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Avian Flu Update

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We have had enormous global response to our recently released report, *An Investor's Guide to Avian Flu*, written by Don Coxe and myself.

The bird flu is spreading fast through Siberia and Kazakhstan, but only bird infections and deaths have been reported. The disease, generally spread by migratory birds, is not reported yet to have crossed the Ural mountains, but Europe is taking preparatory actions now. A great review of these actions and recent developments is found on page 1 and 2 of today's *Financial Times*. A European conference of veterinary experts will meet on Thursday to assess appropriate response, as the Netherlands (hard hit by the bird flu in 2003) is requiring that all poultry be brought indoors, Germany is considering similar, but less restrictive action, and the U.K. to date sees such actions as unnecessary. Turkey and Dubai have prohibited the import of birds or bird products from Russia and Mongolia, respectively. On August 12, the European Commission banned imports of live poultry and feathers from Russia and Kazakhstan. Russia yesterday called for an international effort to halt the spread of bird flu.

There have also been stepped up efforts and media coverage of pharmaceuticals companies that are developing H5N1 vaccines and antiviral medicine. Two such medications, which are technically called neuraminidase inhibitors, similar to antiretrovirals used in the treatment of HIV/Aids, are capable of attacking enzymes in flu viruses to limit their ability to multiply in the body. These medicines, known in the marketplace as Tamiflu (capsules, by far the most popular, manufactured by Roche of Switzerland) and Relenza (inhaled through the mouth, with dramatically less commercial success, by GlaxoSmithKline of the UK) were created more than five years ago for the treatment of seasonal flu and have shown some effectiveness in reducing symptoms. There are problems, however, and both GSK and Roche have been hit by litigation by the companies that first developed the drugs—Biota of Australia and Gilead of the U.S. This information is detailed in the *Financial Times*, page 2. Tamiflu has received the most publicity and Roche has orders from more than 25 governments building stockpiles against a future pandemic. Yesterday's *Toronto Star* reported the beginnings of a run on Tamiflu at Toronto pharmacies, a city that is particularly susceptible to worry as it was hard hit by SARS in 2003, suffering the third most deaths outside of Hong Kong and parts of China.

Don Coxe is of the firm opinion that neither Roche or any other drug company will be per-

mitted to reap the windfall benefits of a pandemic, as much of the government stockpiles will be donated. Similarly, a host of companies around the world are busily at work developing a vaccine. Here, the problems are also enormous, involving the type of viral strain that might impact humans, delays in the production process and strength of the immune response. Obviously, no clinical trials can be done on humans for H5N1, but success has been shown with other flu strains. The World Health Organization has made it clear that these vaccines are no sure-fire panacea, and has warned of shortages in production capacity of pandemic flu vaccines, not to mention the issues of getting the vaccine to those who need it most, especially in the emerging economies of East Asia. GSK is gearing up to apply for preliminary European regulatory approval by the end of this year. Chiron of the U.S., and Sanofi-Pasteur of France, are also having some success. According to the *Vancouver Sun*, ID Biomedical is working on a vaccine for the avian flu, part of a 10-year contract with the Government of Canada, to assure a state of readiness in case of a flu pandemic. The contract requires IDB to develop the infrastructure and capacity, in Canada, to provide 100% of Canada's vaccine needs in the event of a pandemic.

However, the medical community worldwide remains extremely cautious about the effectiveness and availability of such vaccines. The virus is evolving, constantly mutating, so only guesswork can be used to create the relevant vaccine. Also, the Sanofi-Pasteur vaccine seems to be effective only in very large doses (evidently, six times the normal dose of a flu vaccine). And, of course, the timing, capacity and transport issues remain. Most experts estimate that even after the appropriate H5N1 strain is identified and expedited regulatory approvals have been granted, it would take roughly six months for mass production (and even then, quantities would likely be insufficient in the event of a full-scale pandemic). Moreover, the issues of who and when to vaccinate remain unanswered.

To repeat our opening lines in our recent report, **we are not predicting whether or not a human pandemic will occur. We have no expertise in making that prediction; but, we do believe it is becoming a mainstream issue, affecting markets and economic activity, even now.** For example, the stock price of ID Biomedical Corp (IDB;TSX) has surged in the week.

Attention to this issue is mounting. On August 3, Senate Majority Leader Bill Frist, a physician from Tennessee, told an audience that

avian influenza could potentially kill millions of Americans and devastate the U.S. economy. Frist wants the U.S. government to embark on a multi-billion dollar scientific effort to battle infectious diseases. He reminded his audience that avian flu has already killed 140 million birds in 11 countries in Asia, jumping to humans in four countries, where, so far, it's proven far less contagious in the human population. The key words here were "so far". As he said, "Should the virus shift and human-to-human transmission become sustained, imagine how

many human lives avian flu will take. How then would a nation greatly moved and touched by three thousand dead, react to five or 50 million dead?" Since then, the newspaper stories on H5N1 have moved from page 16 to the front page.

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