

San Diego
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NORFOLK - USAF
MAR 02

New + Emerging ^{now} a familiar term

Countless newspapers, books, TV documentaries - accurate/alarmist

What has happened? Why this flood? Should we be concerned? ^{newspaper hype} ^{science propaganda}

Address question in 3 parts

- 1) Background of ID. problems & concerns in U.S. and the genesis of "new & emerging"
- 2) Important social, technical and demographic developments bearing on this problem
- 3) What does history tell us? Are there precedents for epidemic disease threatening ^{future of} ^{civilization}

June 1981 discovery of AIDS. by Feb 83, the first 1000 cases

HIV - could not deal w any inf. dis. challenge.

18th later - to expend. of > \$1 bill p.a. No vaccine - 5 in phase III trials.

A few drops.

A spreading disease.

Could we have other epidemics like AIDS. and, if so, how to cope.

+ What if HIV spread like flu. What if June 81 were the 1st wave of an epidemic.

(? at one point - could BSE be precisely this?!))

+ Microbial world - rapid multiplication, mutation, adaptation.

+ Of special concern - the viruses - outside genetic material to multiply.

IOM - NAS Committee

What demographic, technological, social changes might have bearing.

As I will describe - change has been dramatic and recent

Population - single most significant force.

Urban - rural

Citizens 2000 30 77.5×10^6 and $7 > 15 \times 10^6$.

International travel.

Hospitals.

• Disease transmission - smallpox, leprosy, cholera, measles

• ↑ contaminated needles.

• AB resistance

SLIDE Food

SLIDE

Intermitt. of food supply

SLIDE

Indust. of food supply

Fast food estab. 73 000 - 260 000
in 10 yrs.

SLIDE

E. Coli 157 - a product of both - 1st recognized 1982

Britain - 38-50% of dx cases are hospitalised; 5% develop hem-uræmic ^{Sx}

Inf. dose = 50 org.

Much has happened but how concerned should we be. Man around for a hygiene

But 1st agricultural settlements 10 000 yrs ago.

Until 600 yrs ago - 4 geographic areas = little contact.

Why should we be concerned
for all - we see here
600000 ultimately catastrophic
epidemic so far - 10000 yr.
but only simply
isolated groups of people

Until ~~500~~ years ago, ~~the~~ four geographic areas were, to all intents
and purposes isolated from each other -
i.e. Asia, ^{sub-Saharan} Africa, the Americas, and European-Middle East states.
About that time, 2 events occurred ~~which~~ ^{which in one case} threatened to destroy
civilization as it was known and, in the second, some would
argue did effectively destroy a people and a civilization.

SWDR
over

Black Death - plague
1346 after 300 ~~years~~ of fairly salutary years.

~~and via~~
from Mongol armies travelling rapidly over the great silk route.

Bubonic → pneumonic.

1/3 to 1/2 of Europe's population died.

Agric. prod. ↓ - food shortages occurred.

Construction stopped.

Pop. declined steadily but quantitatively over 100+ yrs. - recurrent outbreaks.
300 years before population of 1346 was again attained.

+ More disastrous chapter - Americas

1492 Population of 50-75 million in ^(about the same as in Russia) ~~(nearly as many as in)~~ Europe!

~~1507 1st epidemic struck~~

1500 Cortes landed in Mexico 500 men.

later Pizarro to the Andean area 500 "

PERU

Over 75 years - native population declined by 70 to 95%.

North America -

Epidemic of 1617-19 - wiped out 90% of Indians along East Coast

SWDR
over

North American Indians - as severely affected
Tlincuan in Mexico.

SLIDE

Northwest - Miles Standish and companions came to Plymouth in 1620
One year after a calamitous smallpox epidemic

SLIDE

Standish wrote: they found only "a few struggling inhabitants, burial places, empty wigwams and some skeletons".

SLIDE

Western frontier
Contrast this to fact that est. of 50,000 died in all conflicts in N.A. from 1775-1890

Thus there is precedence for a morovally destructive epidemic infection.
Deaths/yr. 100 x 10⁶ in armed conflict in 20th cent.

~~SLIDE~~

~~SLIDE~~

Ladenberg.

II Biological weapons.

SLIDE

Stanfield Turner.

SLIDE

Soviet criteria

SLIDE

Soviet scores.

SLIDE

AVAILABILITY - ANTHRAX → Internet meets all needs

Study - 2 persons to college microbiology set out to ~~weaponize~~
get an organism (anthrax-like) and eventually weaponize it. Done \$250,000

PROBLEM THAT WON'T GO AWAY

III

Recombinant organisms

Conclusion: As healthy as the world's people are, the potential for catastrophic infectious problems was never greater.

Ladenberg