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## Our Defense Spending Ought To Include Flu Protection

MILLIONS of Americans will pay the price this winter for our shameful neglect of a vital aspect of our national security. Only a handful will give up their lives; most of us will remember the "Hong Kong flu" merely as an unpleasant interruption in our daily life and work.

My own muscles still ache and my head throbs, but the worst of it perhaps is to nurse a young child through the alarming high fever that this relatively "harmless" virus carries in its wake.

What makes this epidemic such an abomination is that, although we have known for months that it was coming, we are so poorly organized in this area of national security that our early warning has been to no practical avail. A few older citizens may still benefit from a vaccine that is now approaching final tests and limited production, but this will be too late and too imperfectly effective to have any real influence on the course of the epidemic.

The attack rate of this virus in Hong Kong was at least 20 per cent. If the same holds in the United States, and there is no reason to expect it not to spread equally viciously, the epidemic will cost us several billion dollars in time out from work, in disruption of schools and travel plans and in medical and nursing care—not to mention personal discomfort and anxiety and a backwash of a few thousand cases of more serious disease.

The most serious complications of influenza are bacterial infections, and we are

lucky to have antibiotics to treat most of these when they are properly diagnosed and classified. But we have no real guarantee that the Hong Kong flu virus, itself a product of some obscure mutation, will not change again during the course of its global rampage and turn into something considerably nastier. Neither can the possibility be discounted of an insidious cooperation between the flu and some other viruses equally inaccessible to antibiotics.

Clearly, we have not begun to use our potential scientific resources in investigating and reacting to these threats. We are so wound up in establishing our military defense that we give second priority to developing the defensive systems against equally tangible but more impersonal threats like a Chinese virus.

THE KEY to an effective system of virus defense is an upgrading of our technology for the quantity production of new viruses in chemically pure form. The essential scientific groundwork for this technology has been laid.

We now know viruses as particles of nucleic acid plus protein, and we know that these particles have a precisely definable molecular structure. We have the apparatus, particularly with the zonal centrifuge developed at the Oak Ridge National Laboratories, for the highly refined chemical purification and assay of virus particles. Finally, we know that viruses can be grown in indefinitely large amounts on tissue cells in culture, giving a precision and reproducibil-

ity that can scarcely be expected from tissues freshly harvested from wild monkeys or dogs off the street or even the fertile hen's eggs now in wide use.

On these foundations, it would be entirely feasible to implement a routine alert to produce and test seed stocks of vaccine viruses for every new disease within weeks—at most—of the emergence of new cases. It will be an order of magnitude more expensive than our present investment in anti-virus defense. Is there any other field where our stinginess is more self-destructive? The next influenza may not be so benign.

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