

Spanish influenza: a long shadow



Prof. Dr. Marc Van Ranst
Viroloog, UZ KU Leuven





Influenza di freddo



Gentleman's Magazine,

For A P R I L 1743.

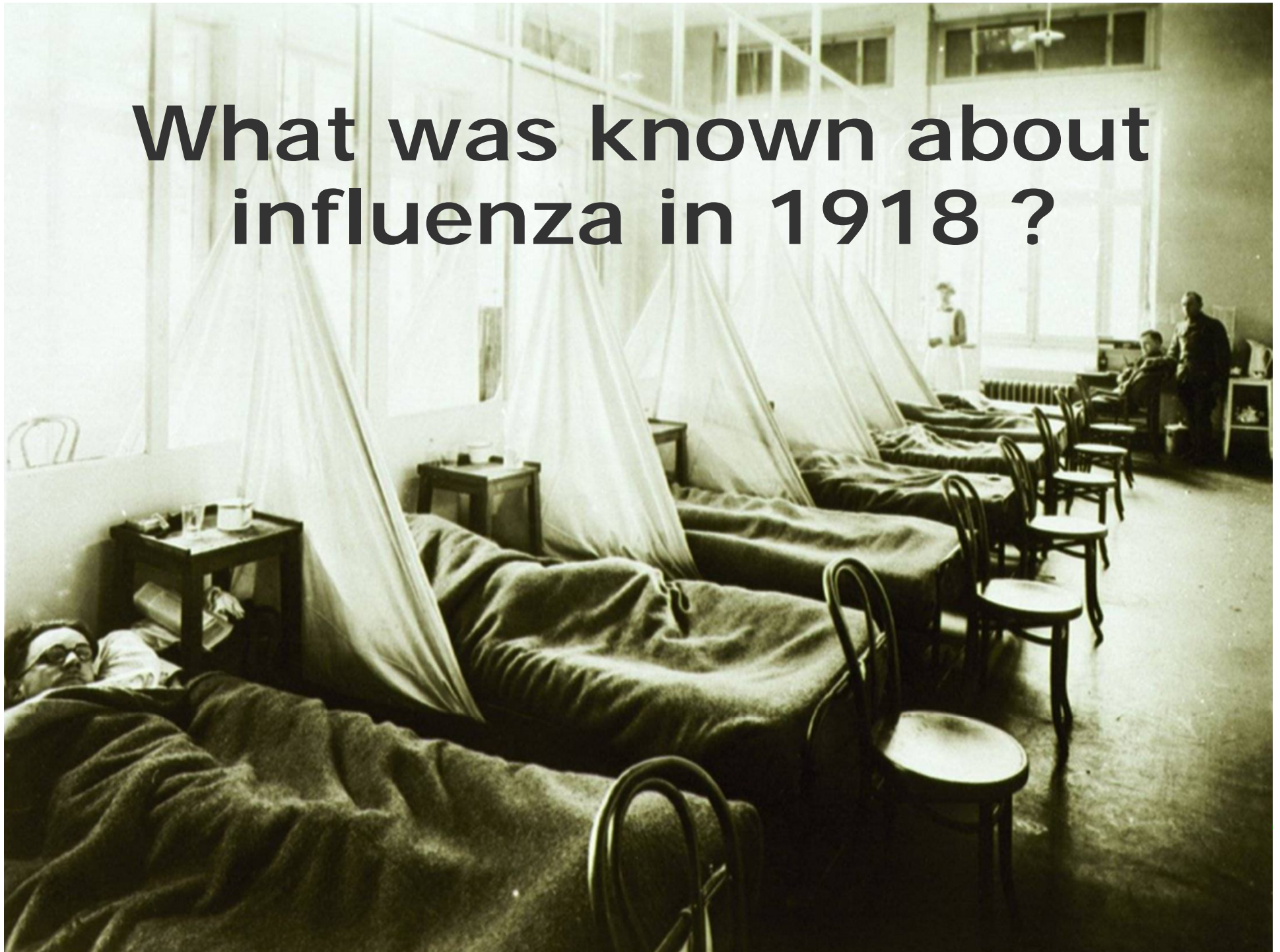
AN Article from *Rome* informs us that a Sort of Plague has broke out there, which destroys Abundance of their People, and they call it the *Influenza*. As this Distemper has almost infected every Individual, the holy *Pontiffè* has determin'd to cause a *Land Quarantine* to be proclaimed to prevent its progress:

they cannot find any Specifick against this Malady, and therefore leave it to wear away of itself. In another Article from *Paris* they tell us, that a Distemper rages there, somewhat of the same Sort as the *Roman Influenza*, as appears by the Symptoms, and they call it the *Grippings* (or *Gripings*) which makes dreadful Havock too: Those who, in both Countries, are touch'd with this Contagion, tho' immediately before in full and florid Health, fall into a ling'ring Hectick, and are emaciated by Degrees: They have sent, it



Gripper (Fr): grijpen

What was known about influenza in 1918 ?





James West, 1803

“Les pharmaciens faisant tous leurs efforts pour retenir le plus longtemps possible la Grippe à Paris”

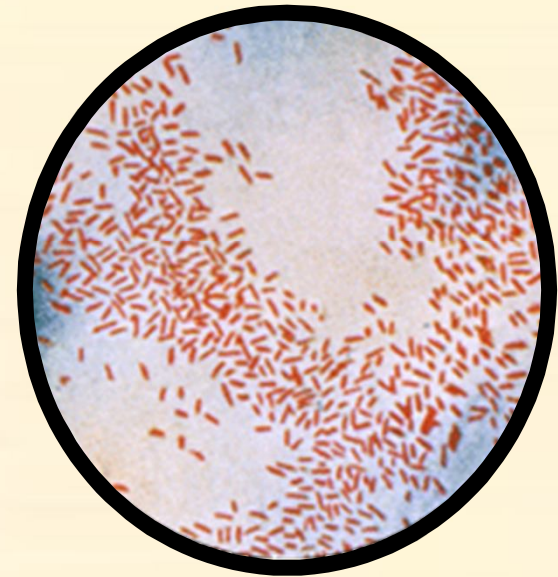




LA GRIPPE. FAISANT LE TOUR DU MONDE.

RICHARD PFEIFFER

1892 Bacillus influenzae



R. Pfeiffer

Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology,
Chemistry, Pharmacology, Public Health, and News.

A VIRUS OBTAINED FROM INFLUENZA
PATIENTS

BY WILSON SMITH, M.D. MANCH.

C. H. ANDREWES, M.D. LOND.

AND

P. P. LAIDLAW, B.CHIR. CAMB., F.R.S.

*(From the National Institute for Medical Research,
Farm Laboratories, Mill Hill)*

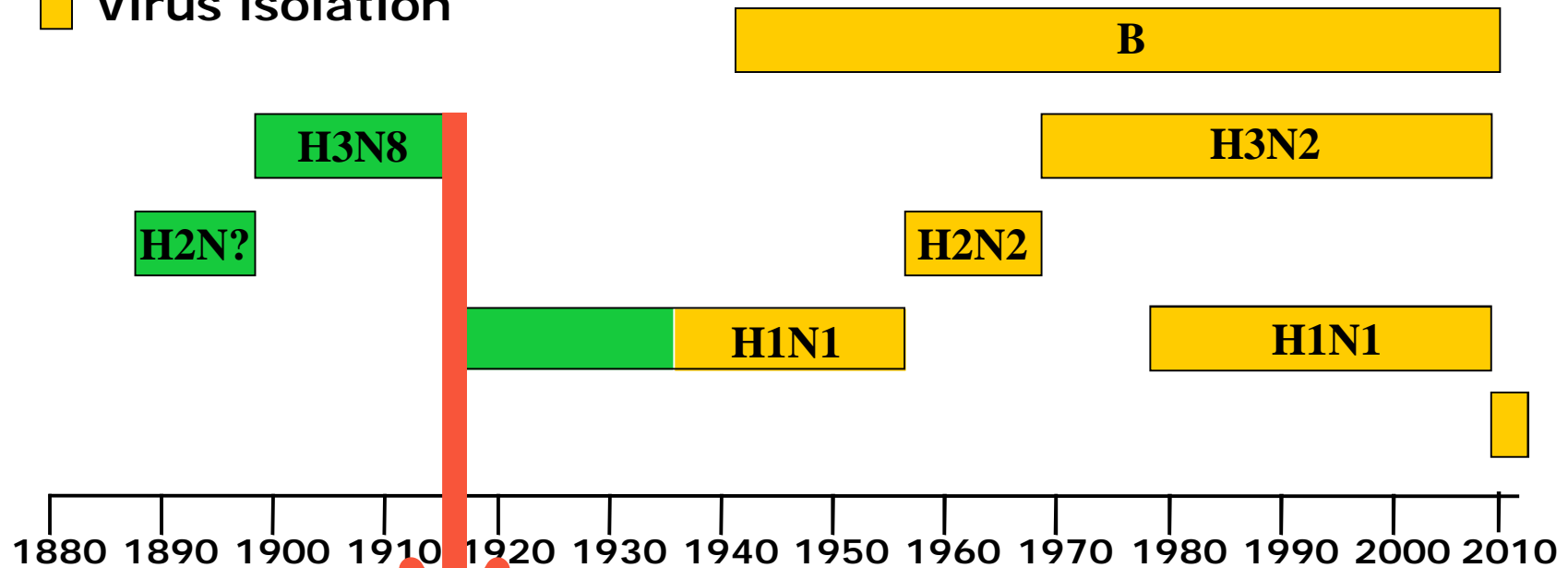
Start and spread of the Spanish influenza



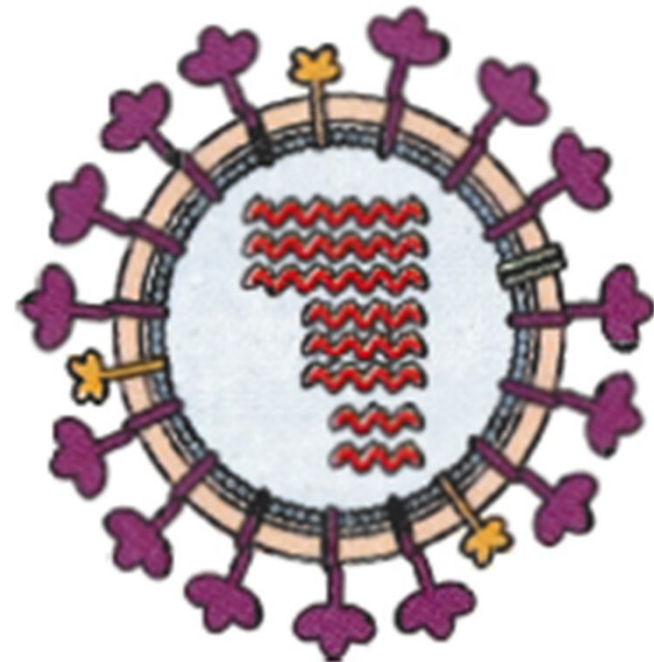
INFLUENZA VIRUSES

■ Antibody prevalence

■ Virus isolation



1918
Spanish flu



H1N1



8 fragments



1918
H1N1



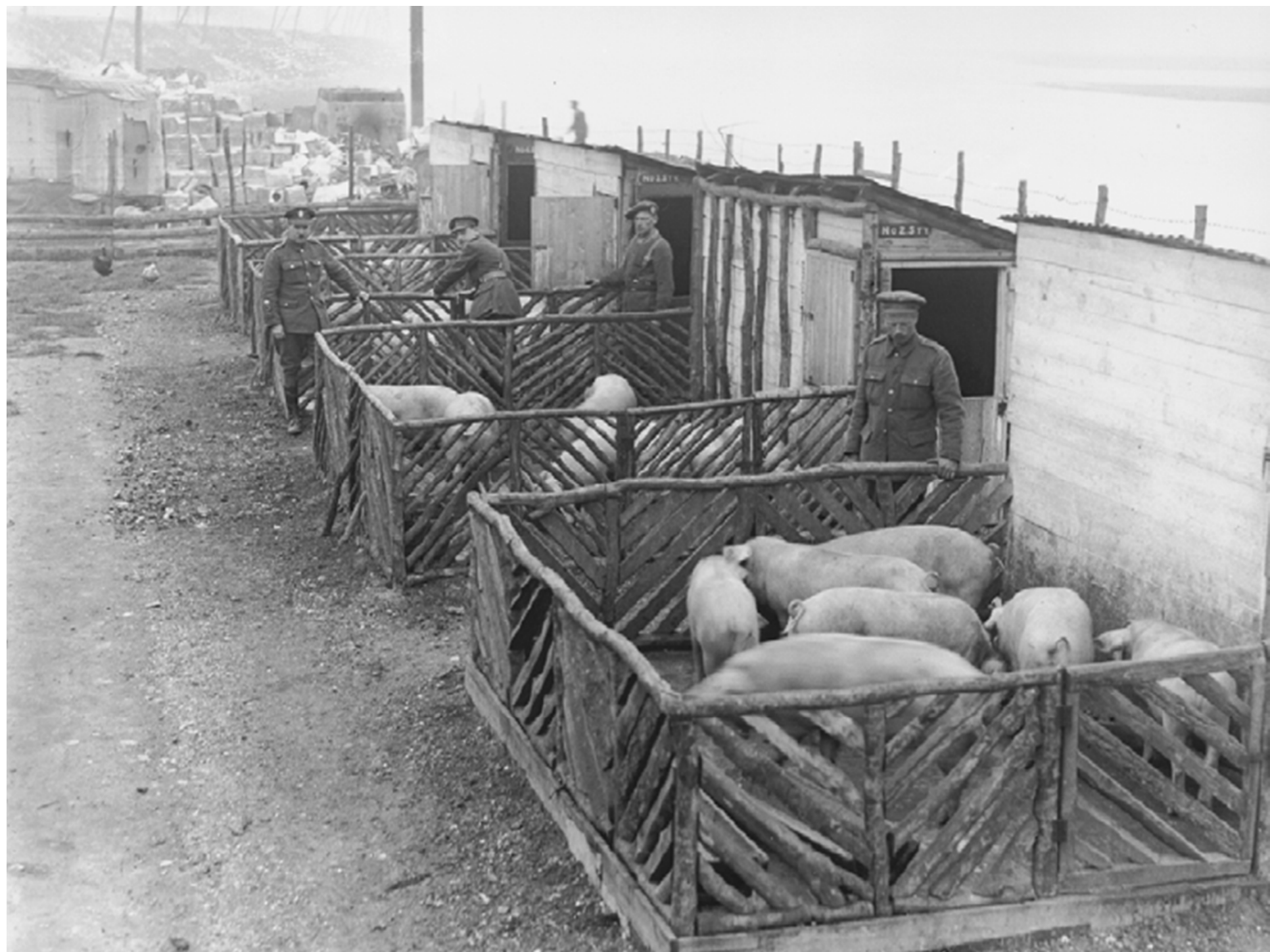
De Nieuwe Amsterdammer

onafhankelijk nederlandsch weekblad
onder redactie van M. H. P. L. Wiessing



„Ja te nu waken pas.
„Mijn je kabbe!“
„Wie wil een man
„Ja u waken!“







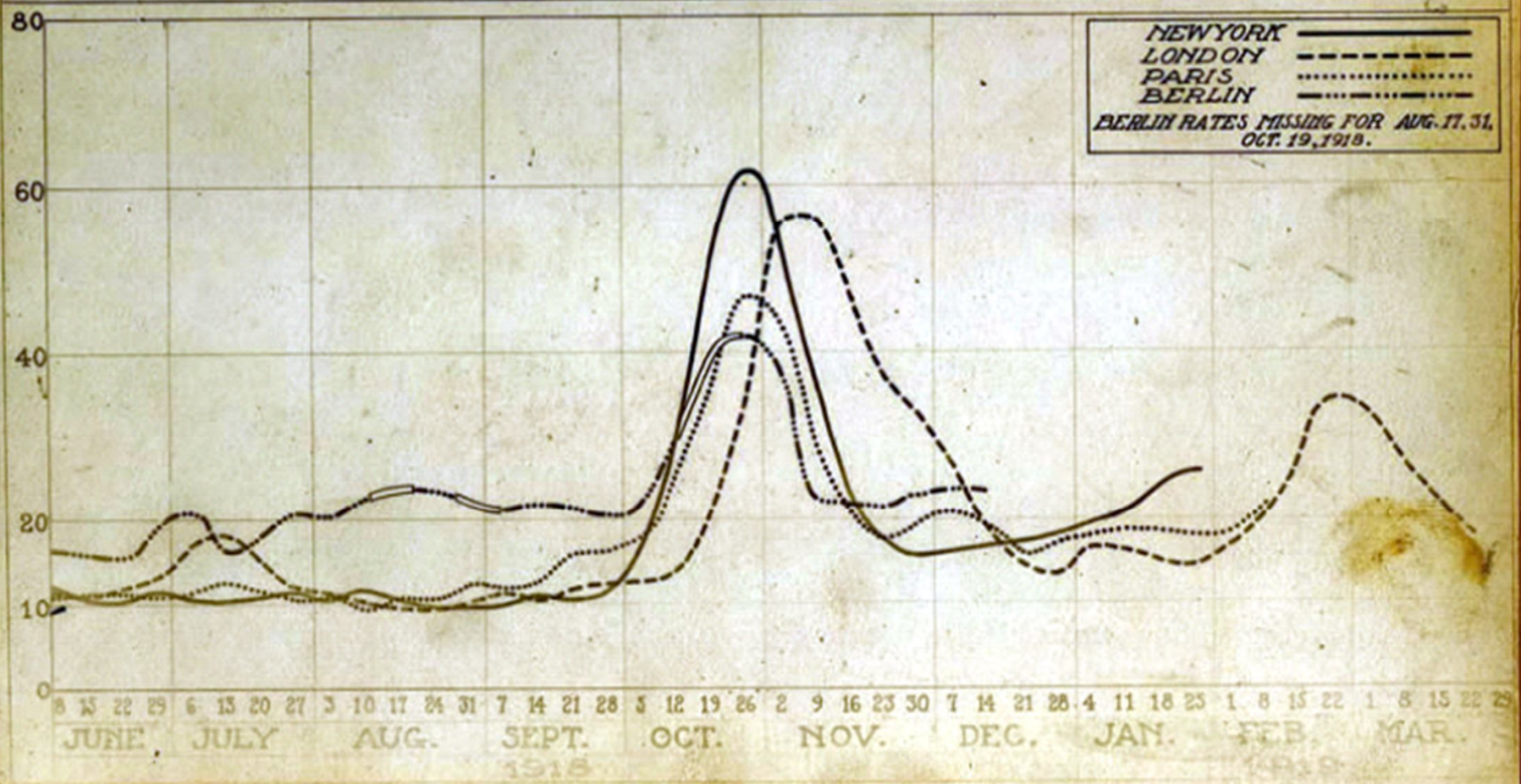
Camp Funston, Kansas, 1918



INFLUENZA PANDEMIC

MORTALITY IN AMERICA AND EUROPE DURING 1918 AND 1919

DEATHS FROM ALL CAUSES EACH WEEK
EXPRESSED AS AN ANNUAL RATE PER 1000



Socioeconomic impact of the Spanish flu











1918 Jaarlijksche ledenvergadering BVIKM

All theatres
CLOSED
until further
NOTICE

At request of
MAYOR.



Over the Week End DON'T TELEPHONE

Unless It Is Absolutely Necessary

During the present week our operating force has been seriously depleted by Spanish Influenza.

The shortage of operators continues to increase.

Only a radical decrease in the number of calls will save the situation.

Will you help us meet the emergency over the week end by refraining from using the telephone except for indispensable calls?

Cards asking for the voluntary restriction of calls have been mailed to all subscribers. A supply may be secured on application at any of our Commercial Offices. Will you please place one near your telephone as a reminder for *yourself, your family or your employees*, that no telephone calls are to be made unless they are absolutely necessary?



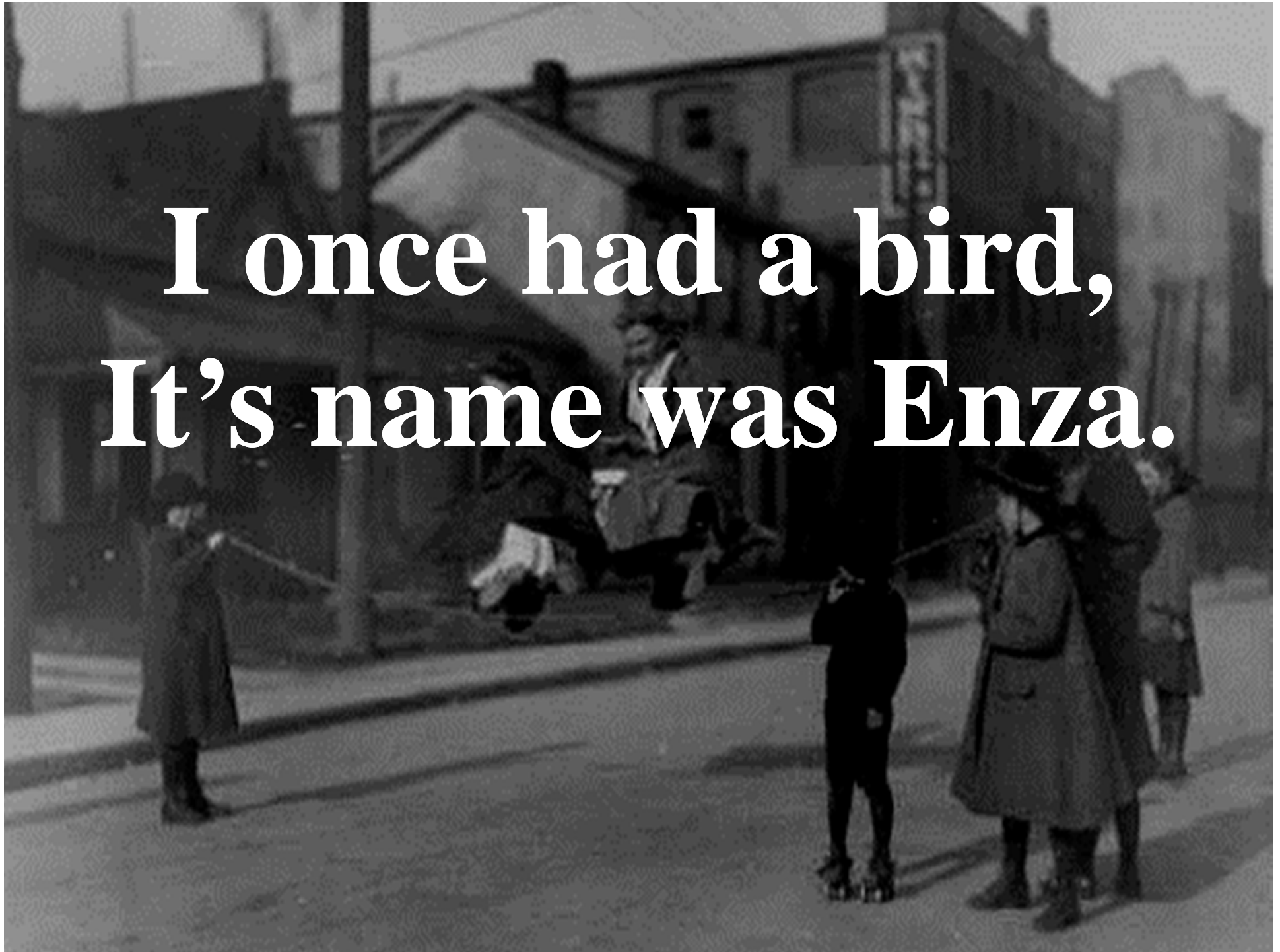
NEW YORK TELEPHONE COMPANY

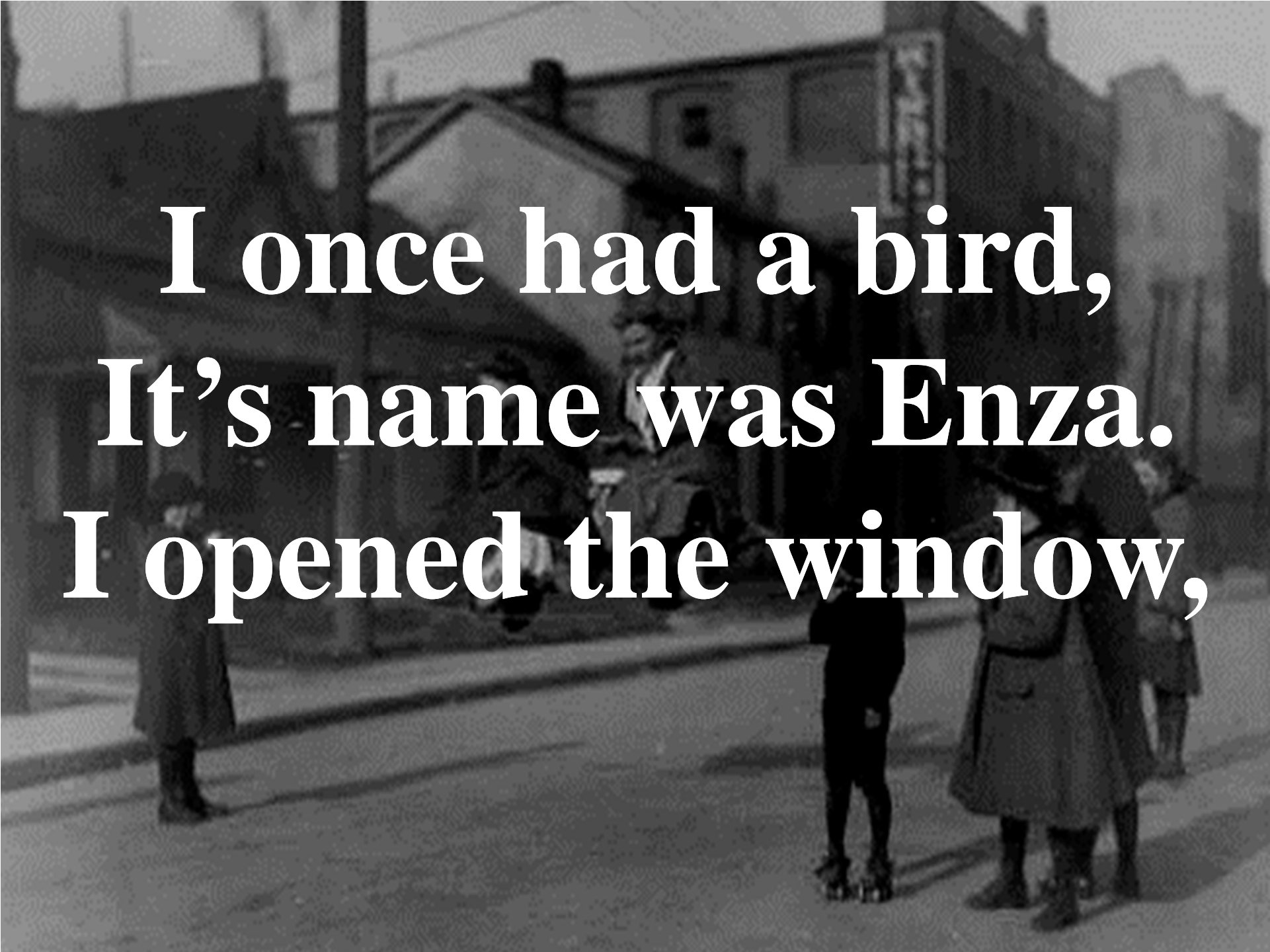


I once had a bird,

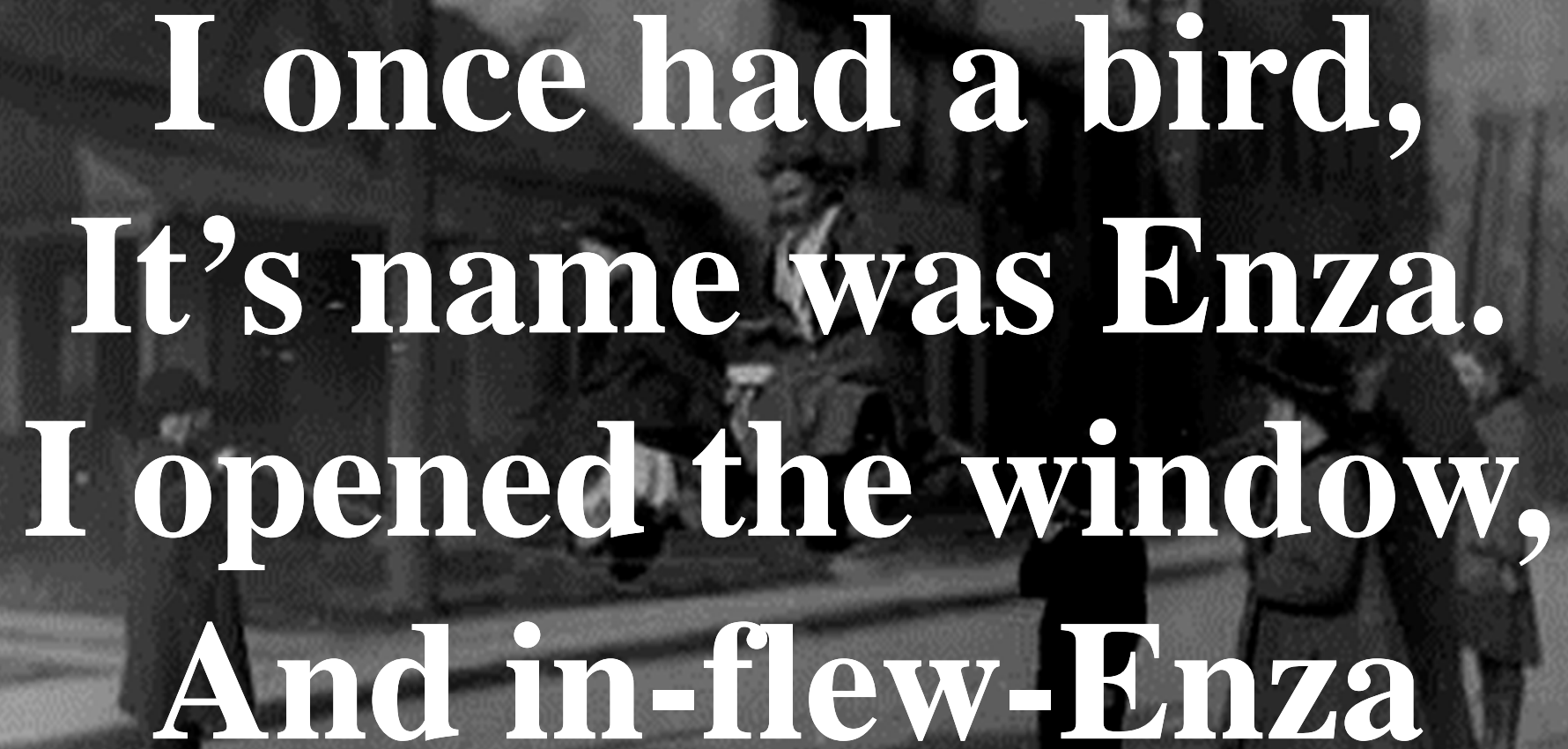


**I once had a bird,
It's name was Enza.**

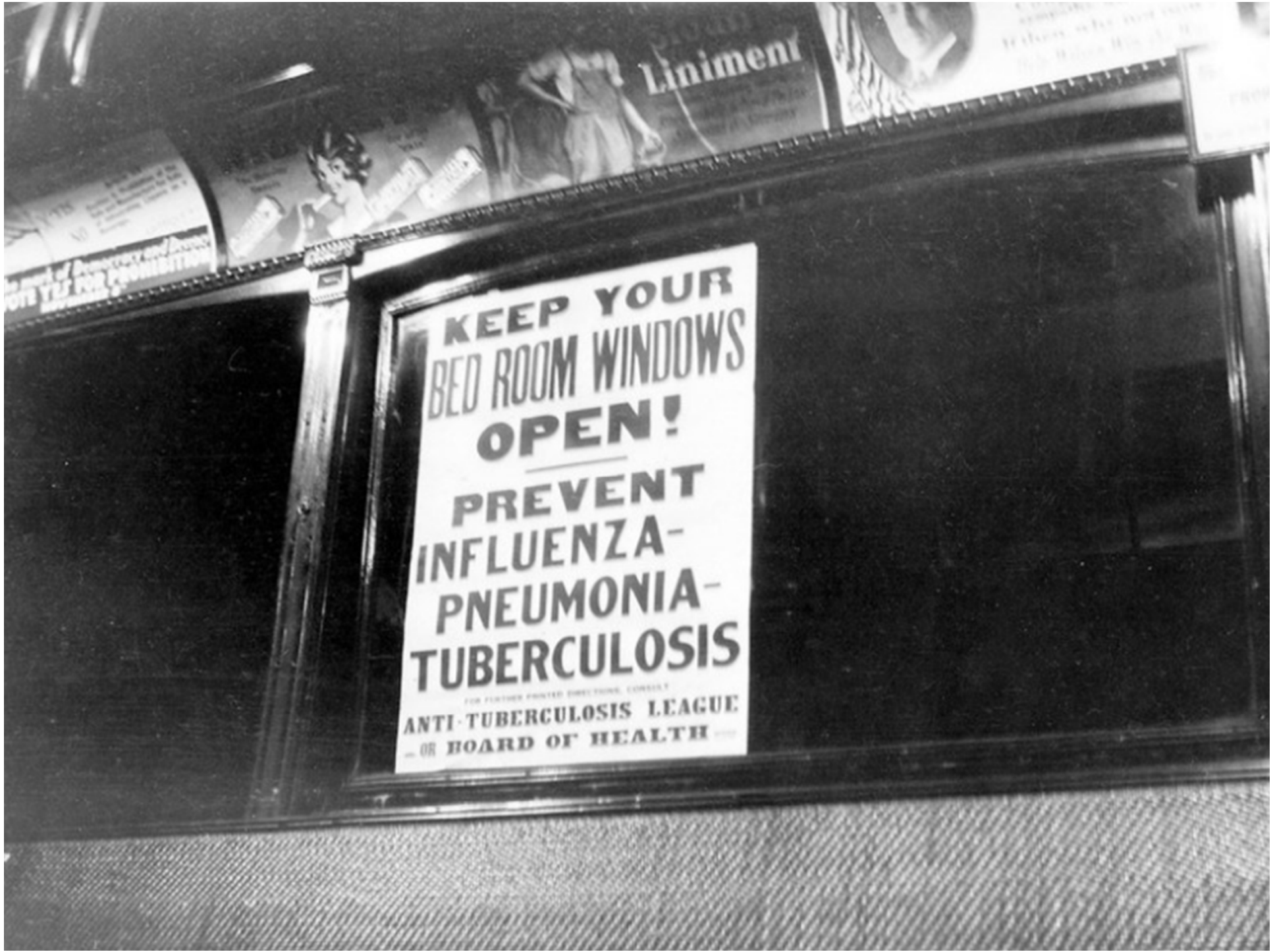


A black and white photograph of a street scene. In the foreground, several people are standing on the sidewalk. A woman in a long coat is on the left, and a group of people, including a child, is on the right. In the background, there are buildings, a utility pole, and a car. The text is overlaid in the center of the image.

**I once had a bird,
It's name was Enza.
I opened the window,**



**I once had a bird,
It's name was Enza.
I opened the window,
And in-flew-Enza**



**KEEP YOUR
BED ROOM WINDOWS
OPEN!**

**PREVENT
INFLUENZA-
PNEUMONIA-
TUBERCULOSIS**

FOR FURTHER PRINTED DIRECTIONS, CONSULT
**ANTI-TUBERCULOSIS LEAGUE
OR BOARD OF HEALTH**

Liniment

Vote Yes for...

Wilson who...



GET away from the stuffy, overcrowded street cars, with their danger of contagion.

Ride a bicycle through the pure, fresh air.

With an easy-running, long-lasting C.C.M. Bicycle, cycling will be a pleasure as well as a benefit.

You will need a bicycle next spring, anyway, and will save money by buying now.



THIS MARK IS YOUR PROTECTION
Every "C.C.M." Bicycle bears this design on the rear upright bar.



Look for these Nameplates when choosing a Bicycle. All of these well-known lines are "C.C.M." Bicycles.

SPAANSCH GRIEP

voorkomt men door het hoofd bacill-vrij te houden.
Zorgt dat gij uw luchtoorganen desinfecteert door de beoemde echte geïmporteerde Engelsche

MENTHOL SNUIF.

Zendt per omgaande, voordat wij zijn uitverkocht, post-wissel à f 1.25 en wij zenden u franco een doos toe.
Niet goed, geld terug. Geeft bij verkoudheid verlichting in neus en keel.

Import: **B. I. AKKER & ZON,**
Utrechtschedwardsstraat 112. — AMSTERDAM.

OXO

Fortifies the System against

INFLUENZA INFECTION.

Extract from a communication received from a Doctor:—

"A cupful of OXO two or three times a day will prove an immense service as a protective measure. Its invigorating and nourishing properties are most rapidly absorbed into the blood, and thus the system is reinforced to resist the attacks of the malady. It will be apparent that a strong, healthy person will escape contagion when the ill-nourished one will fall a victim, consequently, one's aim must be the maintenance of strength."

Een Voorbehoed- middel tegen de Spaansche Griep.

Zorg, dat gij niet verkouden wordt; dit is een eerste vereischte. Als gij hoest, niest of keelpijn hebt, pas dan op, want dan behoort gij tot de eersten, op wie de Spaansche Griep vat heeft. Bij hen, die een borstaandoening hebben, kunnen zich hoogst ernstige verwickelingen voordoen; longontsteking behoort dan niet tot de zeldzaamheden. Zorg daarom, intijds Uwe schijnbare onschuldige verkoudheid te genezen met een krachtig werkend middel, als:

ABDIJSIROOP,

Spaansche Ziekte Menthaform-Tabletten

EEN VOORBEHOEDMIDDEL

DESINFECTEEREN KEEL EN MOND. (58160)

Gebruiksaanwijzing op iedere flacon. Prijs f 0.80 per flacon.

VERKRIJGBAAR BIJ H. H. APOTHEKERS EN DROGISTEN

N. V. Kon. Pharmac. Fabriek
v/h BROCADES & STHEEMAN, MEPPEL

PATRIOTIC DRIVE AGAINST THE "FLU"

An onion car arrived today,
Labelled red, white and blue,
"Eat onions, plenty, every day,
And keep away the 'Flu'."

Cabbage, too, they vend down
there,
At the Bessemer Transfer track,
Solid heads, three cents the
pound,
Enough to supply the town.

So take a trip out Kittanning St.
And see what you can buy,
With what is left from Liberty
Bonds,
Lay in your winter supply.

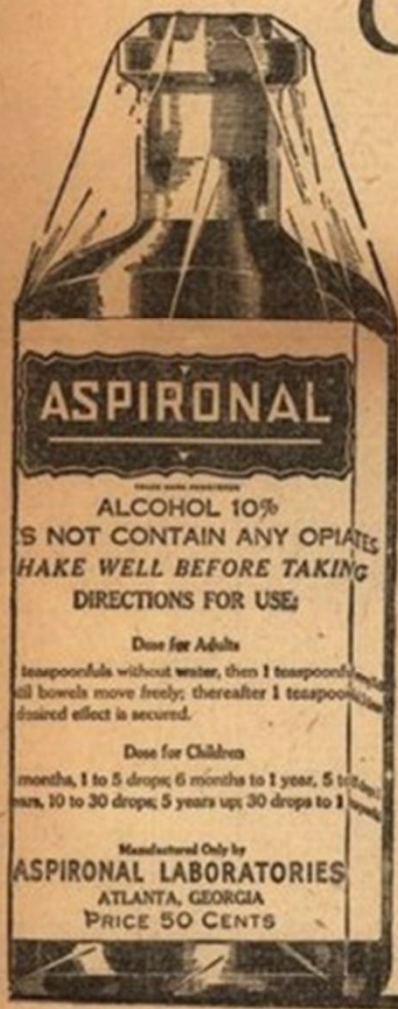
Eat More ONIONS

**One of the Best Preventatives
for Influenza.**

Car Load of Onions will be on sale
on siding at Bessemer Freight
Station

**TODAY and TOMORROW
Will Be Sold Direct from Car
Bring Your Own Sacks or Baskets if Possible
THE PRICES ARE RIGHT
J. W. GARDOCKY, Grower**

Better Than WHISKEY for Colds and Flu



Delightful Elixir, Called Aspironal, Medicated With Latest Scientific Remedies That Are Endorsed by Medical Authorities to Cut Short a Cold or Cough Due to Cold and Prevent Complications.

Every Druggist in U. S. Instructed to Refund Price While You Wait at Counter if You Don't Feel Relief Coming in Two Minutes.

**DELIGHTFUL TASTE, IMMEDIATE RELIEF,
QUICK WARM-UP.**

The sensation of the drug trade is Aspironal, the two-minute cold and cough reliever, authoritatively guaranteed by the laboratories; tested, approved and most enthusiastically endorsed by the people as ten times as quick and effective as whiskey, rock and rye; or any other cold and cough remedy they have ever tried.

All drug stores are supplied with the wonderful elixir, so all you have to do to get relief from that cold is to step into the nearest drug store, hand the clerk a half dollar for a bottle of Aspironal and tell him to serve you two teaspoonfuls. With your watch in your hand, take the

drink at one swallow and call for your money back in two minutes if you cannot feel the distressing symptoms of your cold fading away like a dream within the time limit. Don't be bashful, for all druggists invite you and expect you to try it. Everybody's doing it.

When your cold or cough is relieved, take the remainder of the bottle home to your wife and children, for Aspironal is by far the safest and most effective, the easiest to take and the most agreeable cold and cough remedy for children as well as adults. Quickest relief for catarrhal croup and children's choking up at night.

**Don't Let That Cold Run Into
Something Worse--**

**Stop it Now With
ASPIRONAL**

Manufactured Only by
ASPIRONAL LABORATORIES
ATLANTA, GEORGIA
PRICE 50 CENTS



Vaccines, 'Wellcome' Brand—*continued***'WELLCOME' BRAND—****„ Influenza Vaccine**

I c.c. containing 10 million *B. influenzae*

I c.c. „ 50 „ „ „



JOLLY'S DRUG NEWS.

No Need To Catch Spanish "Flu"

Cutter's Respiratory Vaccine is a sure preventive.

We are completely sold out today but a very large supply is on the way.

It will come in serial doses and prophylactic syringe doses.

To the Busy Doctors

Telephone or telegraph your requirements and supplies will be forwarded to you immediately on arrival.

Jolly's Cash Drug Store

1821 SOUTH RAILWAY STREET, REGINA, SASK.

Phone 3608

Opp. Union Station

"The Safe Place to Send Your Prescriptions"

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Phone 3608

Opp. Union Station

"The Safe Place to Send Your Prescriptions"

1 juni 1918

Druckers-Verlag
Sam. M. HET LIEF
Best. P. De Vissch
Ledeberg-Gent.

Red. Adv.
Hoopscort 26, Gent.

VOORUIT

841 jaar — N. 147

3 oostelen per week

Zaterdag 1 Juni 1918

Organ der Socialistische Werkliedenpartij - Verschijnt alle dagen

In Spanje

Een gevaarvolle toestand

BERN, 30 Mei. — «Le Temps» bericht over de epidemie in Spanje: Het gezondheidscomité te Madrid heeft eene reeks verordeningen ter bestrijding der epidemie uitgevaardigd. De bladen verspreiden op verkleind formaat. Te Madrid zijn 80.000 personen ziek gevallen, te Barcelona 20 tot 25.000. Dodelijke gevallen zijn tot hertoe niet op te geven. De oorzaak der epidemie is volkomen raadselachtig.

23 juni 1918

LA METROPOLE

Epidémie d'influenza

Malgré que, depuis deux jours, nous nous trouvons en été et que la saison devrait être peu propice aux rhumes, ceux-ci sont plus nombreux à Londres qu'ils ne le furent durant les mois d'hiver. Une véritable épidémie de grippe s'est jetée sur la capitale anglaise et c'est par milliers que l'on compte les victimes de ce mal aussi envahissant que démoralisant connu sous le nom d'influenza.

On en connaît tous les symptômes, accompagnés de fièvre et d'un état d'abattement qui semble vous avoir brisé bras et jambes et rendant incapable de tout travail.

Dans de nombreux quartiers, les médecins sont sur les dents et font de leur mieux pour enrayer les progrès d'une maladie plus désagréable que dangereuse.

Si vous vous sentez atteint n'hésitez pas à vous mettre immédiatement au lit, le repos et la chaleur étant excellents remèdes. Comme moyen préventif, on conseille surtout d'éviter la foule et les lieux publics où la contagion se répand plus facilement.

28 juni 1918

The Newspaper for Belgians

LA METROPOLE

PARAISSANT PROVISOIREMENT A LONDRES

Bureau: 43, Chancery Lane, W.C.2 — Telephone: Holborn 212.

Abonnements: 3 mois 9 sh.
6 mois 17 sh.
1 an 32 sh.

ONE PENNY

PRINTED BY THE METROPOLE PRESS, 43, CHANCERY LANE, W.C.2, LONDON.

25^{me} ANNEE

VENDREDI 28 JUIN 1918

No. 179

La grippe des Flandres

Les troupes allemandes en Belgique sont atteintes d'une épidémie à laquelle on a donné le nom de "grippe des Flandres", qui paraît avoir une certaine parenté avec la maladie qui sévit en ce moment en Espagne et en Angleterre.

Les victimes sont atteintes d'une fièvre violente, suivie immédiatement d'une prostration complète et se trouvent durant une période de huit à dix jours incapables de tout effort.

Des prisonniers racontent que la maladie règne, de façon intense, dans les hôpitaux et dans les camps à l'intérieur de la ligne du front. Dans les lignes allemandes, au sud-ouest de Lille, il y a de nombreux cas de grippe et de dysenterie.

4 juli 1918

The Newspaper for Belgians

LA MÉTROPOLE

PARAISANT PROVISoireMENT A LONDRES

Bureaux: 43, Chancery Lane, W.C.2 — Telephone: Holborn 212.

Abonnements: { 3 mois 9 sh.
6 mois 17 sh.
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ONE PENNY

25^{me} ANNEE

JEUDI 4 JUILLET 1918

No. 185

JEUDI 4 JUILLET 1918

AVIS

La moitié de notre personnel d'imprimerie, déjà fort réduit, étant victime de l'épidémie d'influenza, la "Métropole" ne paraîtra pas
DEMAIN.

9 juli 1918

The Newspaper for Belgians

LA MÉTROPOLE

PARAISANT PROVISOIREMENT A LONDRES

Bureaux: 43, Chancery Lane, W.C.2 — Telephone: Holborn 212.

Abonnements : { 3 mois 9 sh.
6 mois 17 sh.
1 an 32 sh.

ANNEE MARDI 9 JUILLET 1918 No. 190

E PENNY
FOR COUNTRY
BY POST
POST OFFICE

L'influenza en Belgique

L'Echo belge dit qu'une épidémie sévit en Belgique, spécialement dans les districts de Mons et de Charleroi. Les hôpitaux, sont comblés.

9 juli 1918

LA METROPOLE
PARAISANT PROVISOIREMENT A LONDRES
Bureau: 45, Chancery Lane, W.C.2. — Téléphone: Holborn 212.

The Newspaper for Belgium
Abonnements: 1 mois 2 sh.
3 mois 5 sh.
6 mois 9 sh.
1 an 16 sh.

No. 190

LA GRANDE GUERRE
Reconquête du delta de la Piave
La "suppression" de von Mirbach
Nouvelle révolution en Ukraine?

Le régime à Esmack
La ville de Esmack, l'« Esmack-Katholisch » allemand se réveille et se réveille à Esmack et reprend à son compte sa lutte en Belgique. Les journaux de la ville de Esmack ont repris à son compte sa lutte en Belgique. Les journaux de la ville de Esmack ont repris à son compte sa lutte en Belgique.

Les catholiques allemands au service de leur pays
Les catholiques allemands au service de leur pays. Les catholiques allemands au service de leur pays. Les catholiques allemands au service de leur pays.

Le professeur Adolf von Hardeck
Le professeur Adolf von Hardeck. Le professeur Adolf von Hardeck. Le professeur Adolf von Hardeck.

Le ministre de la Guerre de Belgique
Le ministre de la Guerre de Belgique. Le ministre de la Guerre de Belgique. Le ministre de la Guerre de Belgique.

LA RHINE S'EST PRESENTE AU CONCERT DE L'ALBERT HALL

Ce fut une surprise pour nous que l'apparition par la presse française par le 12. MM. le roi et le roi des Belges furent arrivés samedi à Londres, vêtus de vêtements de leur pays d'origine.

Le roi Albert et la reine Elisabeth ont assisté au concert de l'Albert Hall, samedi soir, à 8 heures. Le roi Albert et la reine Elisabeth ont assisté au concert de l'Albert Hall, samedi soir, à 8 heures.

Etats-Unis et Belgique
Am front belge
Le général De Witt Clinton, chef de l'armée belge, a été nommé commandant en chef de l'armée belge.

Le ministre de la Guerre de Belgique
Le ministre de la Guerre de Belgique. Le ministre de la Guerre de Belgique. Le ministre de la Guerre de Belgique.

LA GRANDE GUERRE
Reconquête du delta de la Piave
La "suppression" de von Mirbach
Nouvelle révolution en Ukraine?

11 juli 1918

HET CENTRUM

DONDERDAG 11 JULI 1918

Spaansche griep. — In het Engelsche interneringskamp te Groningen is uitgebroken de zogenaamde Spaansche **griep.** Er zijn ongeveer 100 gevallen. De toestand is niet ernstig. Men hoopt, dat de patiënten binnen 2 maanden genezen zullen zijn.

Uitvoer Binnenland.

De Post. Verrekeningen. Verrekening van de Post. Verrekeningen. Verrekening van de Post.

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GRAND BAZAR FRANÇAIS. Gedurende EEN WEEK vanaf ZATERDAG 13 JULI tot en met VRIJDAG 19 JULI a.s. Extra Aanbieding van SPEELGOEDEREN. Diverse Zomerspelen, Zand- en Trekwagens, Hobbelspellen, Kinderspeelgoed en Speelgoed, Emmertjes, Glotterjes, Hoopjes, Poppen, Trompetten.

Zuider-Hypotheekbank te BREDA. 5% Pandbrieven à 101 1/2. De Directie: Mr. A. L. HEURBROEK. H. DOMINICUS. Dinsdag 16 Juli a.s. H. DOMINICUS. Dinsdag 16 Juli a.s.

Bestel nu NOG. Hollandsche Grendkredietloten HOOPDRIJS 60.000 GULDEN. (Zegen Zestigduizend Gulden). 1400,-, 1200,-, 1400,-, 1200,-. Eerstvolgende 15 Juli a.s. Sleef & Heinsius' Bank, Neude 9 - Utrecht.

Naamlooze Vennootschap Nederlandsche Groenten- en Vruchtendorgerij TE BREDA. Maatschappelijk kapitaal f 3.000.000,-. UITGIFTE van 1000 Gewone Aandeelen à f 500,-.

GEEN GOUD doch KURK-ROESTSTUKKEN. Fabrikseleider. In deze Fabriek van Consumptie Artikelen is plaatsing voor een allereerste betrouwbaar en geroutineerd persoon, om als CHIEF over het personeel op te treden, de fabrieksverhoudingen te regelen en controle af te nemen. Opgeve van leeftijd, Godsdiens, voegeren werking en referenties uitvoerig verlangd, onder no. 3474 Dagblad "DE CENTRUM", Amsterdam.

Witte Bloescoop. Meditatie voor onwillekeurige Katholiken. Juffrouw. Witte Bloescoop. Meditatie voor onwillekeurige Katholiken. Juffrouw.

18 augustus 1918

The Newspaper for Belgium

LA MÉTROPOLE

PARAISANT PROVISOIREMENT A LONDRES

Bureaux: 43, Chancery Lane, W.C.2 — Telephone: Holborn 212.

ONE PENNY

WISSE: 1000 CENTIMEN
HOLLANDSE: 1000 CENTIMEN
DUTSCH: 1000 CENTIMEN

Abonnements: { 3 mois 9 sh.
6 mois 17 sh.
1 an 32 sh.

25^{me} ANNEE

MARDI 13 AOUT 1918

Registered at the G. P. O.
as a Newspaper. No. 225

Le cardinal Mercier atteint de la grippe espagnole

On mande d'Amsterdam que l'influenza espagnole sévit dans toute la Belgique. On signale de nombreux malades à Bruxelles, Anvers, Liège, Mons, Namur.

A Malines, il y a de nombreux malades, entre autres, le cardinal Mercier, qui est maintenant en convalescence. Les journaux allemands publiés à Bruxelles ont faussement annoncé qu'il était mort.

Bonne Année



vous dire le prix ou je voudrais
d'acheter
Cordialement
Aronny

CARTE POSTALE

Partie réservée à la Correspondance.

Adresse du Destinataire.

Chers amis
Grippe, grippe seyt jonne cent.
L'at-à été malade comme
un cheval. Sa mortie de vos
trunks sont vendus, l'autre
mortie sera achete dimanche
je vous envoie petit mot pour

Chers amis -
Grippe, grippe sent pour cent.
L'at-à été malade comme
un cheval.

The second (winter) wave of the Spanish flu



Spanish Influenza
has endangered the prosecution
of the **WAR** in Europe:

There are 1500 cases in the Navy Yard
30 deaths have already resulted

**SPITTING SPREADS SPANISH
INFLUENZA DONT SPIT**

1918

Le Boche est
vaincu oui mais
LA GRIPPE
NE L'EST PAS

MASQUEZ-VOUS
LES UNS LES AUTRES
L'ESSAYEZ C'EST
L'ADOPTER



Alphonse XIII, roi d'Espagne

29 Mai 1905

PARIS

130
2^e

Suziers le 29 12. 1918

Chers amis

Je vous envoie ce petit mot pour
vous souhaiter une bonne et heu-
reuse année et surtout une bonne
santé chose rare en ce moment
nous espérons que chez vous il n'y a
pas eu la grippe cette vilaine
maladie qui a fait tant de victimes
pour nous la santé est bonne en
ce moment ainsi qu. les enfants
Vos amis qui vous envoient de bons baisers

Bien sûr ce petit mot
à toute la famille

mon
part

on nous envoie
un petit mot

de la

Le nous espérons que chez vous il n'y a
pas eu la grippe - cette vilaine
maladie qui a fait tant de victimes

11 december 1918

Woensdag 11 en Donderdag 12 Dec. 1918

27^{de} jaargang N^o 25

WEEKPRIJS 1 1/2 GENTIEMEN

Voor de abonneeanten wende men zich tot het beheer van dit blad.

Vogriopige prijs van het abonnement: 5 fr. per drie maand.

Verkoop en bezetting: 30, St. Pieterstraat, 30 BRUSSEL

LAATSTE NIEUWS

AANKONDIGINGEN

Prijs 2. 0.00 de regel
Kleinste aankondiging: 1 fr. de 1000
grootte regels.
Hoeveel regels meer: 0.00.

1917-1918.
30, St. Pieterstraat, 30
BRUSSEL

Bestuurder-Eigenaar: J. HOSTE

DAGBLAD

Verslijnt 7 maal per week

De Spaansche griep in Engeland

Volgens een geneesheer in den « Times » schrijft is de nieuwe « golf » van griep in Londen begonnen nadat de wind van het Oosten naar het Westen gedraaid was en luv, vochtig weer op de periode van droge koude volgde. Misschien is de invloed van het weer echter grooter op den mensch dan op de ziektekiem, daar bij luv, vochtig weer het weerstandsvermogen van den mensch kleiner, hij gedrukt wordt en minder goed in staat om het gevaar, dat hem bedreigt, af te weren.

In Birmingham neemt de ziekte nog toe. Verleden week werden er 281 sterfgevallen aangegeven, d. i. 103 meer dan de vorige week. Te West-Bromwich zijn verleden week 61 sterfge-

oet opgeteckend is. Te Manchester stierven verleden week 683 menschen, waarvan 387, of 90 meer dan in de voorafgaande week, aan griep. De lijkbezorgers weten geen raad, hoe zij aan doodkisten moeten komen.

Te Leeds was de sterfte aan griep alleen verleden week 181 of 6.6 per duizend. Het gehele aantal sterfgevallen beliep daar de vorige week 248 of 9.1 per duizend, het hoogste cijfer dat bekend is. De epidemie vermindert nog niet.

Te Leeds daalde het aantal sterfgevallen aan griep van 158 tot 118 in de week.

THE LANCET
1919



W
THORNTON
SHIELDS

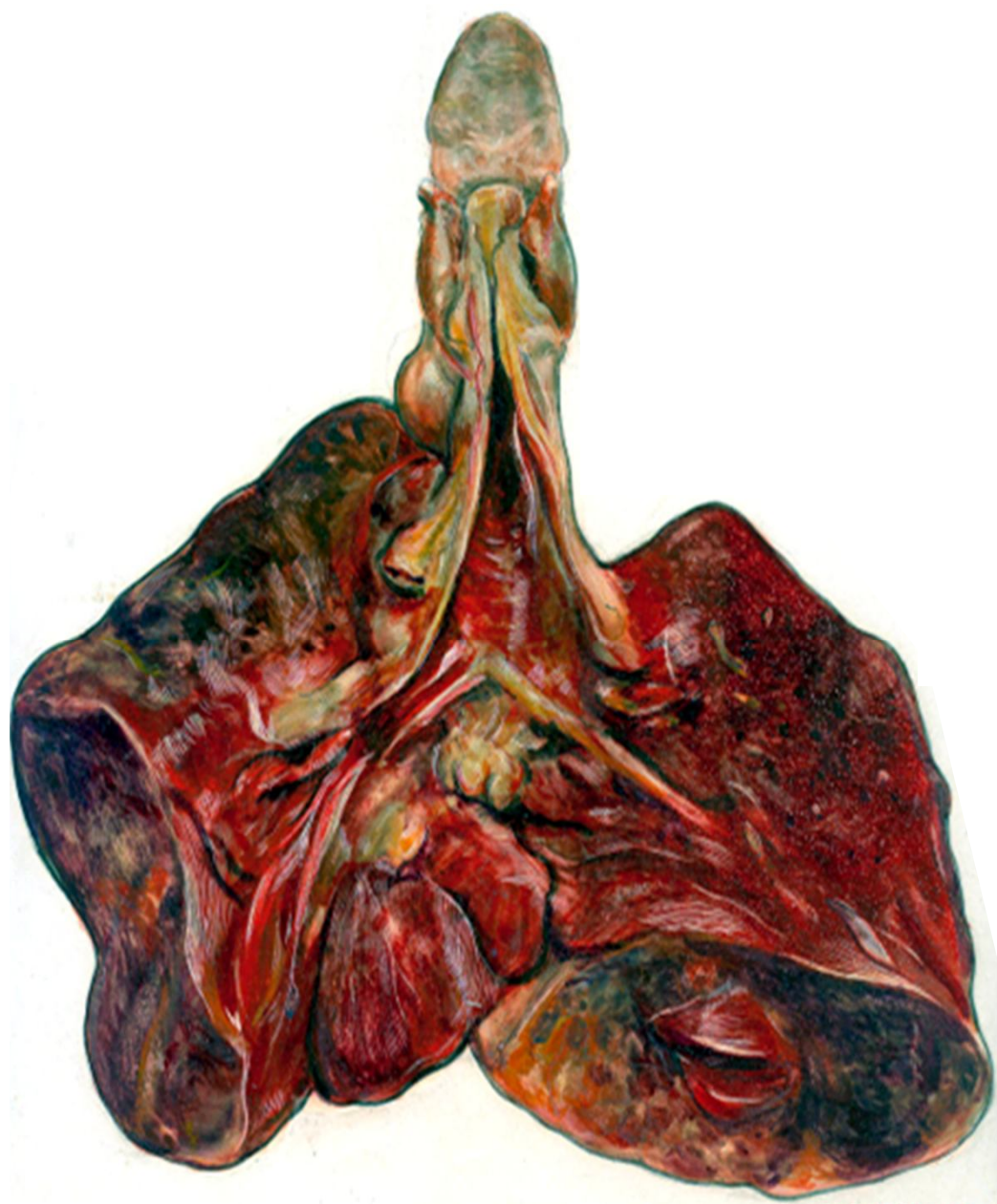
THE LANCET
1919



W
THORNTON
SHIELS

THE LANCET
1919





L.S. Wm. T. Schwarz
HOSPITAL CENTER EIGHT
S. E. 7.

THE LANCET

JANUARY 4, 1919.

Epistaxis, sometimes of almost alarming degree, has been an unusually common phenomenon in this epidemic, sometimes at the beginning, more often after the patient has already gone to bed, and in quite a number of cases the hearing has become much impaired, a few cases having become temporarily stone deaf. Quinine prophylaxis may be a factor in this, but that there is middle-ear catarrh in at least some of the cases has been shown by subsequent ear discharge, and in one or two cases by considerable bleeding from each ear.

Hæmoptysis.—Apart from more or less altered blood in the sputum itself, actual hæmoptysis has been a very common phenomenon.

In the slighter cases with this condition the sputum pot exhibits frothy muco-purulent material in which occur streaks and splashes of bright red blood in varying quantity. This blood is spat up as a rule independently of the actual sputum, even if synchronously with it. In quite a considerable number of cases this hæmoptysis has attained a degree comparable to that of phthisis. The bed-clothes, wall, and floor have become blood-spattered during a coughing paroxysm, and as much as 10 ounces of bright red blood may be coughed up in a few minutes.



"Wij woonden met het gezin in Velp. Het was bittere armoede. In één keer werd iedereen ziek. Mijn moeder was in verwachting en toen zijn mijn jongere broertje en ik bij oma in huis getrokken. We waren allemaal ziek, ik ook. Mijn vader bleef thuis, waar hij door iemand anders werd verzorgd. Twee van zijn broers, een van geloof ik zeventien en de ander negentien of zoiets, waren ook ziek. In oma's huis lagen dus allemaal zieke mensen. Mijn moeder beviel van een zoon, te midden van alle ellende. Kort daarna stierf mijn vader, alleen in mijn ouderlijk huis, Moeder wist dat vader was overleden. Ze sliep rustig, maar is toch overleden. Een tante heeft haar dood gevonden. Ook mijn twee broertjes stierven: de baby en het kind van twee jaar oud. Daarna gingen ook mijn twee ooms dood, die van zeventien en negentien."

from September 14 to the 8th of November 316,089 cases of influenza and 53,449 of pneumonia were reported among troops in this country. The explosive character of the epidemic is shown in diagram 56. The curve in the diagram shows the weekly death rate for each 1,000 troops in this country during the year 1918. The curve starts to rise sharply during the third week in September. It reached its high point the second week in October, when 4 out of each 1,000 troops under arms in this country died. The rate subsided at the end of October, but during the succeeding months remained somewhat higher than it had been previous to the epidemic.

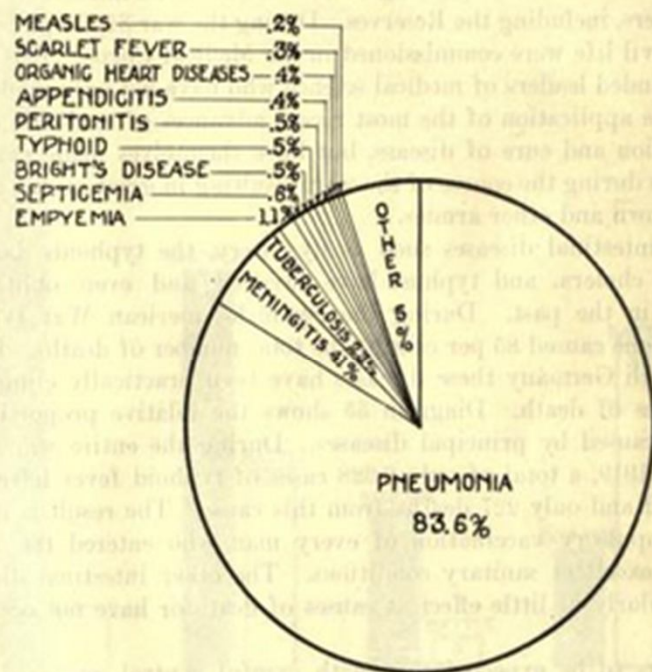


Diagram 55.—Deaths by principal diseases.

Two other diseases which offered difficult problems for the medical force were measles and spinal meningitis. Measles was prevalent during the first year of the war and was particularly dangerous as the predecessor of pneumonia. After vigorous efforts to control it, the number of cases was greatly reduced. Meningitis has caused nearly 2,000 deaths, ranking next to pneumonia as shown in diagram 55. Both of these contagious diseases were largely the result of bringing numbers of men together in the confinement of camps and cantonments where the control of contagion is difficult. In the case of measles, men from rural communities who had not been immunized by previous exposure were particularly susceptible.

VENEREAL DISEASE.

Great success has also been experienced in the control of the venereal diseases. A comprehensive program of education, together with medical prophylaxis, has produced unusual results. While these diseases have continued to be the most frequent cause of admissions to the sick report, and the greatest source of nonef-

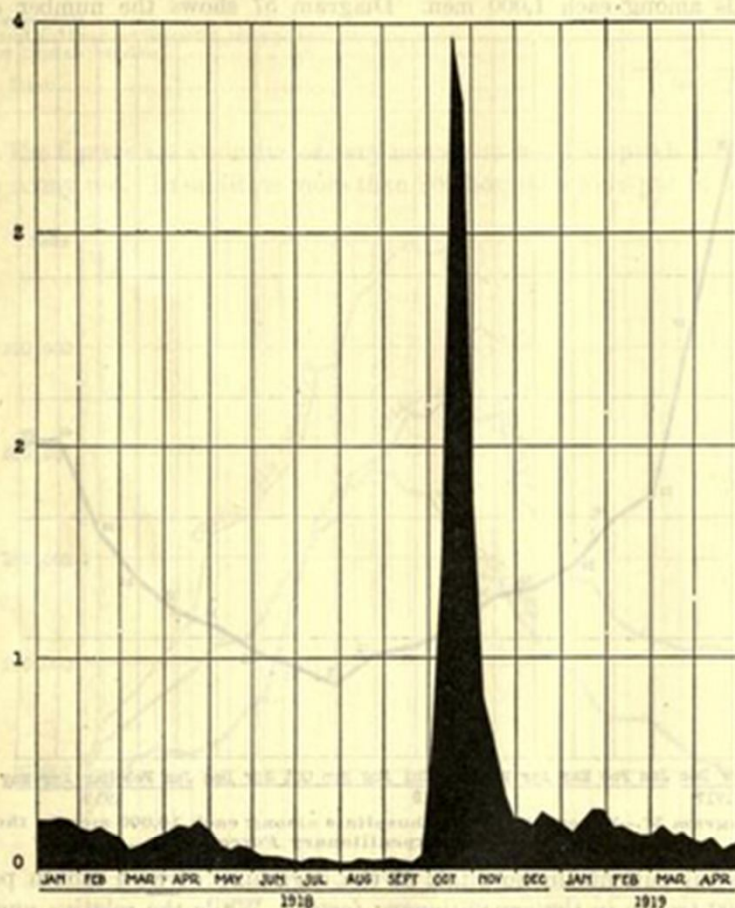


Diagram 56.—Deaths per 1,000 soldiers each week in the United States, showing effect of influenza epidemic.

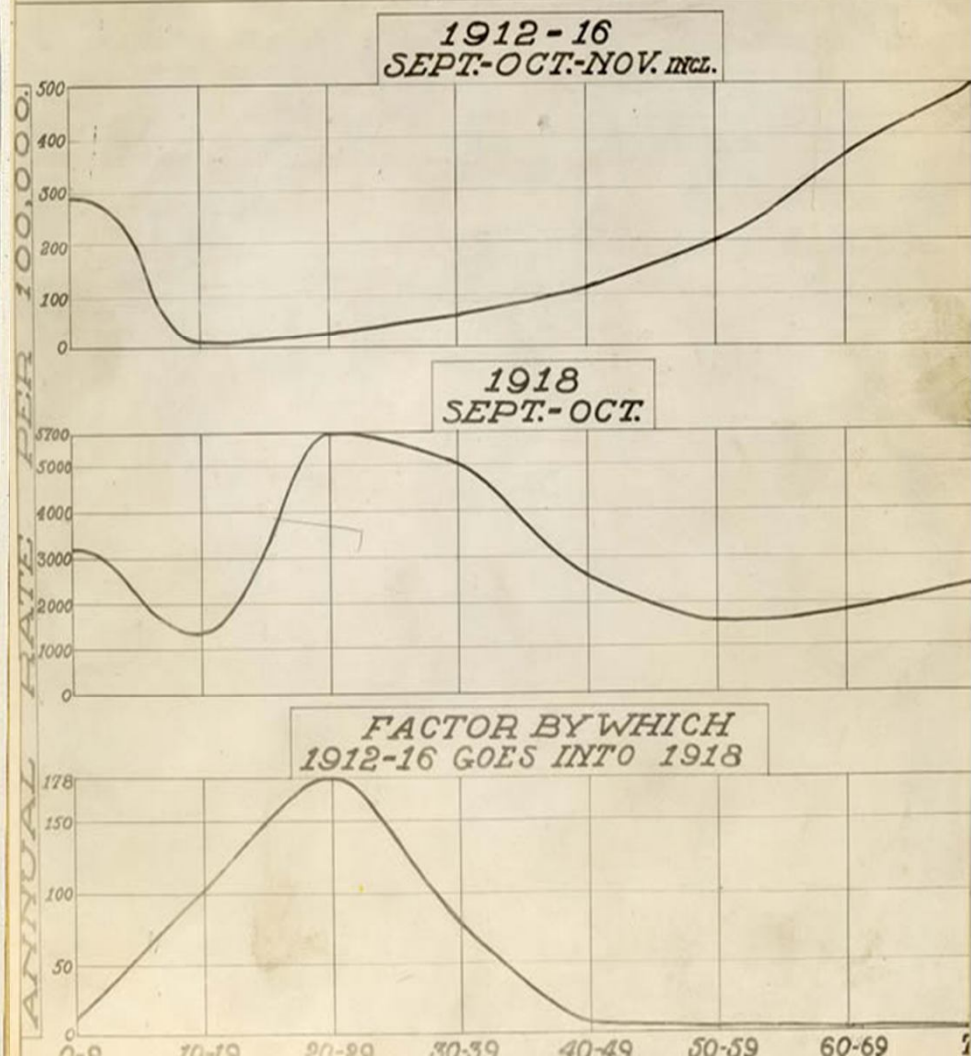
fectiveness in the Army, a large proportion of the cases were contracted before entering the Army. A special study of all new cases of venereal diseases reported at five large cantonments, Lee, Va.; Dix, N. J.; Upton, N. Y.; Meade, Md.; and Pike, Ark., during the year ended May 21, 1919, shows that of 48,167 cases treated, 96 per cent were contracted before entering the Army and only 4 per cent after.

EXCESS MORTALITY IN U.S. CITIES DURING INFLUENZA EPIDEMIC

PERCENT OF POPULATION DYING

CITY	1918-1919																				
	SEPT. 8 - NOV. 23 10 WEEKS				NOV. 24 - FEB. 1 10 WEEKS				FEB. 2 - MAR. 29 8 WEEKS				TOTAL 28 WEEKS								
	0	.2	.4	.6	.8	0	.2	.4	.6	.8	0	.2	.4	.6	.8	0	.2	.4	.6	.8	
PHILADELPHIA	.69					.01					.03					.73					
FALL RIVER	.59					.05					.04					.68					
PITTSBURGH	.59					.12					.06					.77					
BALTIMORE	.57					.05					.0					.60					
SYRACUSE	.55					.02					.02					.58					
NASHVILLE	.55					.16					.12					.83					
BOSTON	.50					.12					.0					.62					
NEW HAVEN	.49					.13					.0					.61					
NEW ORLEANS	.49					.21					.0					.71					
ALBANY	.48					.03					.02					.53					
BUFFALO	.47					.10					.04					.61					
WASHINGTON	.45					.12					.0					.54					
LOWELL	.44					.10					.03					.56					
SAN FRANCISCO	.42					.31					.02					.74					
CAMBRIDGE	.39					.12					.0					.50					
NEWARK	.39					.11					.04					.53					
PROVIDENCE	.38					.13					.03					.53					
RICHMOND	.35					.18					.02					.55					
DAYTON	.33					.02					.03					.37					
OAKLAND	.33					.22					.01					.36					
CHICAGO	.32					.09					.04					.46					
NEW YORK	.30					.09					.08					.47					
CLEVELAND	.27					.11					.04					.42					
LOS ANGELES	.27					.26					.01					.55					
MEMPHIS	.25					.02					.09					.37					
ROCHESTER	.25					.12					.03					.40					
KANSAS CITY	.25					.27					.08					.60					
DENVER	.24					.32					.07					.63					
CINCINNATI	.22					.13					.11					.46					
OMAHA	.22					.20					.0					.43					
LOUISVILLE	.19					.04					.14					.37					
ST. PAUL	.19					.13					.02					.34					
COLUMBUS	.19					.15					.07					.41					
PORTLAND	.18					.22					.03					.42					
TOLEDO	.17					.02					.0					.17					
MINNEAPOLIS	.17					.11					.07					.24					
SEATTLE	.16					.18					.02					.36					
INDIANAPOLIS	.15					.09					.08					.31					
BIRMINGHAM	.15					.15					.0					.29					
MILWAUKEE	.15					.18					.03					.37					
ST. LOUIS	.12					.18					.04					.34					
SPOKANE	.11					.13					.02					.25					
ATLANTA	.07					.13					.0					.19					
GRAND RAPIDS	.04					.12					.04					.19					

AGE DISTRIBUTION OF DEATHS FROM INFLUENZA AND PNEUMONIA AT BOSTON



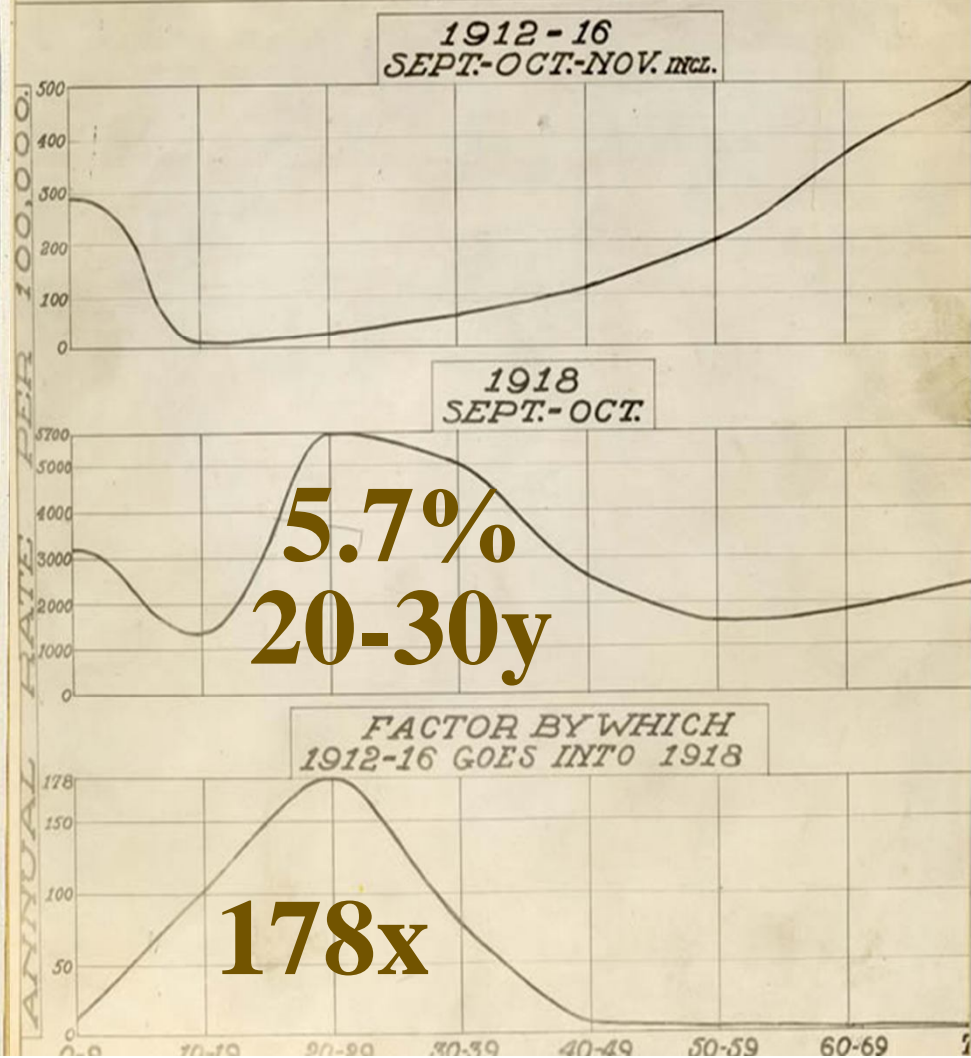
EXCESS MORTALITY IN U.S. CITIES DURING INFLUENZA EPIDEMIC PERCENT OF POPULATION DYING

CITY	1918-1919			
	SEPT. 8 - NOV. 23 10 WEEKS	NOV. 24 - FEB. 1 10 WEEKS	FEB. 2 - MAR. 29 8 WEEKS	TOTAL 28 WEEKS
	0 .2 .4 .6 .8	0 .2 .4 .6 .8	0 .2 .4 .6 .8	0 .2 .4 .6 .8
PHILADELPHIA	.69	.01	.03	.73
FALL RIVER	.59	.05	.04	.68
PITTSBURGH	.59	.12	.06	.77
BALTIMORE	.57	.03	.0	.60
SYRACUSE	.55	.02	.02	.58
NASHVILLE	.55	.16	.12	.83
BOSTON	.50	.12	.0	.62
NEW H				
NEW O				
ALBA				
BUFFA				
WASHI				
LOWEI				
SAN FR				
CAMBR				
NEWAI				
PROVID				
RICHM				
DAYTO				
OAKLA				
CHICAG				
NEW Y				
CLEVEL	.69			
LOS AN				
MEMPHIS	.25	.02	.09	.37
ROCHESTER	.25	.12	.03	.40
KANSAS CITY	.25	.27	.08	.60
DENVER	.24	.32	.07	.63
CINCINNATI	.22	.13	.11	.46
OMAHA	.22	.20	.0	.43
LOUISVILLE	.19	.04	.14	.37
ST. PAUL	.19	.13	.02	.34
COLUMBUS	.19	.15	.07	.41
PORTLAND	.18	.22	.03	.42
TOLEDO	.17	.02	.0	.17
MINNEAPOLIS	.17	.11	.07	.24
SEATTLE	.16	.18	.02	.36
INDIANAPOLIS	.15	.09	.08	.31
BIRMINGHAM	.15	.15	.0	.29
MILWAUKEE	.15	.18	.03	.37
ST. LOUIS	.12	.18	.04	.34
SPOKANE	.11	.13	.02	.25
ATLANTA	.07	.13	.0	.19
GRAND RAPIDS	.04	.12	.04	.19

SEPT. 8 - NOV. 23
10 WEEKS

0 .2 .4 .6 .8

AGE DISTRIBUTION OF DEATHS FROM INFLUENZA AND PNEUMONIA AT BOSTON





Tahiti

TAHITI BUILDS PYRES OF INFLUENZA DEAD

**Seventh of Papeete's Popula-
tion Succumbs and Bodies
Feed Steady Fires.**

FOOD AND MEDICINE SCARCE

**Victims of Plague Everywhere Are
Surrounded by Dying, While
Disease is Spreading.**

PAPEETE, Tahiti, Dec. 9.—Influenza has turned the Island of Tahiti into a charnel place. At the crest of Papeete burn great pyres, with the stark, sheet-covered bodies of many natives waiting to be thrown into the glowing ashes of those who have been consumed by the flames.



EXTRA NUMMER.

UTRECHTSCH



NIEUWSBLAD.

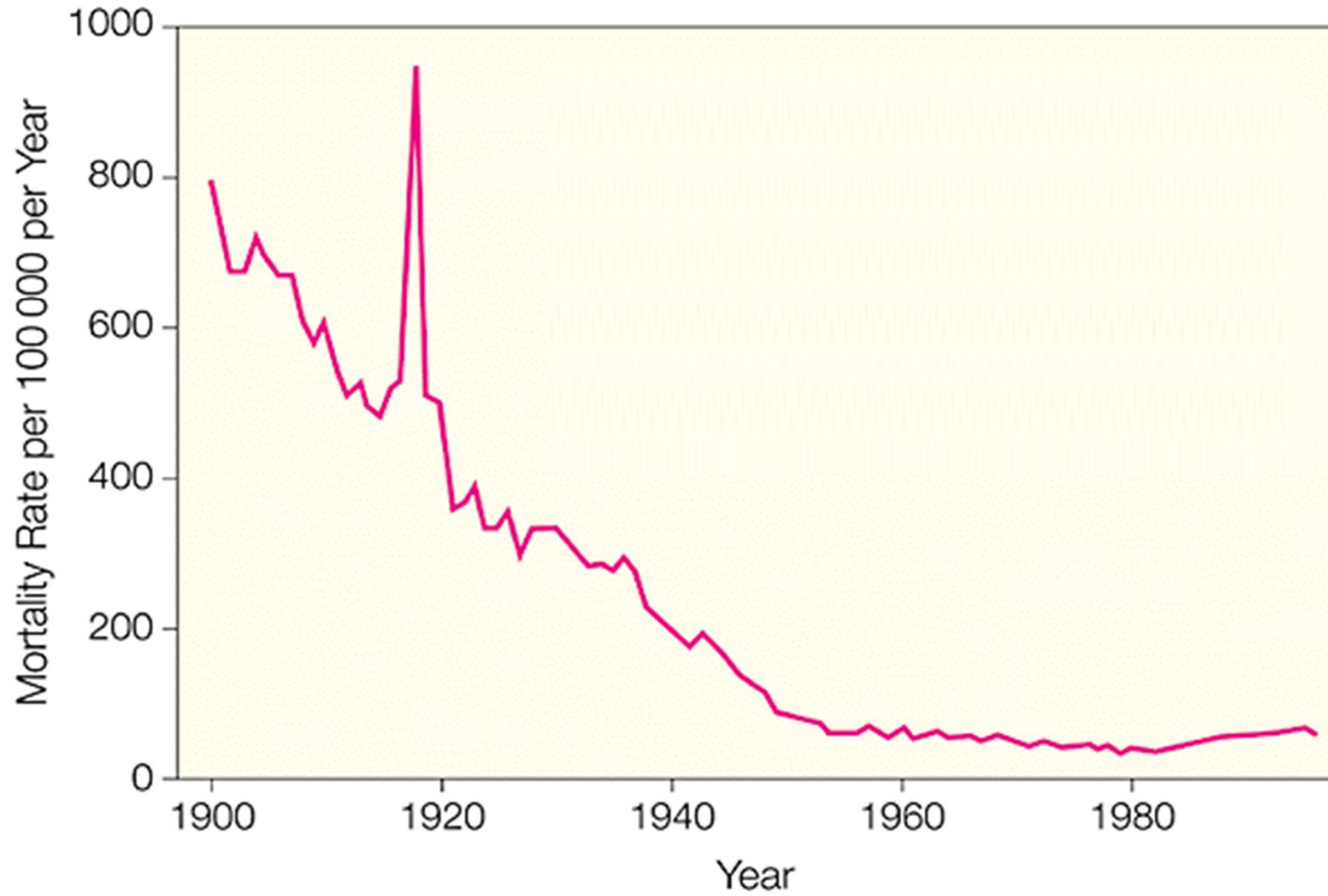
NIEUWS- EN ADVERTENTIEBLAD.

Bureau: Drift 23, Utrecht.

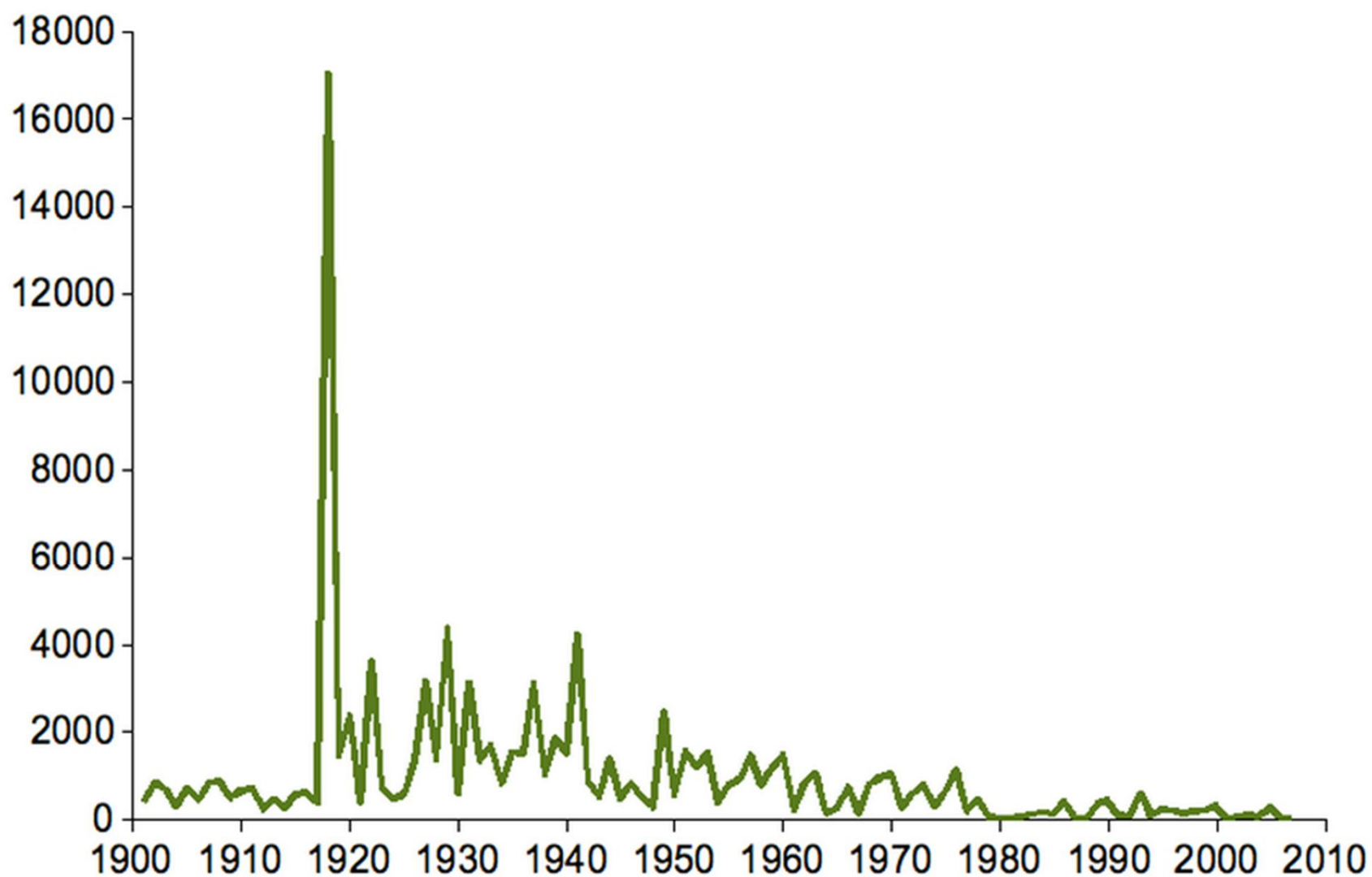
Uitgever: JOH. DE LIEFDE.

**DOOR WERELDWIJDE CONTACTEN:
MILJOENEN MENSCHEN
OVERLEDEN DOOR DE SPAANSCH
GRIEP.**

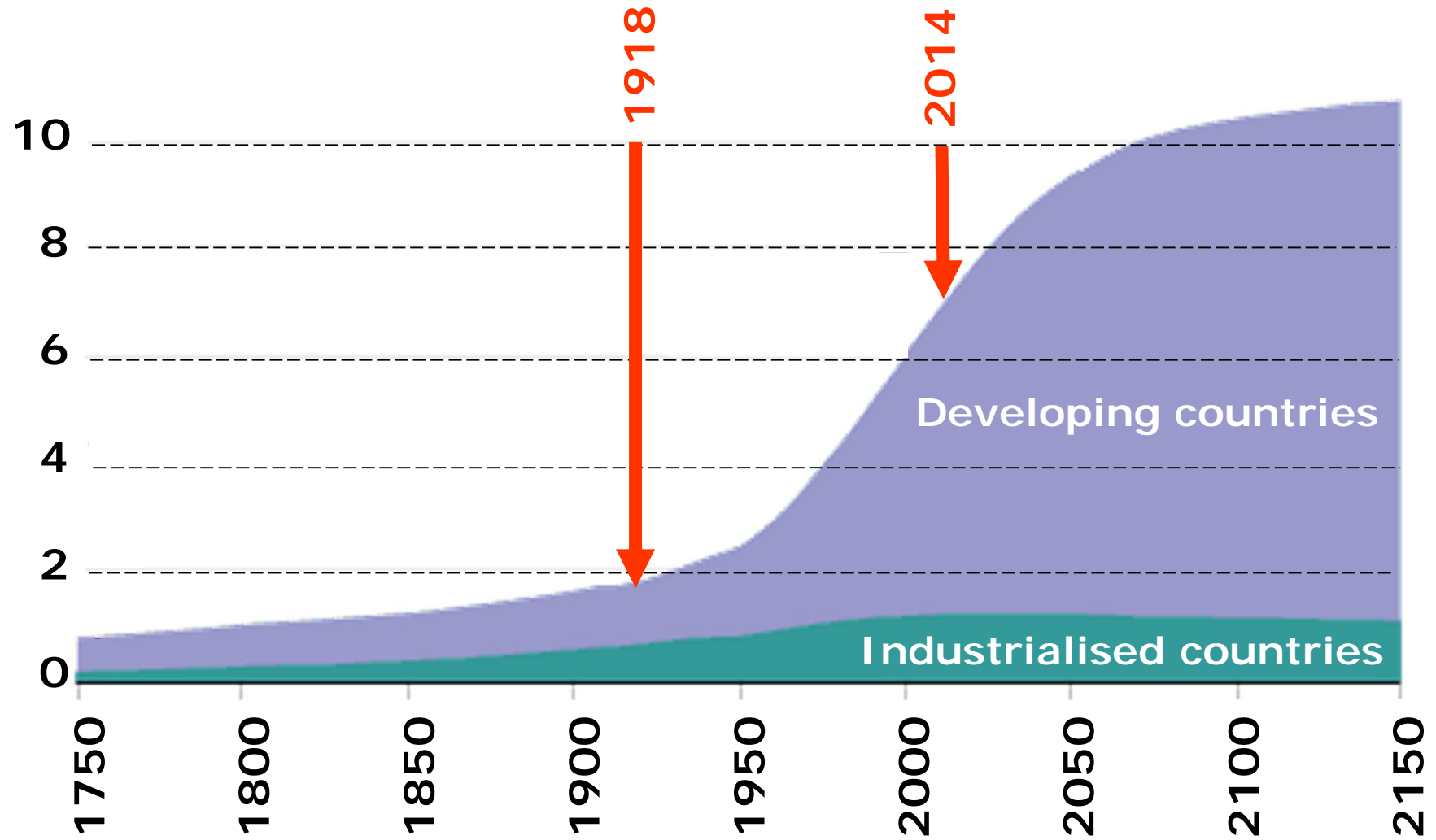
MORTALITY SPANISH INFLUENZA, 1918, USA



Aantal doden door griep in Nederland per jaar



WORLD POPULATION GROWTH: 1750-2150



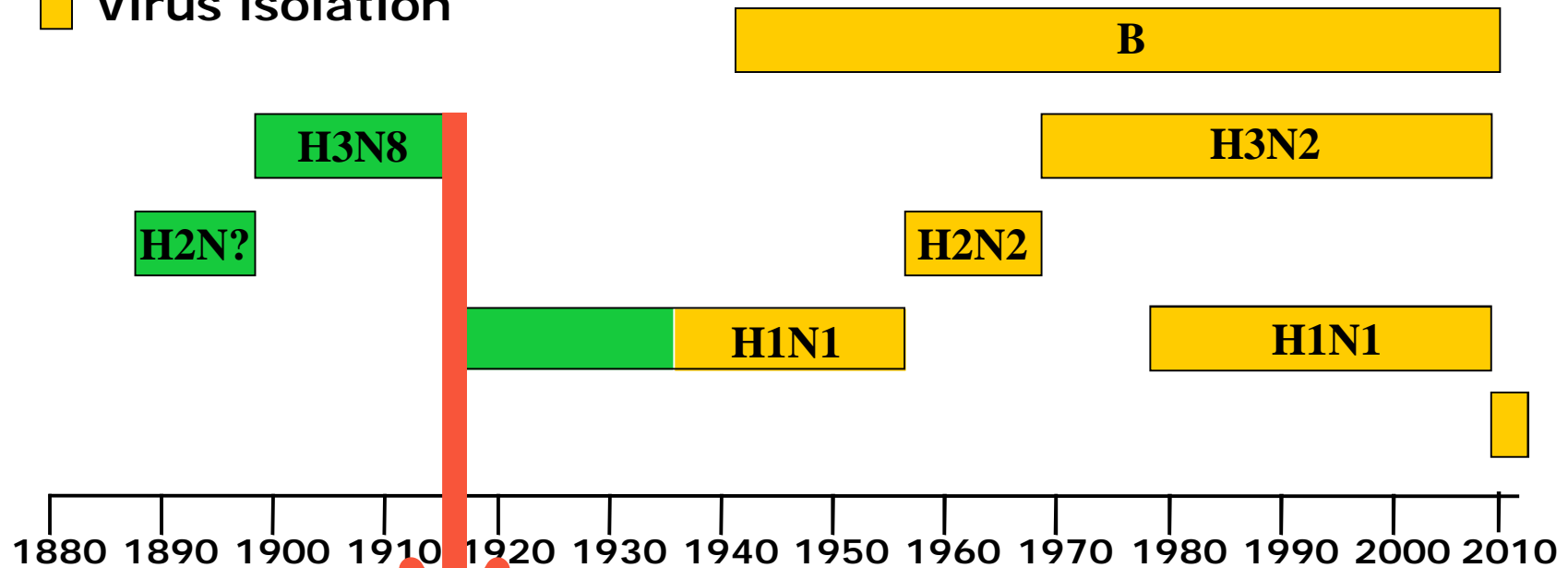
The long shadow of the Spanish flu



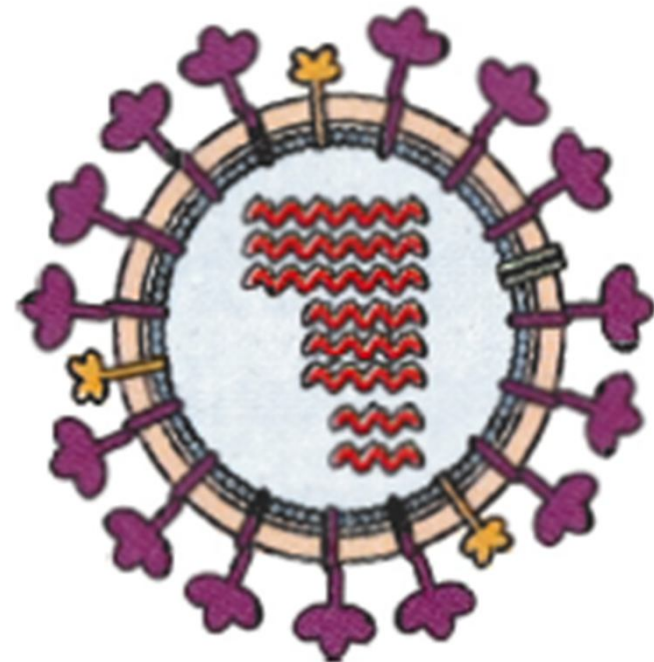
INFLUENZA VIRUSES

■ Antibody prevalence

■ Virus isolation



1918
Spanish flu



H1N1



8 fragments



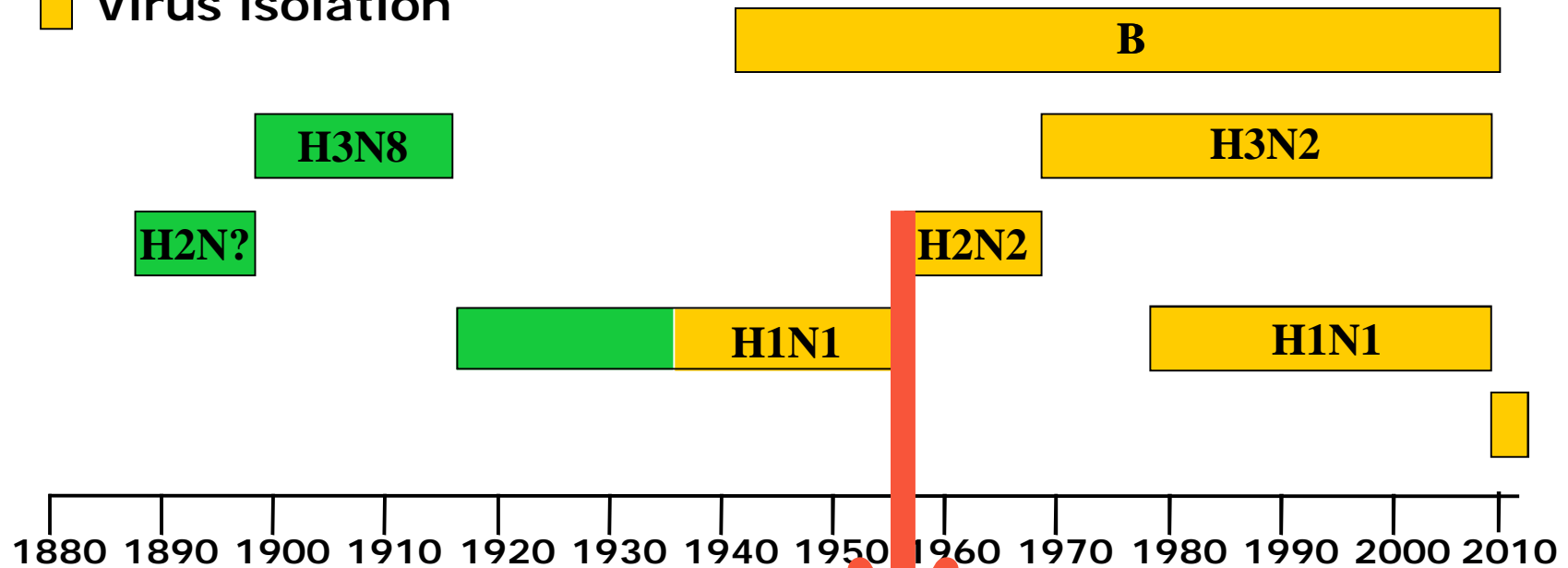
1918
H1N1



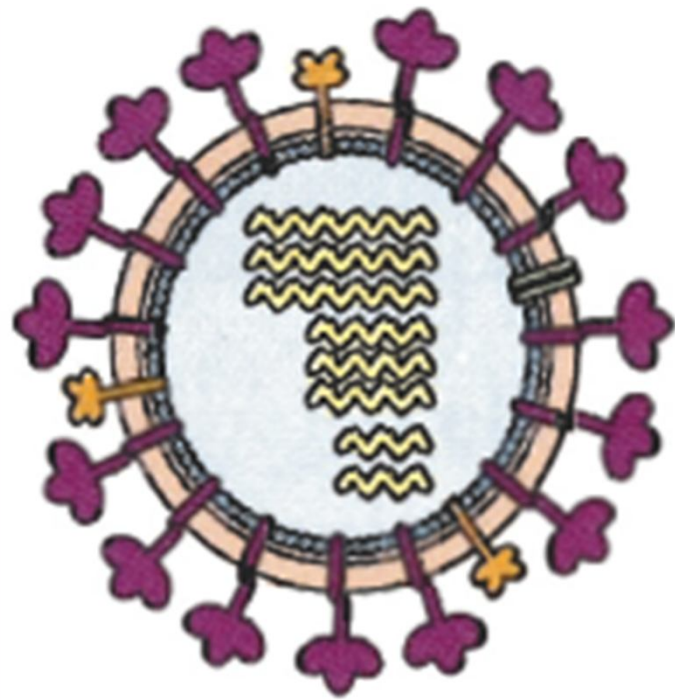
INFLUENZA VIRUSES

■ Antibody prevalence

■ Virus isolation



1957
Asian flu



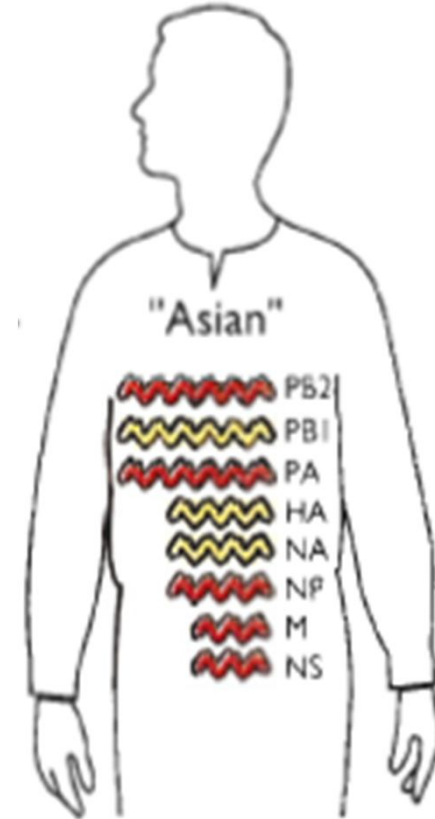
H2N2



3 fragments



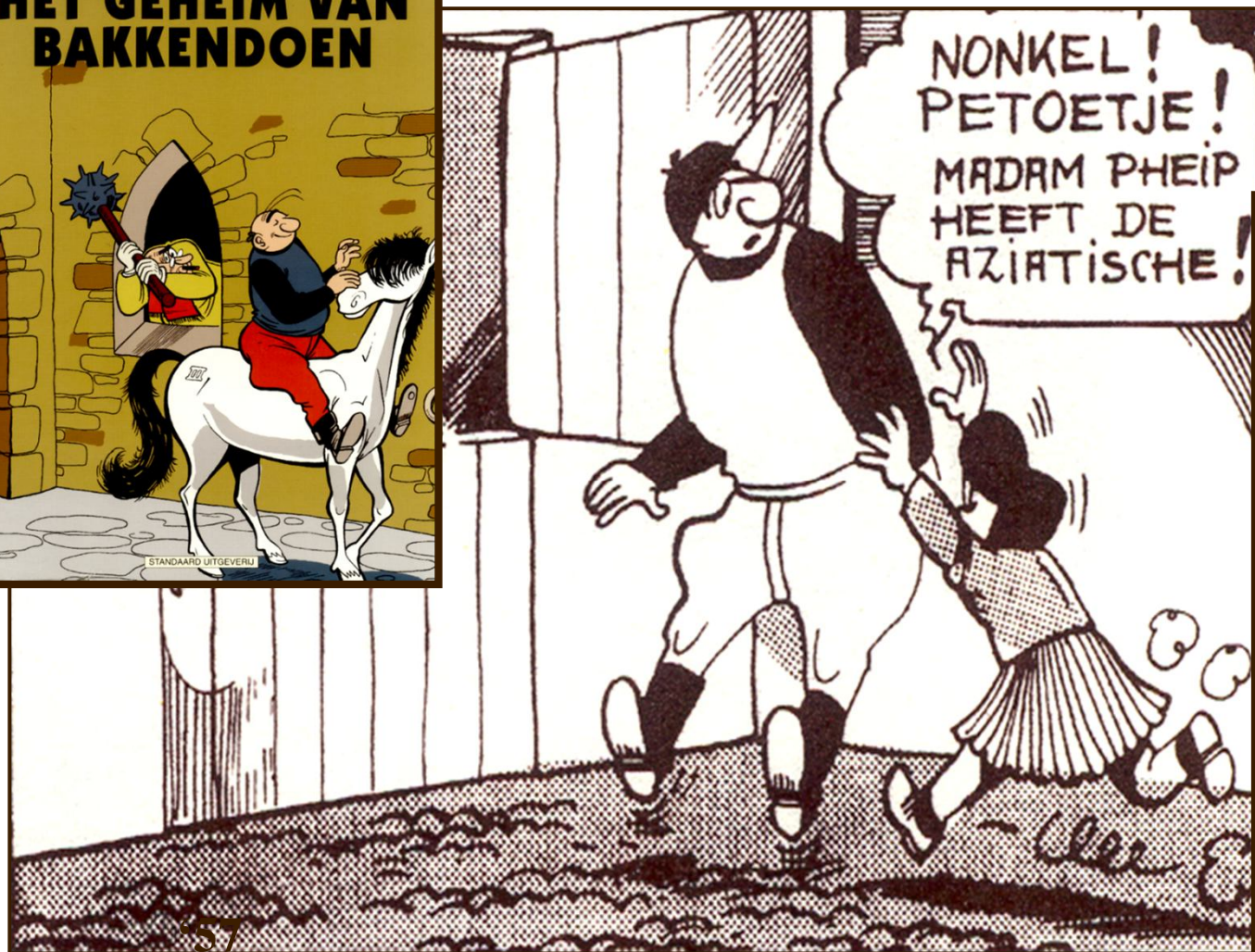
1957
H2N2



Mare Sleen

DE KLASSIEKE AVONTUREN VAN NERO

HET GEHEIM VAN BAKKENDOEN



JA, DE
AZIATISCHE
GRIEP
IS OP ONZE
HELDEN
NEERGESTORT.

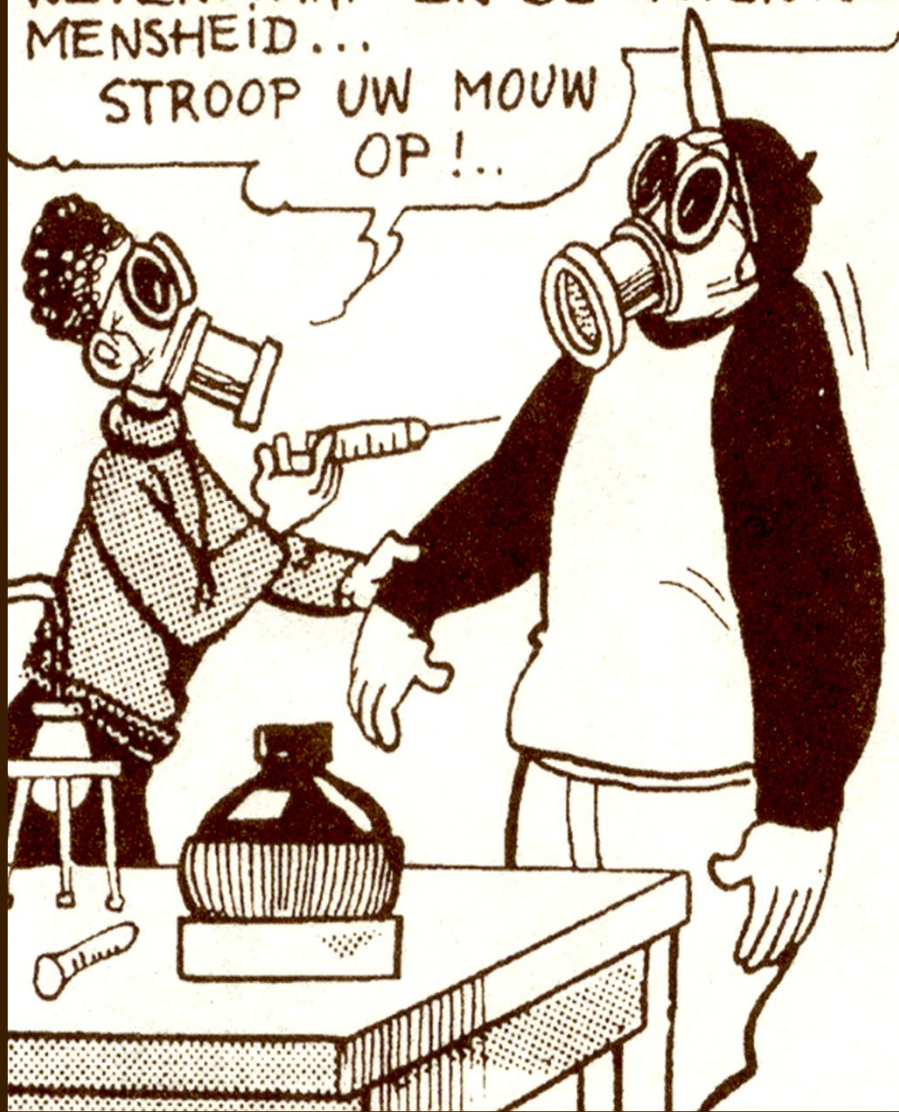
MENEER PHEIP
KWAM ER MEE
NAAR HUIS
VAN ZIJN
STAMCAFÉ.
DAARNA KREEG
ZE MADAM
PHEIP TE
PAKKEN
EN NU...

PROBEER EEN ANTI-AZIATIEKER.
ISOLEER DE VIRUS. DOE IETS,
GE ZIJT GELEERD GENOEG.
IK ZAL CONTROLLEREN!



NONKEL, IN HET BELANG VAN DE WETENSCHAP EN DE GETEISTERDE MENSHEID...

STROOP UW MOUW OP!...



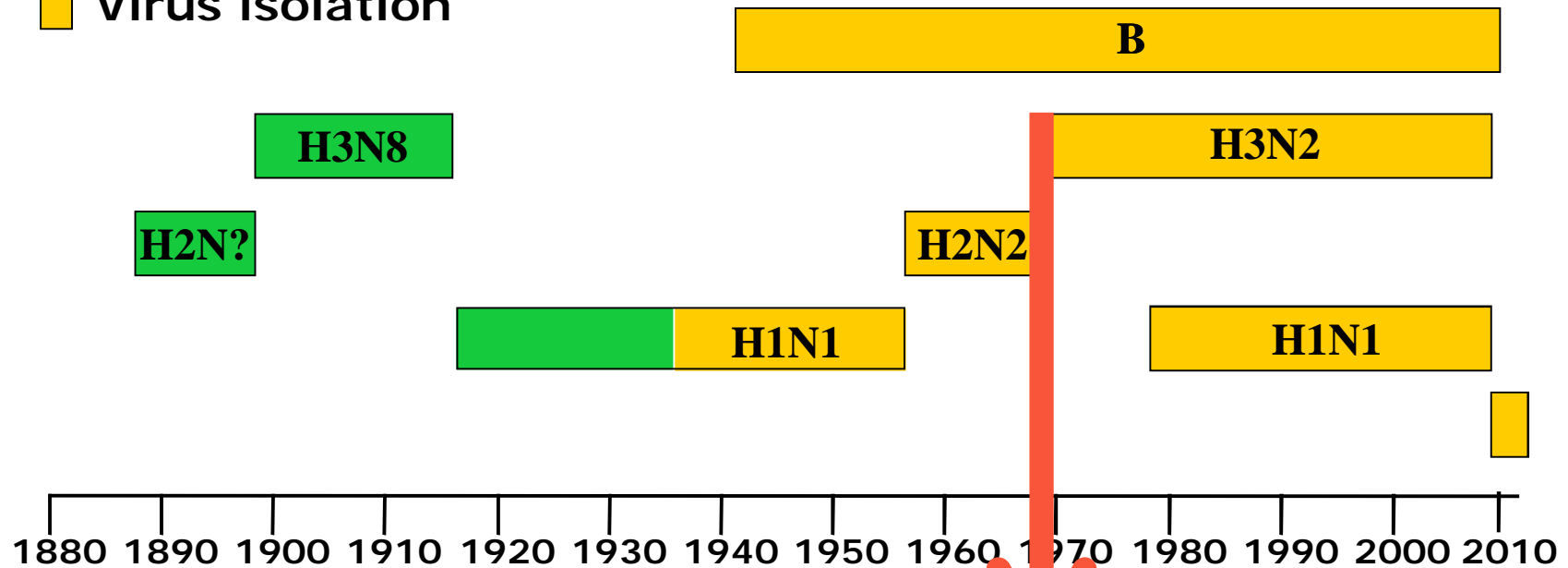
PROFICIAT PETOETJE, GE WORDT NOG EEN GROOT GELEERDE. DE MASKERS MOGEN WE WEGWERPEN, WE HEBBEN DE AZIATISCHE GRIEP OVERWONNEN!



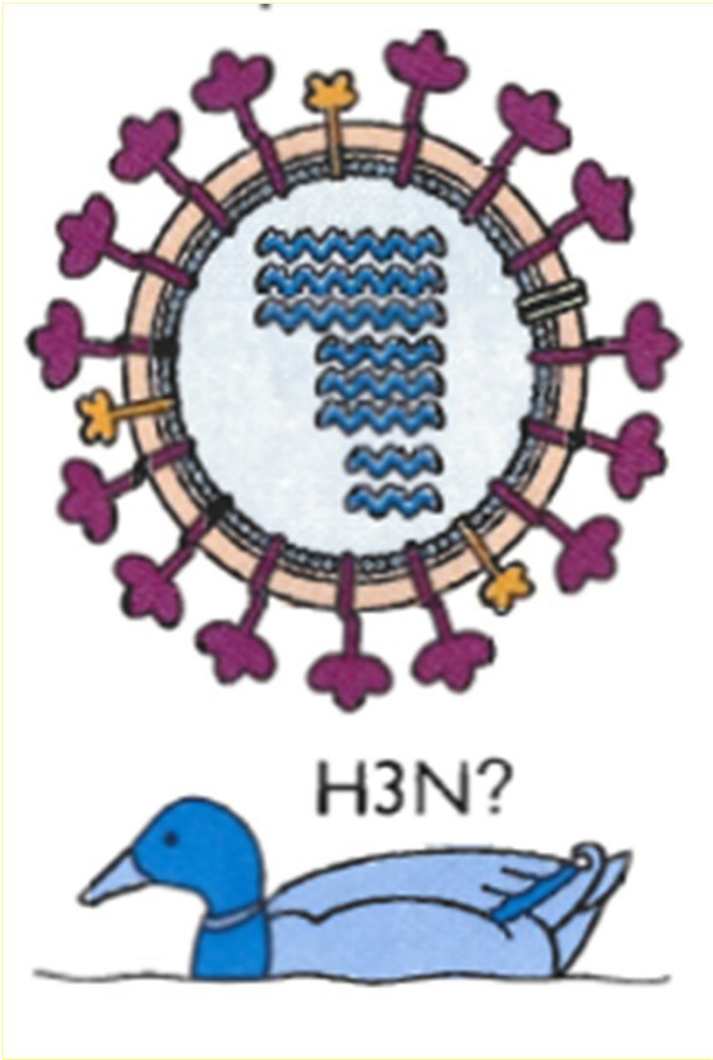
INFLUENZA VIRUSES

■ Antibody prevalence

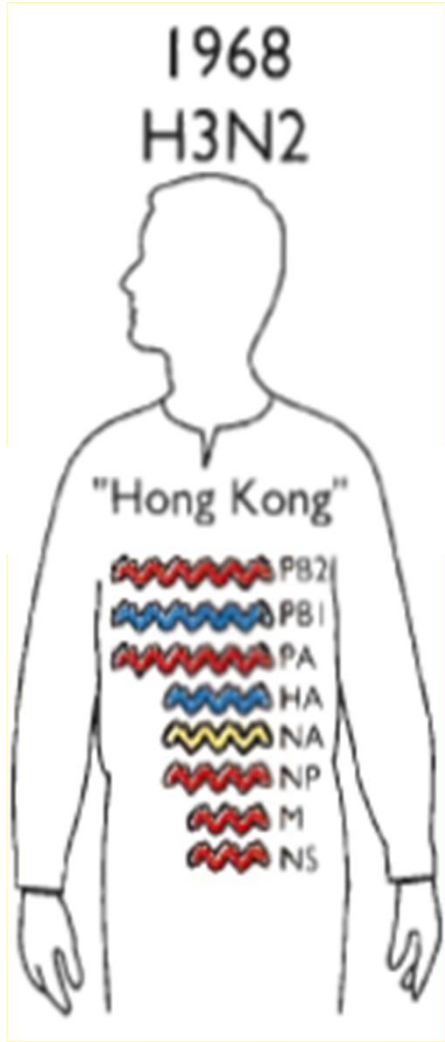
■ Virus isolation

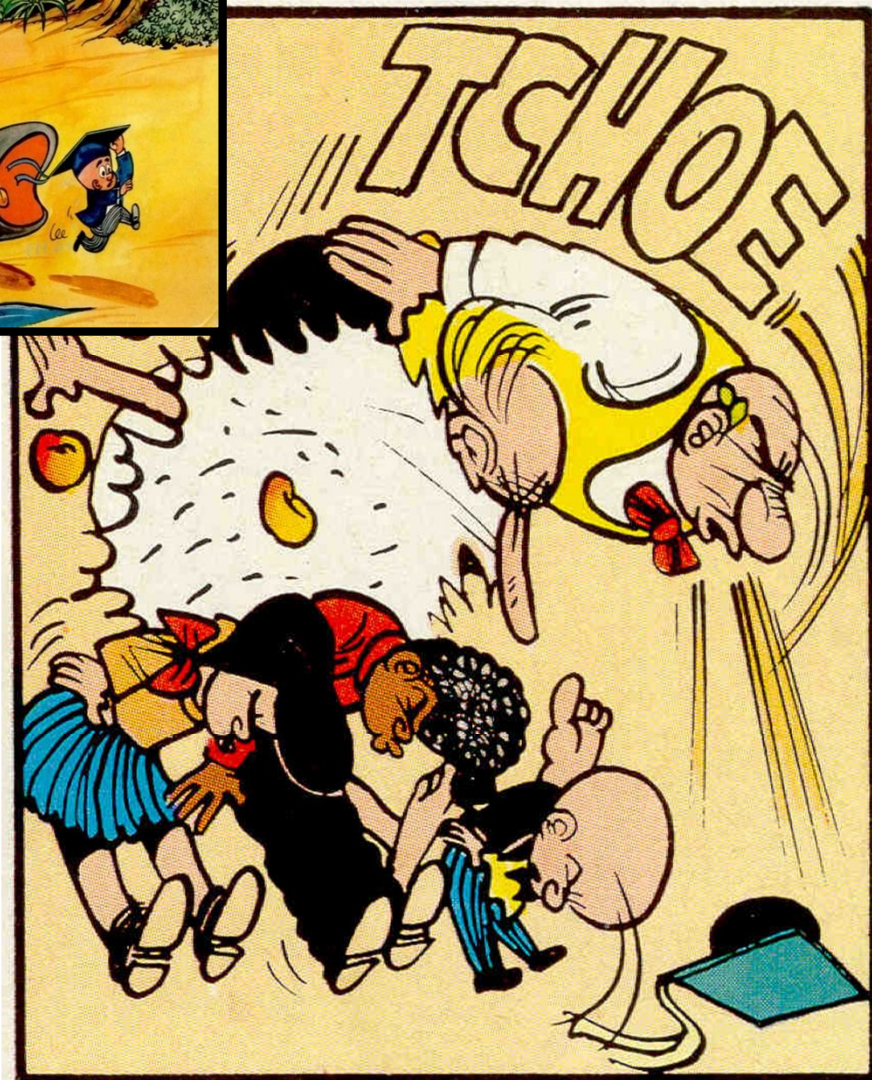
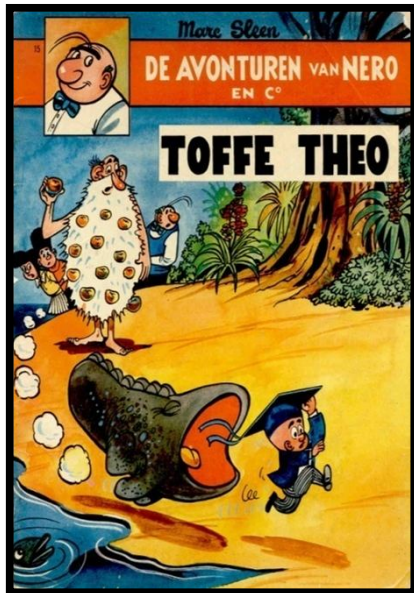


1968
Hong Kong flu



2 fragments

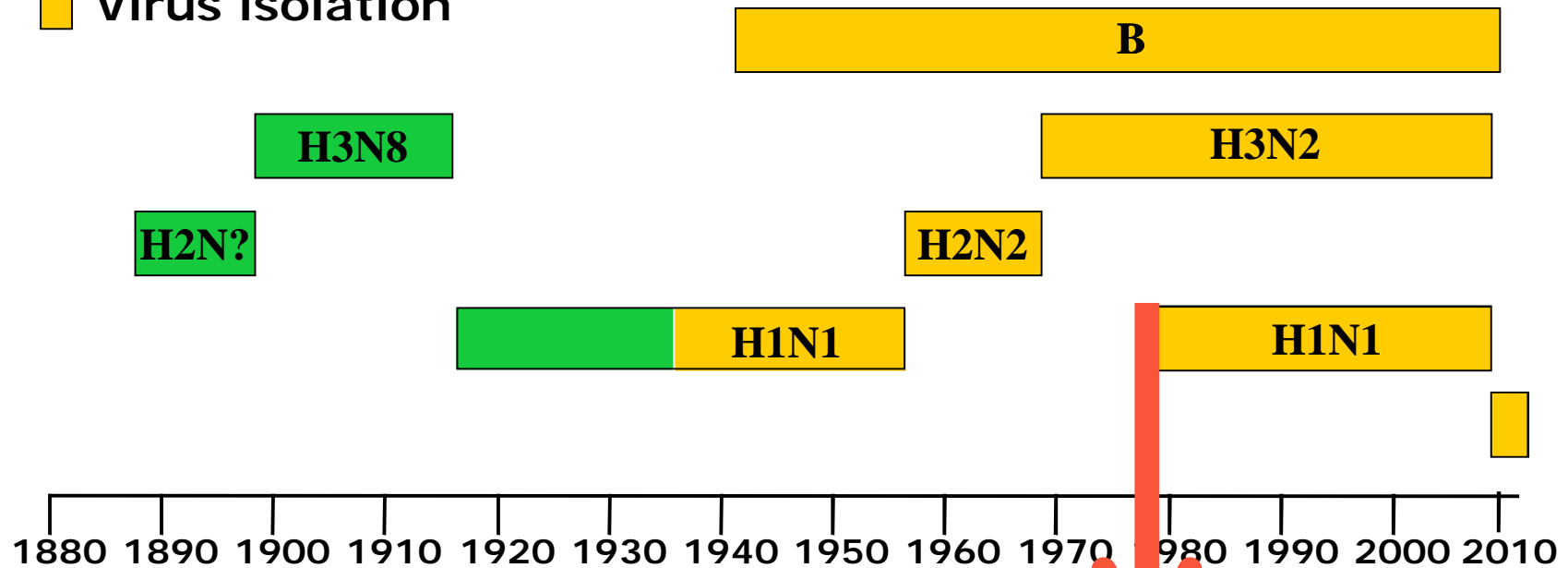




INFLUENZA VIRUSES

■ Antibody prevalence

■ Virus isolation



1977
Russian flu

1950

HINI



Laboratory
accident ?



1977

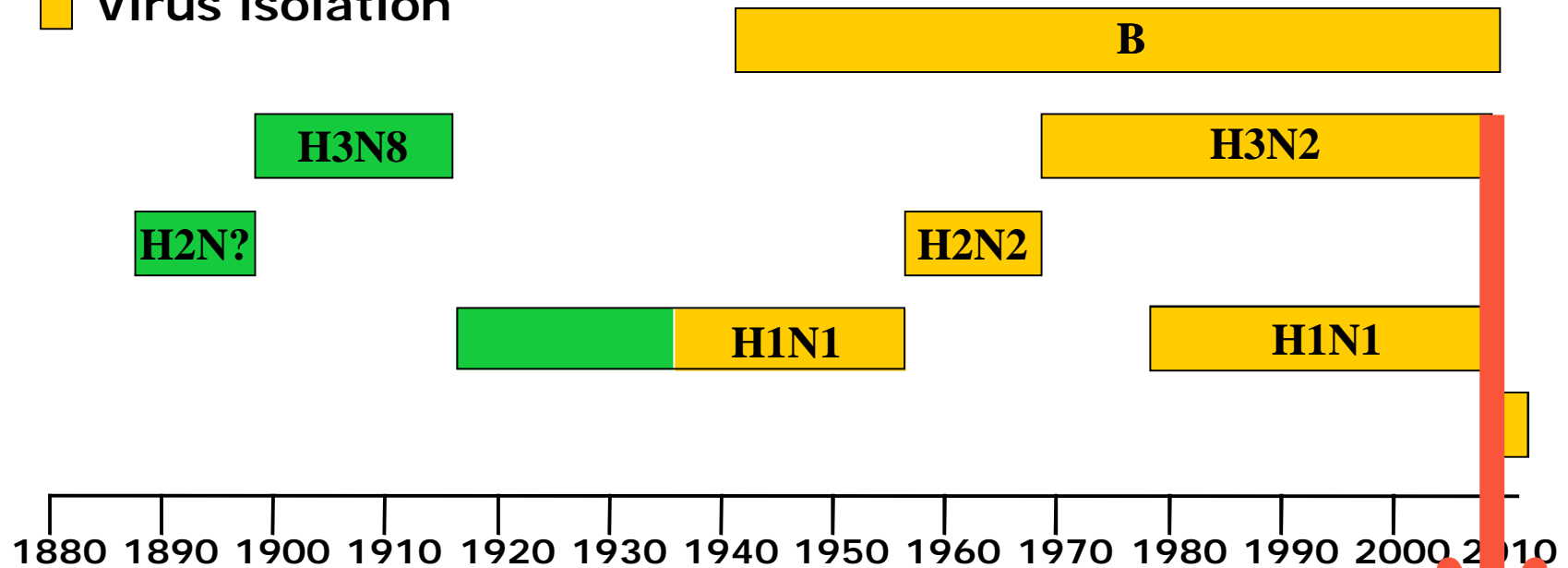
HINI



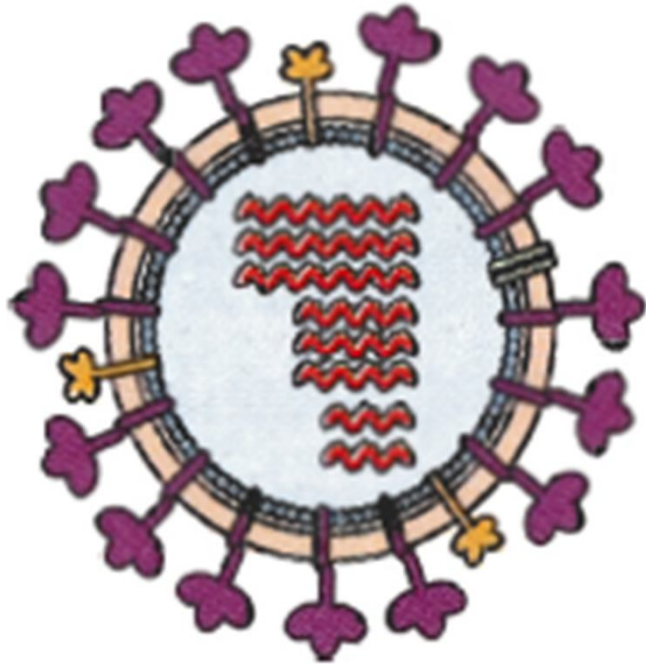
INFLUENZA VIRUSES

■ Antibody prevalence

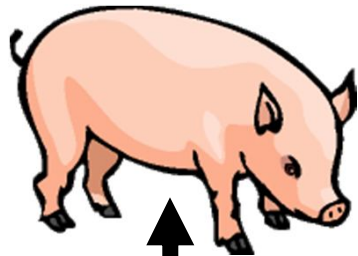
■ Virus isolation



2009
Mexican flu



H1N1



1918↑

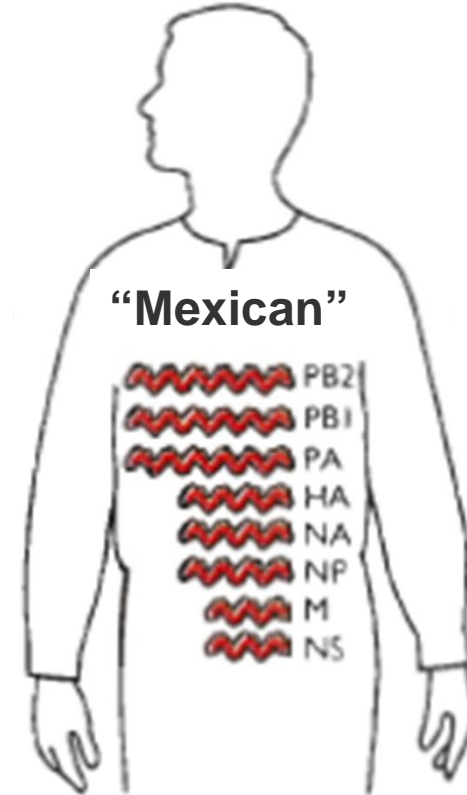


H1N1

8 fragments



2009
H1N1



“Mexican”

217 6177.

Haben Sie schon
Influenza gehabt?

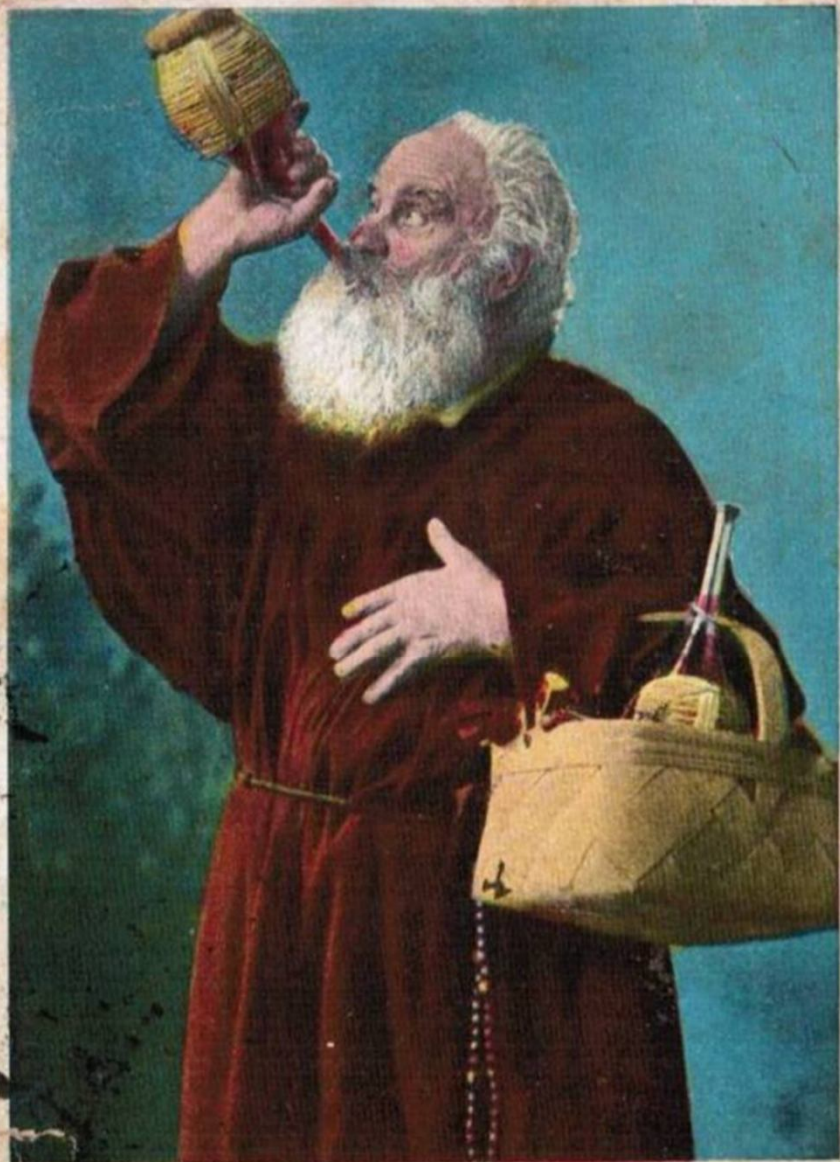
Nein? Na, dann lachen
Sie nicht, es kommt
bei Ihnen auch noch!

Druck u. Verlag v. J. Neumann, Neudamm, bei Berlin, 100, Postfach 100, 1900.

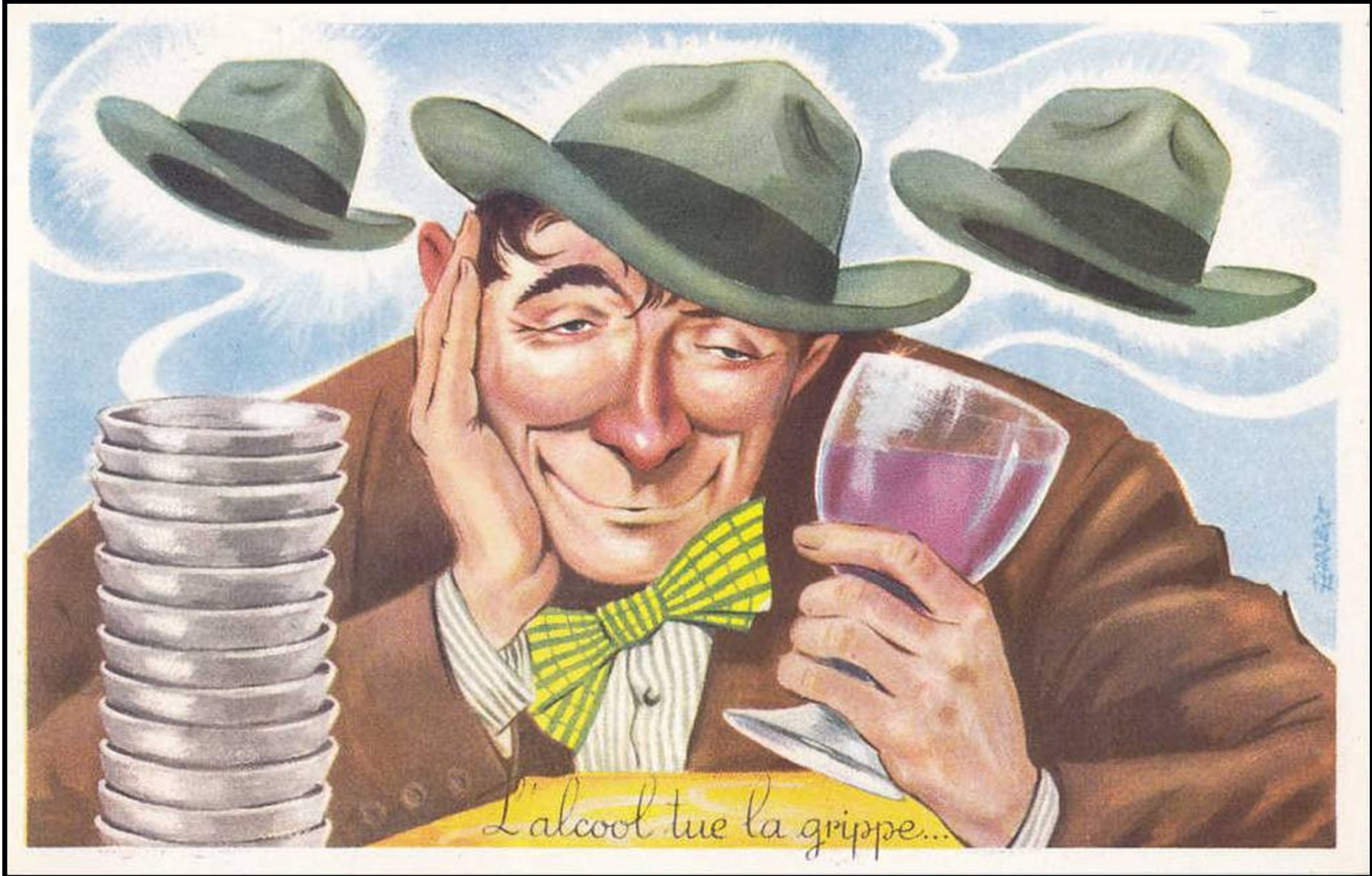


Besten Dank

Annax. Robert.



*Unico remedio contro
l'influenza.*



L'alcool tue la grippe...

Conseils pour se préserver contre la GRIPPE ESPAGNOLE

Ayez soin d'avoir la bouche fermée
en parlant.

Introduisez dans chacune de vos nari-
nes une **cote d'ail.**

Ne couchez jamais dans le lit d'une
belle, vous pourrez y ramassez la **grippe**,
pécole, ou une autre **maladie infectu-**
euse, (Pour les dames mêmes conseils).

Ne donnez pas la main à des gens que
vous ne **connaissez pas.**

Mangez beaucoup de **fromage**, **pain**
et **beurre**, c'est **bon** pour le **ventre.**

Ne voyagez pas, vous économiserez du
charbon et **vos sous.**

Si vous sentez une indisposition, faites
votre testament.

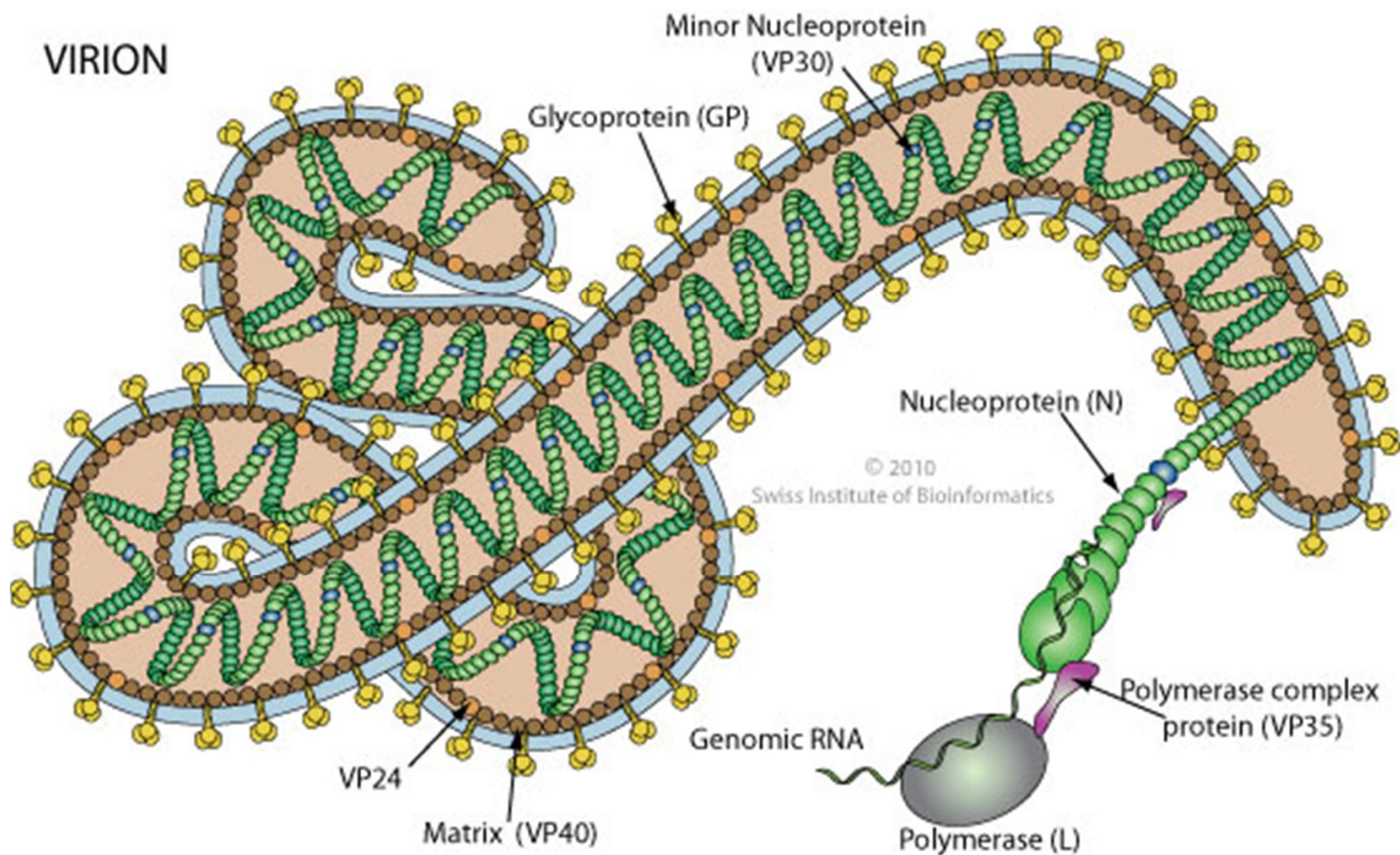
Prenez chaque jour à jeun, un petit
verre de **schnaps** 3/6 de la confédéra-
tion cela vous fera du bien et engrais-
sera la **caisse de l'Etat.**

Si malgré tout, la grippe vous prends,
maudissez le macaque qui l'a importée
et si vous échappez, **chantez ce refrain.**

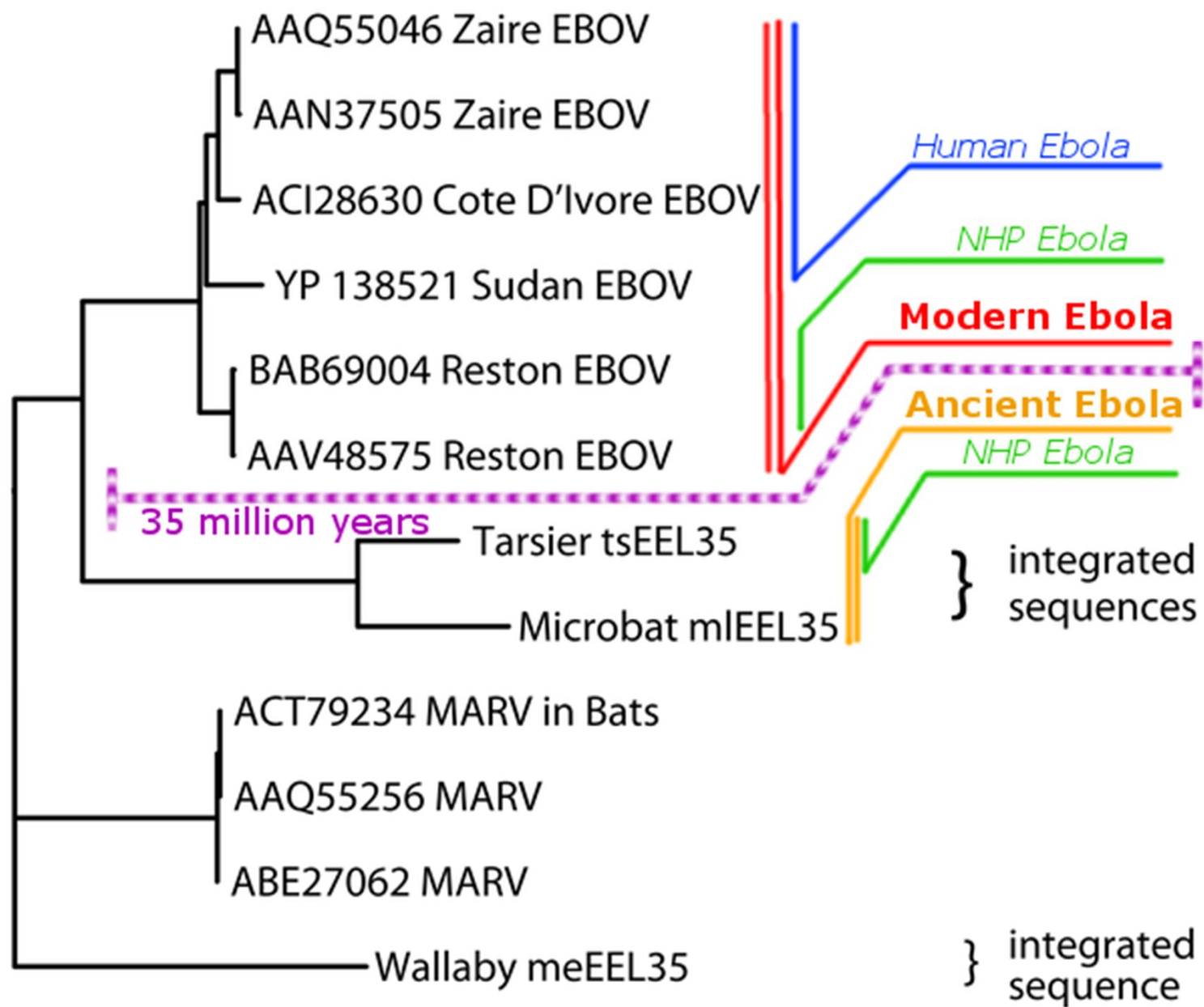
Danse	}	Tram, Tram, Tram dirididi
pas de l'ours		Et vouspeidi et vouspada
		Schnaps ist gut für Kolera....



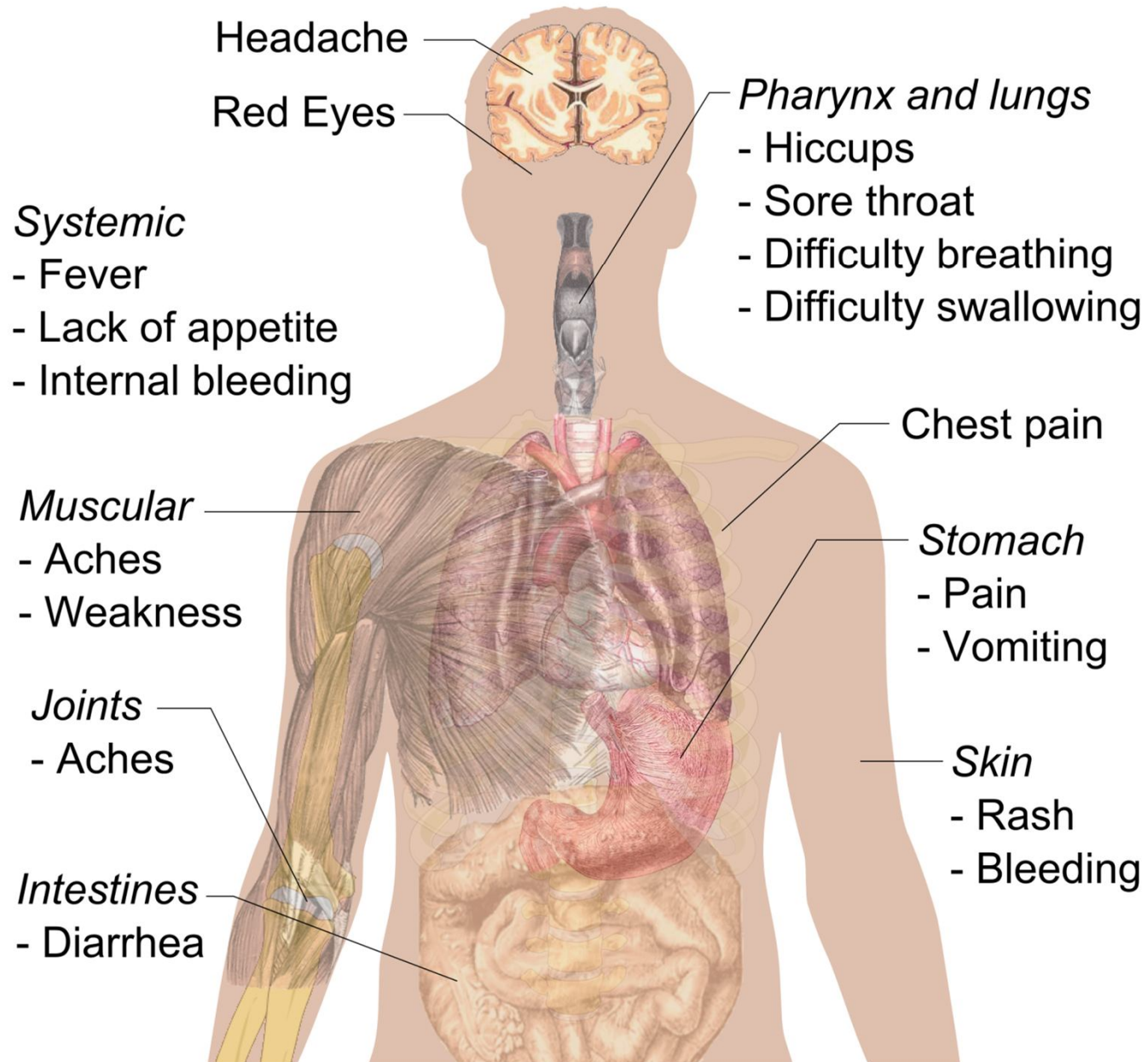
VIRION







Symptoms of **Ebola**





SYMPTOMS OF EBOLA



DIARRHEA

MUSCLE
PAIN

RED EYES

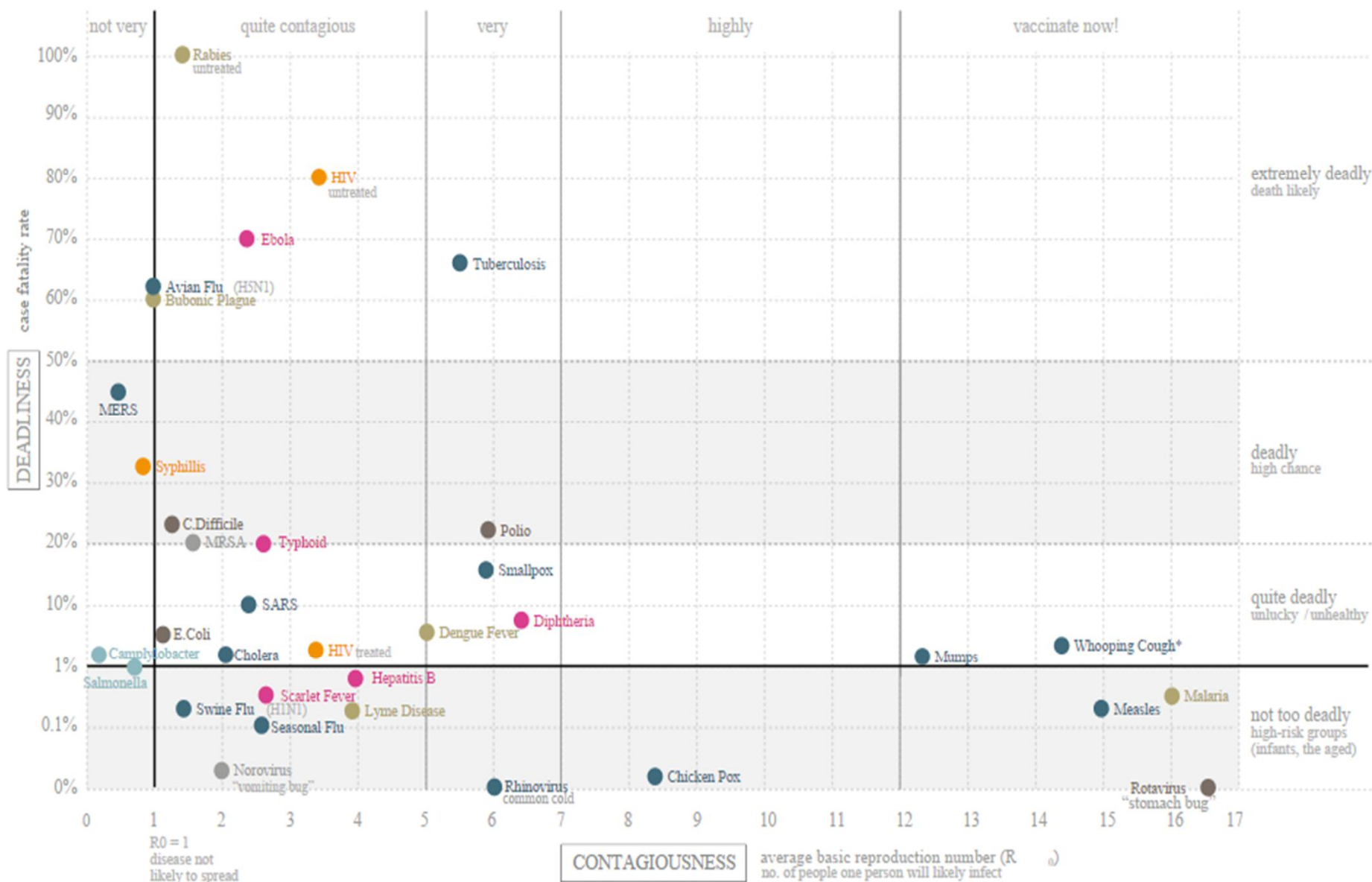
HEADACHES

HICCUPS

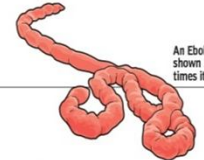
HICCUPS

The Microbe-scope

PRIMARY TRANSMISSION METHOD airborne bites body fluids fecal-oral food sexual contact surfaces

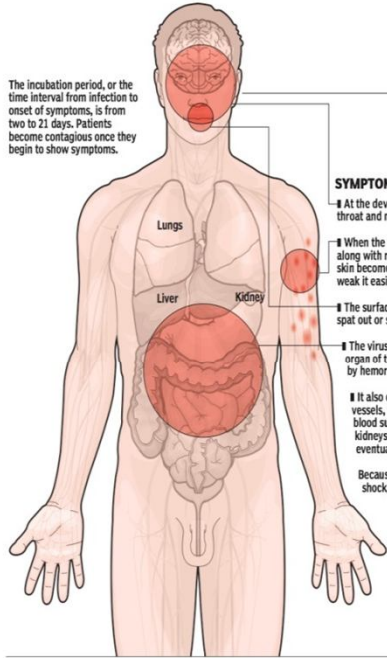


THE EBOLA EPIDEMIC



An Ebola virus particle, shown 1.55 million times its actual size

One of the world's deadliest diseases, the ebola virus is currently sweeping the African continent, which is experiencing its worst outbreak ever. Symptoms can be horrific, and it has a case fatality rate of up to 90%, making it a nightmare for health officials.



The incubation period, or the time interval from infection to onset of symptoms, is from two to 21 days. Patients become contagious once they begin to show symptoms.

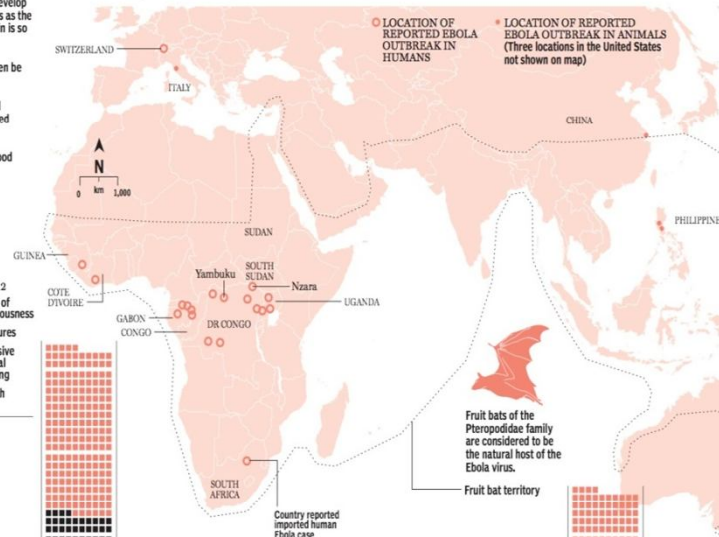
SYMPTOMS AND EFFECTS

- At the development stage of ebola virus disease (EVD), patients have inflammation of the throat and mucous membranes of the eyes (conjunctivitis), abdominal pains and vomiting.
 - When the infection attacks, it causes severe damage to the skin. Small white blisters develop along with red spots, referred to as maculopapular rash. These spots develop into bruises as the skin becomes puffy in texture. Rips randomly appear, allowing blood to pour out. The skin is so weak it easily tears with any movement of the patient.
 - The surface of the tongue becomes a brilliant red and eventually sloughs off. It may even be spat out or swallowed.
 - The virus is known to be systemic, which means the infection attacks every tissue and organ of the body, except the skeletal muscles and bones. The virus is also characterized by hemorrhaging and blood clotting.
 - It also causes blood clots in the bloodstream. These clots tend to get stuck in the blood vessels, which in turn causes the red spots on the skin. The clots also slow down the blood supply to most organs of the body, such as the lungs, brain, liver, intestines, kidneys, testicles and breasts. All these organs become severely damaged and eventually stop functioning.
- Because of the many devastating effects on the body, death may be caused by shock, renal failure or loss of blood.

- | | | | |
|-----------------|-------------------|--|-----------------------|
| DAY 7-9 | DAY 10 | DAY 11 | DAY 12 |
| Headache | Sudden high fever | Bruising | Loss of consciousness |
| Fatigue | Brain damage | Bleeding from nose, mouth, eyes and anus | Seizures |
| Fever | Vomiting blood | Massive internal bleeding | Death |
| Muscle soreness | Passive behaviour | | |

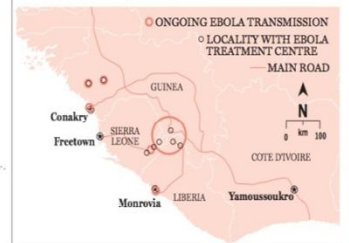
DISTRIBUTION OF PREVIOUS OUTBREAKS

Ebola first appeared in 1976 in two simultaneous outbreaks, in Nzara, Sudan, and Yambuku, Democratic Republic of Congo. The latter was in a village situated near the Ebola River, from which the disease takes its name.



RECENT OUTBREAKS IN WEST AFRICA JAN. - JULY 2, 2014

Guinea: 412 cases (305 deaths)
Liberia: 115 cases (75 deaths)
Sierra Leone: 252 cases (101 deaths)



These figures are current estimates for EBV cases in three countries.

TRANSMISSION

Ebola is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals. In Africa, infection has occurred through the handling of infected chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead or in the rainforest. Once a person comes into contact with an animal that has Ebola, it can spread within the community from human to human. Infection occurs from direct contact (through broken skin or mucous membranes) with the blood, or other bodily fluids or secretions (stool, urine, saliva, semen) of infected people.

DEADLY EBOLA SPECIES

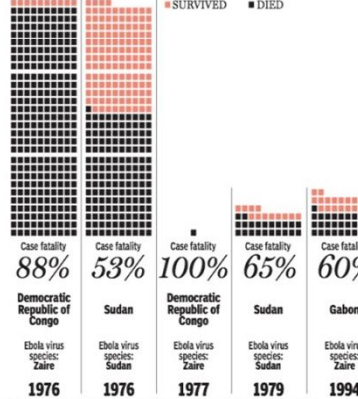
There are five known species of Ebola virus. The Bundibugyo, Zaire and Sudan species have been associated with large EVD outbreaks in Africa, whereas Reston and Tai Forest have not. The Reston species, found in Philippines and the People's Republic of China, can infect humans, but no illness or death in humans from this species has been reported to date.

AVERAGE FATALITY RATE



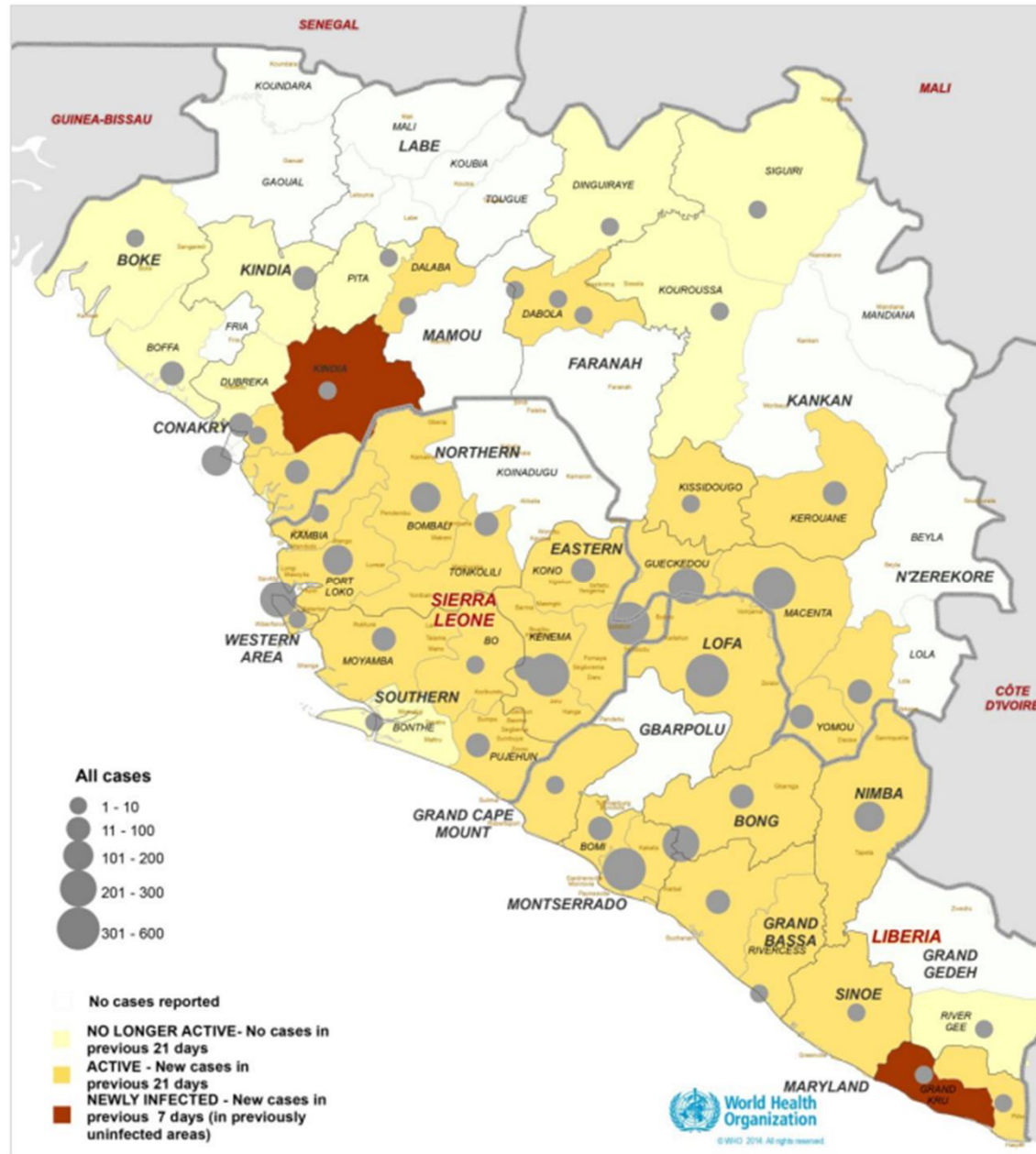
CHRONOLOGY EBOLA OUTBREAKS

NUMBER OF CASES, 1976 - 2014



SOURCE: WORLD HEALTH ORGANIZATION, THE HUFFINGTON POST, AFP/PAGES.COM

MIKI FAJLE / NATIONAL POST





GUINEA

SIERRA
LEONE

LIBERIA

NO EBOLA

NO EBOLA

DON'T BE THE NEXT VICTIM



- STOP WASHING DEAD BODY
- STOP TOUCHING SICK PERSONS
- STOP TRAVELING WITH THE EBOLA VIRUS
- REPORT ALL SUSPECTED CASES



A MESSAGE FROM THE MONROVIA CITY COPORATION

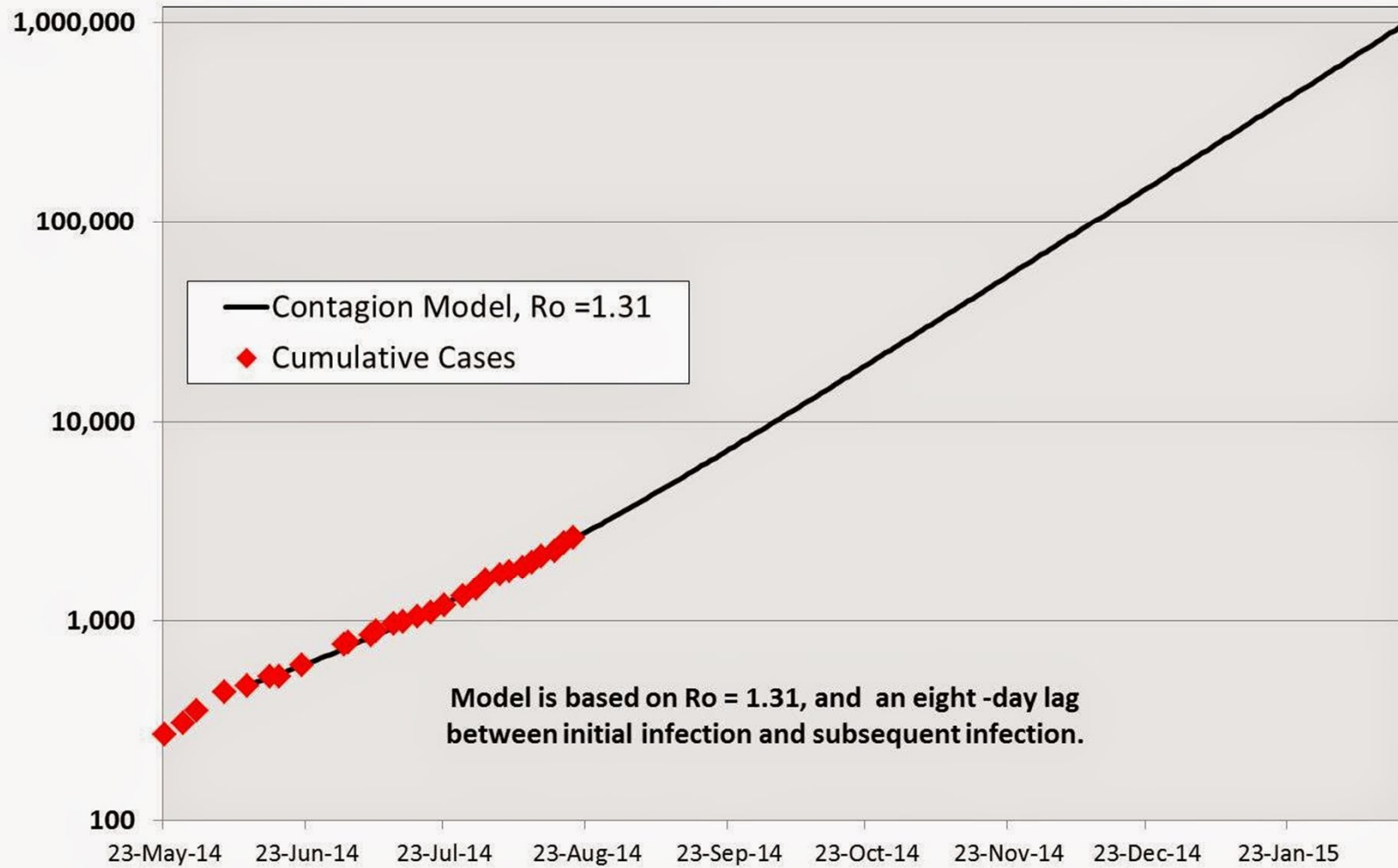
CALL THESE NUMBERS: 0886229641 / 08867381 / 0776547437
SHORT CODE: LONESTAR 1333 / CELLCOM 4455

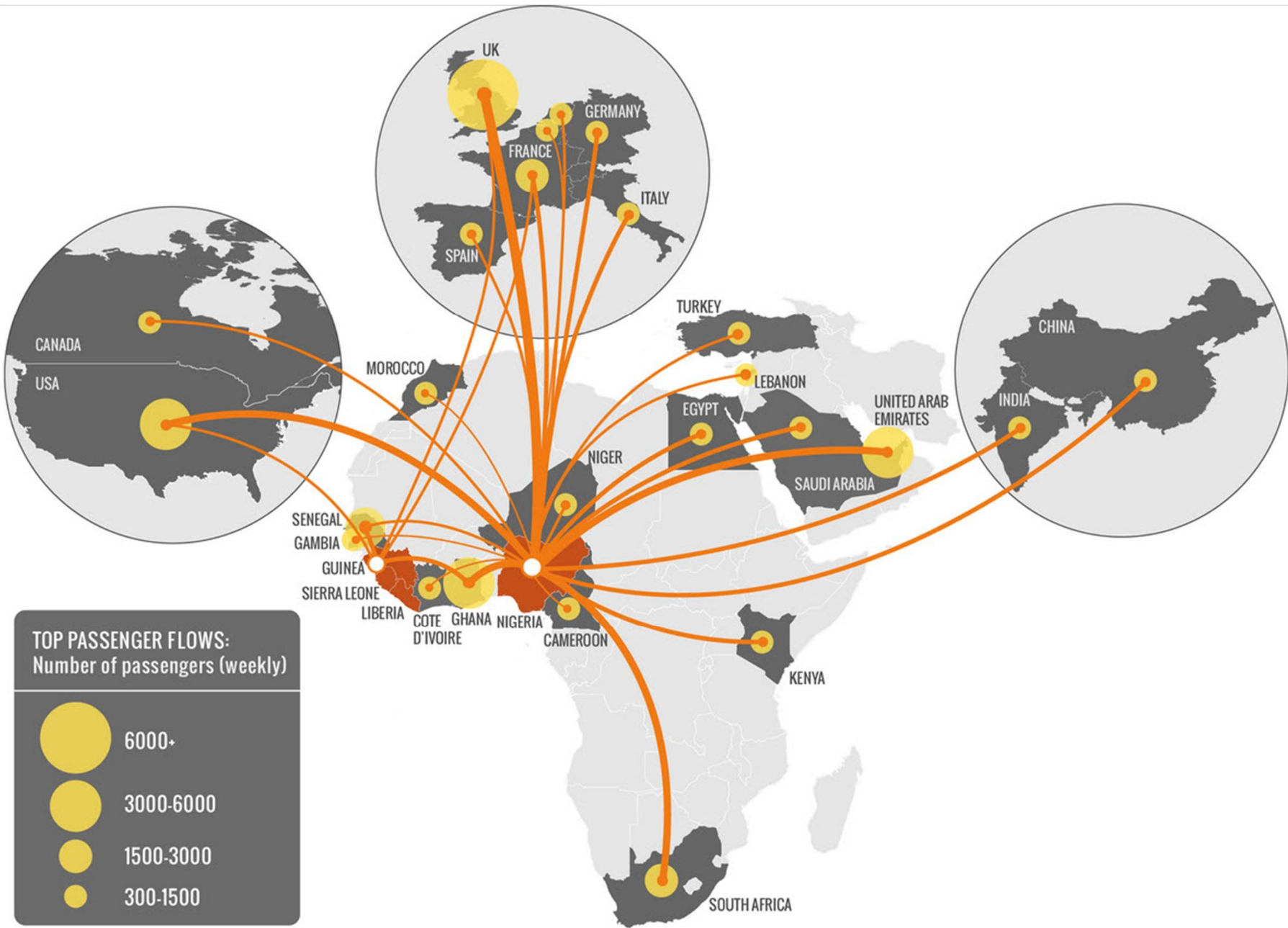


Country	Case definition	Cumulative Cases	Cases in past 21 days	Cumulative deaths
Guinea	Confirmed	1612	313	934
	Probable	208	12	208
	Suspected	58	*	0
	All	1878	325	1142
Liberia	Confirmed	2553	335**	*
	Probable	1687	131**	*
	Suspected	2582	*	*
	All	6822	466**	2836
Sierra Leone	Confirmed	4523	1197	960
	Probable	79	14	174
	Suspected	766	*	35
	All	5368	1211	1169
Total		14 068	2002	5147

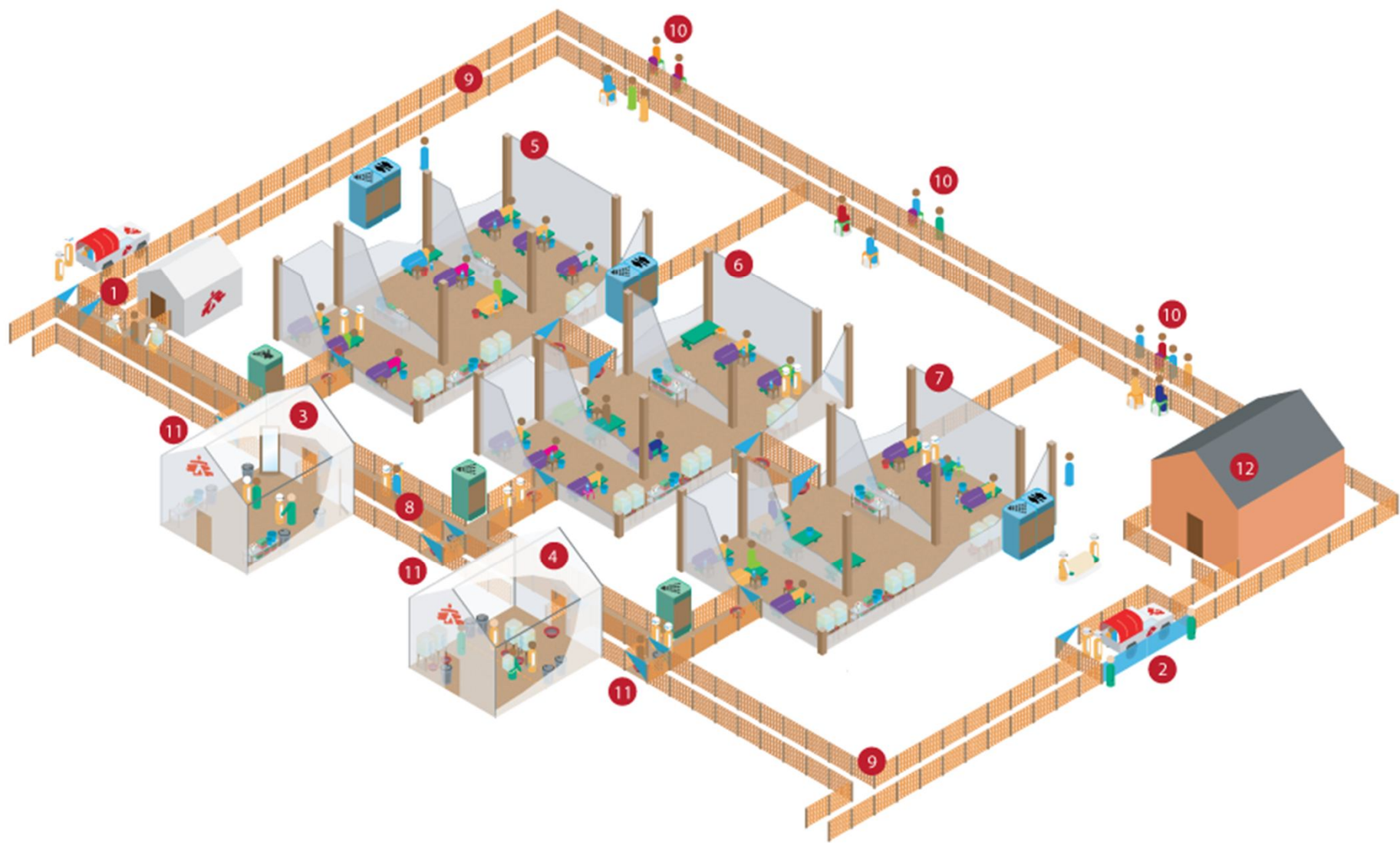
Data are based on official information reported by ministries of health, through WHO country offices. These numbers are subject to change due to ongoing reclassification, retrospective investigation and availability of laboratory results. *Data not available. **Data for Liberia are for the past 18 days.

Cumulative Cases and Contagion Model Extrapolation to One Million Cases: February 18, 2015

























Indicator	Current Status % of planned / target	Target
% of ETC beds operational	24%	4611 beds
% of CCC beds operational	4%	2636 beds
% of cases isolated *	<data not yet included>	70% (60-day), 100% (90-day)
% of burial teams trained and in place	38%	370 teams
# of dead bodies managed in a safe and dignified manner	4404	
% of districts with laboratory services accessible within 24h	100%	100%
% of registered contacts to be traced who were reached daily *	95%	100%
% of district with community engagement managers in place	<data not yet included>	
# of newly infected HCWs *	0 infected 3 (Guinea)	
% WHO financing received vs. WHO target	Received: 49%, Pledged: 15%, Gap: 36%	USD 260m

* Estimated for epidemiological week