

## 2014: The Deadliest Ever Ebola Virus Outbreak

Ebola virus outbreaks by year



@StatistaCharts

Source: World Health Organisation

Dr S Saravana Kumar, Society for Emergency medicine, India

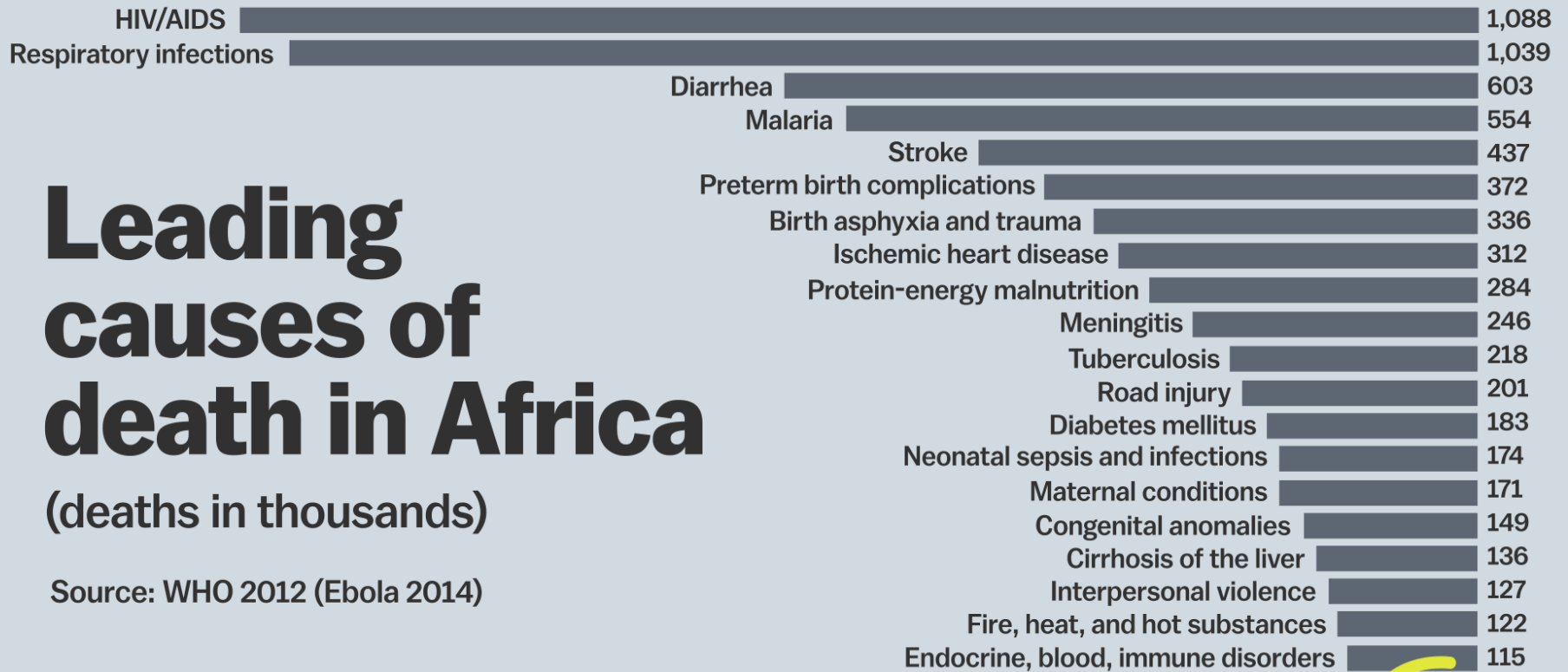
statista

# The fact

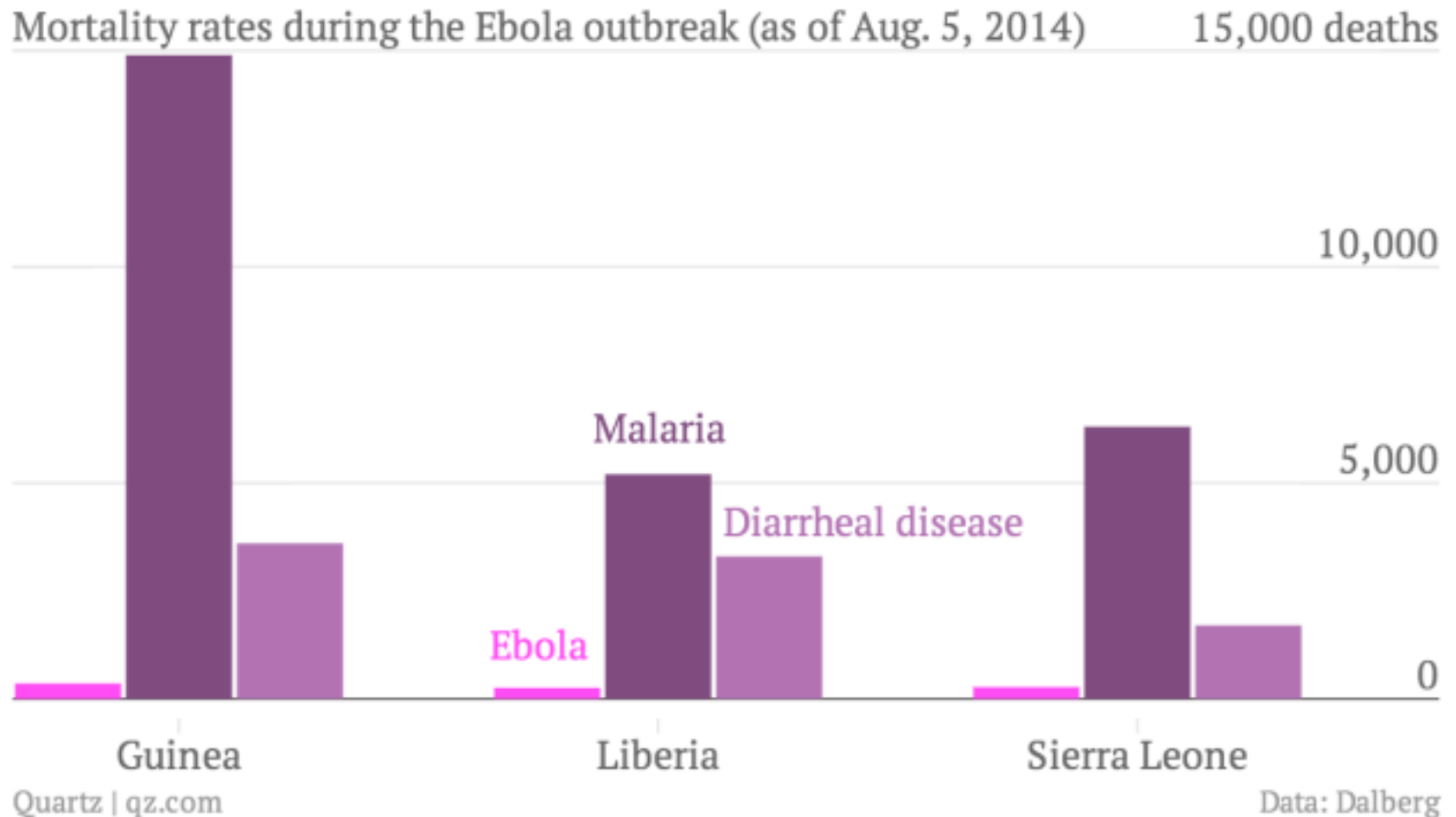
## Leading causes of death in Africa

(deaths in thousands)

Source: WHO 2012 (Ebola 2014)



# Ebola endemic areas



# Turkey

	(%)		
	2010	2011	2012
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Diseases of the circulatory system	39.6	38.8	37.9
Malignant neoplasms	21.3	21.1	21.1
Diseases of the respiratory system	8.3	10.1	9.7
Endocrine, nutritional and metabolic diseases	6.4	6.3	6.0
Diseases of the nervous system and the sense organs	3.7	3.7	4.3
External causes of injury and poisoning	4.4	4.1	4.1
Other (infectious and parasitic diseases, mental and behavioural disorders, diseases of the musculoskeletal system/connective tissue etc.)	16.3	15.9	16.9



# India

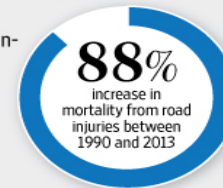
## DISEASE BURDEN

Ischemic heart disease, chronic obstructive pulmonary disease, and stroke, accounted for almost 30% of all deaths in 2013, according to a study published in medical journal 'The Lancet'. Tuberculosis and ischemic heart disease were the top two causes of deaths of people between the ages of 15 and 49, resulting in the deaths of 408,114 people last year, the study found.

Study mapping changes in disease patterns in India finds that hypertensive heart disease and suicide took more lives in 2013 than in 1990.

### Percentage increase

Suicide	129%
Hypertensive heart disease	138%



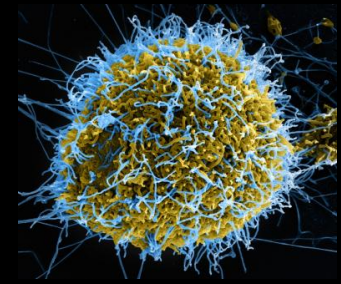
### Leading causes of death in India and the number of lives lost

RANKING		Death (in lakh)
1990	2013	
3	1	Ischemic heart disease 15.87
5	2	Chronic obstructive pulmonary disease 7.58
7	3	Stroke 7.14
1	4	Tuberculosis 5.46
4	5	Diarrheal diseases 4.13
2	6	Pneumonia 4.04
NA	7	Suicide 2.65
NA	8	Road injuries 2.64
NA	9	Hypertensive heart disease 2.62
NA	10	Diabetes 2.38

# Transmission

- Animals dead or alive to humans.
- Humans to humans.
- Blood / secretions / body fluids
- Including breast milk, sweat, feces and semen
- Upto 7 weeks after recovery.

# Common fears





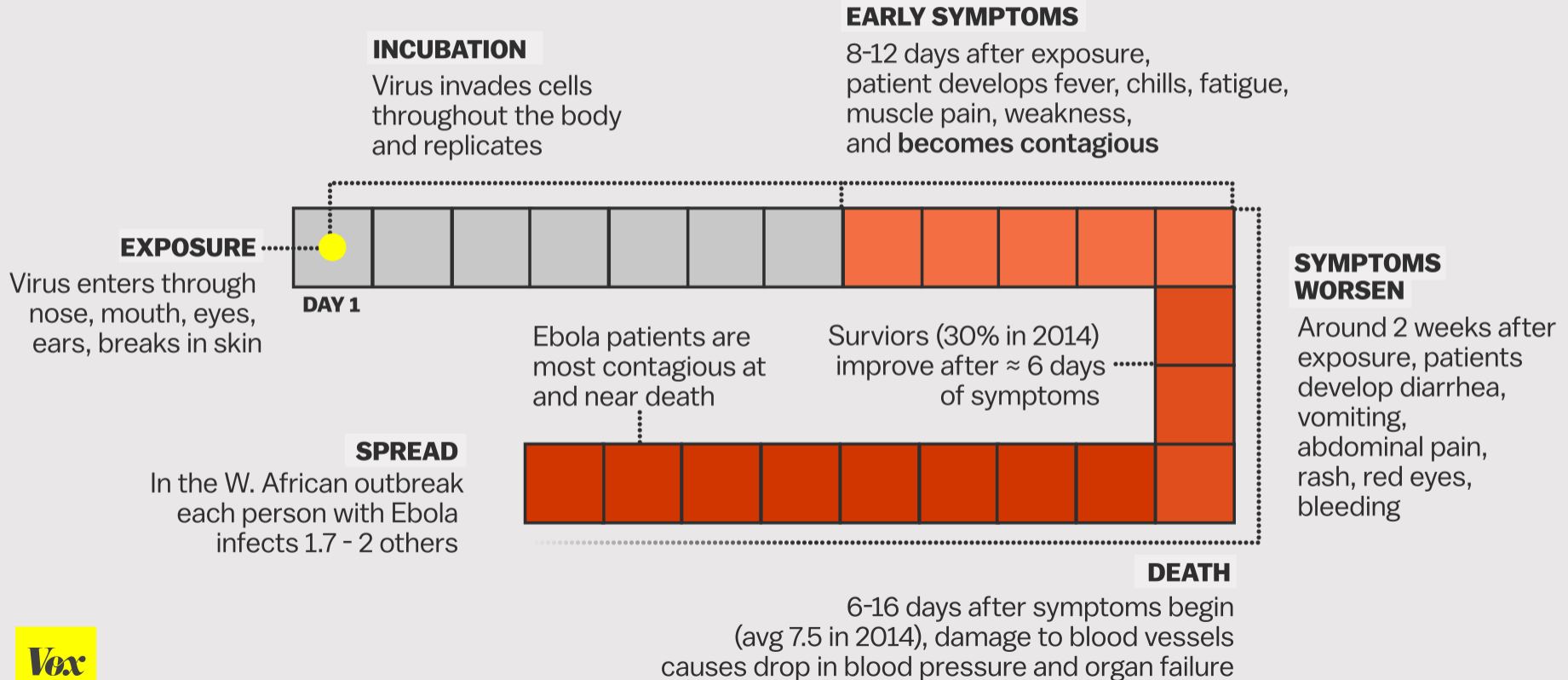
- Is it airborne or droplet?
- Splash and sprays from an infected person to mouth / nose / eyes / broken skin ?
- Standard / contact and droplet precaution

# Symptoms

## STAGES OF EBOLA VIRUS DISEASE

SOURCE: CDC

Contagious through bodily fluids =   
Not contagious = 



# Risk of transmission?

$R_0$  | Maximum number of people (on average) that could be infected by one sick person



Graphic: **SPLOID** | Data source: **NPR**

# Preparing for Ebola

- Big challenge
- Multiple agencies
- Focus on ER

# PPE

## Changes in hospital gear

Officials from the Centers for Disease Control and Prevention announced changes Tuesday to existing federal guidelines for the gear worn by hospital workers caring for patients with Ebola. Some hospitals already had more stringent protections in place.

SOURCES: Centers for Disease Control and Prevention; North Shore-LIJ; Nebraska Medical Center

The New York Times

### Original CDC guidelines

*Goggles or face shield*

*Gloves*

*Impermeable gown that reaches from the neck to at least mid-thigh*



### Changes to the guidelines

*Hood that covers the neck*

*Second layer of gloves*

*Suit will be standardized, but the changes were not specified*

*Fluid-resistant leg and shoe coverings*



# PPE - CDC guidelines

- Rigorous training
- No skin exposure when worn
- Properly donned and doffed in designated area
- Trained monitor





- Double gloves
- Water proof boot covers until mid calf
- Single use water proof gown extending till mid calf
- N 95 or power air purifier respirators
- Single use/disposable face shield
- Surgical hood
- Water proof apron until mid calf

# This is how we will look like



115 F /  
46.11 C

# Treatment – CDC guidelines

- No approved Vaccine or drug
- Early symptomatic care - Clinical management focus on hypovolemia, electrolyte abnormalities, hematologic abnormalities, refractory shock, hypoxia, hemorrhage, septic shock, multi-organ failure, and DIC.
- Nutritional support
- Those who recover – immunity upto 10 years
- Immunity towards other strains – not known

# Investigations

- > viral load – 3 days after onset of fever

Timeline	Tests
Onset of symptoms	ELISA / IgM ELISA / PCR / Virus isolation
Later course o recovery	IgM / IgG antibodies
Retrospective in deceased	PCR / Virus isolation / Immunohistochemistry

# Summary

## Think EBOLA

Early recognition is critical for infection control



### INITIATE

Think Ebola when you approach a patient.  
Start the steps for basic infection control before assessing the patient for risks.

- Always use standard precautions
- If there are concerns that the patient could meet the criteria for Ebola, immediately separate the patient from others



### IDENTIFY

Assess your patient for:

- Travel to a country with widespread transmission or uncertain control measures (Guinea, Liberia, or Sierra Leone) within the last 21 days

OR

- Contact with someone with Ebola within the last 21 days

AND

- Had a fever at home, or has a current temperature  $\geq 100.4^{\circ}\text{F}$  ( $\geq 38^{\circ}\text{C}$ )
- Other symptoms:
  - Severe headache
  - Muscle pain
  - Weakness
  - Fatigue
  - Diarrhea
  - Vomiting
  - Abdominal (stomach) pain
  - Unexplained hemorrhage (bleeding or bruising)
- If the patient has both exposure and symptoms, immediately isolate the patient and inform others (see INFORM)



### ISOLATE

If assessment indicates possible Ebola virus infection, take action.



- Isolate the patient in a private room with a private bathroom or covered, bedside commode and close the door
- Wear appropriate personal protective equipment (PPE): <http://go.usa.gov/szgB>
- Limit the healthcare personnel who enter the room
- Keep a log of everyone who enters and leaves the patient's room
- Consider alternative diagnoses, and evaluate appropriately
- Only perform necessary tests and procedures
- Avoid aerosol-generating procedures
- Follow CDC guidelines for cleaning, disinfecting, and managing waste: <http://go.usa.gov/szYA>

### INFORM

Alert others, including public health authorities.

- Notify your facility's infection control program and other appropriate staff
- Contact your state or local public health authorities
- Consult with state or local public health authorities about testing for Ebola
- For a list of state and local health department numbers, visit: <http://go.usa.gov/f74V>



For more information, visit: [www.cdc.gov/vhf/ebola/hcp](http://www.cdc.gov/vhf/ebola/hcp)

Dr S Saravana Kumar, Society for Emergency medicine, India





# Travel tips

## TRAVEL TO AND FROM EBOLA-AFFECTED COUNTRIES IS LOW-RISK **HERE IS WHAT YOU NEED TO KNOW**



### WHILE TRAVELLING

Alert airline  
personnel about  
a fellow traveller  
who has Ebola  
symptoms:



If you develop  
a fever and  
Ebola symptoms  
yourself promptly  
inform airline  
personnel.



*fever, weakness,  
muscle pain, headache,  
and sore throat;  
followed by vomiting,  
diarrhoea, bleeding.*



### AT AIRPORTS AND AT YOUR DESTINATION

Avoid direct  
physical contact  
with anyone who  
is displaying  
the symptoms  
of Ebola.



DO NOT touch  
the body of  
a person who has  
died from Ebola.



Use alcohol rub  
throughout the day.  
When hands are  
visibly dirty use soap  
and water.



Seek prompt  
medical attention  
if you have  
Ebola symptoms.



**World Health  
Organization**

# The real hero's

- 3300 healthcare professional in west Africa.
- 23 infected : 20 are national staff : 3 expats
- 13 died



Thank you  
Association of  
emergency physicians, turkey  
and all of you for your patient listening !!