Superior Washington Intelligence For Investors
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Health Care

September 17, 2014

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Spotlight: Ebola - Obama Administration Elevates Response

- The US is ramping up efforts to help combat the Ebola outbreak in West Africa, which is experiencing the worst outbreak in history. Experts believe that containment in West Africa is key, not only for humanitarian reasons, but also for global security. If not contained, the epidemic could destabilize governments in West Africa.

- The DC policy issues are twofold – funding the US surge and fast tracking the development and manufacturing of therapeutics and vaccines. Thus, for now the investment implications are primarily limited to FDA and a tiny slice of the pharmaceutical/biotech sector – but that changes in the unlikely even of an outbreak in the US. We list therapeutics and vaccine products most likely to benefit from this process.

- So far the Administration has committed about $760 million to combat Ebola, but that number is likely to increase. The legislative moving part for Ebola funding is the CR funding measure to keep the government funded through December 11th. We expect the $88 million request for CDC and BARDA to increase, possibly complicating the passage of the CR.

Discussion

The US is ramping up efforts to help combat the Ebola outbreak in West Africa, which is experiencing the worst outbreak in history. While visiting the Centers for Disease Control yesterday, President Obama outlined plans for the military to deploy 3,000 troops to Africa to coordinate international relief efforts, train health care staff, set up 17 treatment centers and a staging base to distribute equipment and supplies, including home test kits. Obama will also order the CDC and US Customs and Border Patrol to conduct more active screenings of sick travelers entering the US.

Also yesterday the Senate HELP and Appropriations Subcommittee on Health held a joint hearing on the Ebola crisis, featuring Kent Brantly, an American physician who recovered from Ebola after being evacuated and given the experimental drug ZMapp. And today the House Committee on Foreign Relations held a similar hearing, with only the FDA invited.

This action comes amid concerns from across the political spectrum that 1) the US and the rest of the world have been slow to respond, 2) the US's commitment to help fight Ebola has been inadequate and 3) the disease could pose a security threat to the US if left unchecked. Public health experts have said that the best way to protect the US from Ebola is to contain the outbreak in West Africa. So far over 4,700 people have been infected, and 2,400 have died from the disease, according to the WHO. And it's spreading at an exponential rate, especially in Liberia, which has close diplomatic ties with the US. There could be up to 25,000 to 250,000 infected by the end of the year in

Ticker(s):
TKMR, RAI, BCRX, JNJ, NLNK

a worst case scenario.

Policy Issues

The DC policy issues are twofold – funding the US surge and fast tracking the development and manufacturing of therapeutics and vaccines. Thus, for now the investment implications are primarily limited to a tiny slice of the pharmaceutical sector. However, the funding surge is a moving target that is likely to keep increasing, potentially diverting funds from other priorities.

Containment in West Africa is key, not only for humanitarian reasons, but also for global security. Expert witnesses from the CDC, NIH and elsewhere testified that the best way to protect the US from Ebola is to contain it in West Africa. The current outbreak is unlike past outbreaks of the past that have been confined to small villages. This one is an epidemic that has spread to urban areas and has the potential to destabilize governments in West Africa and impact global security, according to leading public health experts.

In the unlikely event that an infected person does enter the US, the government could take swift action to contain the virus, in sharp contrast to Africa. But fear of the virus and the steps that CDC might take to contain it (e.g., quarantine, travel restrictions) could rattle the public and markets. An even bigger concern is that if the chain of infection is not broken soon, the virus might mutate and become airborne, which would reverberate throughout the global economy. Fortunately, experts believe that is highly unlikely to occur.

US Funding Commitment Growing Daily

President Obama yesterday said that has ordered the DOD to redirect $500 million to fund the deployment effort. This is a drop in the bucket of the DOD budget and inline with past DOD expenditures on global health efforts. However, the US funding commitment is likely to grow if the virus is not contained soon or if the President is unable to get the international community to pitch-in.

Tomorrow (9/18) the UN Security Council will hold an emergency meeting on scaling up the global response to the Ebola crisis.The US is also encouraging and coordinating NGO funding efforts. The Gates Foundation on 9/10 pledged $50 million to support emergency efforts to contain the Ebola.

The legislative moving part for Ebola funding is the CR funding measure to keep the government funded through December 11th. The measure includes the $88 million requested by the White House. Of that, $58 million would go to BARDA (Biomedical Advanced Research and Development Authority), which is coordinating efforts to help drug manufacturers test and manufacture drugs to combat Ebola. And $30 million would go to CDC to send more staff to West Africa and designate more staff in the US to coordinate efforts. CDC estimates it already has 100 personnel in West Africa. A House draft of the CR would also give HHS the authority to transfer funds from other (BARDA) projects towards Ebola vaccine development.

The $88 million request is on top of the $100 that the administration estimates had already been obligated from existing accounts from DOD, HHS/CDC, and US AID, plus the additional $500 million redirected from the DOD budget. This brings the US

spending on Ebola to around $760 million so far, but that number could grow as the CDC is likely to blow through the $30 million rapidly.

The fact that agencies have re-directed money from other accounts, combined with the likelihood that the US spending on Ebola is likely to grow, is a concern for other health care priorities. For instance, manufacturers developing non-Ebola counter-measures, may see a decline in support from BARDA as it prioritizes Ebola efforts above others.

Ebola Politics?

So far, the response to Ebola has been relatively non-partisan. The consensus view from across the political spectrum is that the Obama Administration was slow and inadequate in its response, which is likely to play into the negative perception that the President has been disengaged, particularly on matters of national security. Some Republicans have expressed displeasure that the President is willing to commit 3,000 "boots on the ground" to help with the Ebola effort, but none to combat ISIS. But this is more a criticism of the ISIS response than the Ebola response.

If there is going to be any partisanship, it is likely to be around funding, but even that prospect looks fairly unlikely. Congress is gearing up to pass the stopgap CR measure that contains the request for Ebola funding, but the $88 million request is already viewed as obsolete. At yesterday's Senate hearings and today's House Foreign Affairs Committee hearing, lawmakers on both sides of the aisle asked CDC if $88 million is sufficient in light of the epidemic's acceleration.

We expect the Senate will seek to boost the $88 million significantly, potentially complicating passage of the CR this late in the process. However, we don't assume that Republicans will offer much resistance. House appropriators last week initially cut the $88 million request in half, but quickly restored it the amount after the press caught wind. Any attempt by Republicans to redirect ACA funds for Ebola will politicize the issue.

We doubt that Ebola will become an election issue. Sen. Mark Pryor (D-AR), who is facing a tight race, tried to use Ebola against his challenger Rep. Tom Cotton (R-AR) by saying he voted against "preparing America for pandemics like Ebola." But the ad appears to have backfired and the Cotton campaign ridiculed the Pryor spot for trying to deflect attention from his health care votes while blaming Cotton for everything "from Ebola to crabgrass and male-pattern baldness." In fact, Republicans have a strong record to run on when it comes to marshaling government resources to combat epidemics. The George Bush Administration did more to combat HIV/AIDS globally than any prior Administration, including the Clinton Administration. The Bush Administration was also responsible for establishing BARDA to speed the development of medical counter-measures.

Ebola Countermeasures

US agencies are exploring unprecedented actions to speed up the development, testing, and manufacturing of therapeutics, and vaccines. Currently there are no treatments or vaccines that have been determined to be safe and effective for Ebola. There are only public health measures and supportive care. This is why the deployed US personnel will not be providing direct care. Nevertheless, there is still risk and we wonder if the politics could change if more Americans are infected and there is no treatment.

Products currently being developed are in the very early stages of investigation and are unlikely to be helpful with the current outbreak. There are also limited amounts of product available for testing. Nevertheless, some products have shown early progress, and experts are exploring whether to allow drugs approved for the treatment of other diseases to re-evaluated for Ebola and fast-tracking or bypassing the normal FDA process on an emergency basis. FDA law allows for the compassionate use of investigations products outside clinical trials, but only if the needs outweighs risks.

In testimony before the House Foreign Affairs Committee, the FDA witness laid out several authorities that the FDA can, or is using to expedite Ebola treatments and vaccines. These include emergency IND (eIND) applications to FDA under the FDA's Expanded Access provisions to make available investigational products for individuals outside clinical trials and FDA's Emergency Use Authority (EAU) to allow the use of an unapproved medical product—or an unapproved use of an approved medical product—for a larger population during emergencies. FDA used this authority to authorize an Ebola diagnostic test developed by DOD. FDA could also use the "animal rule," which would allow it to approve a drug based only on efficacy studies in animals.

The FDA is under enormous political pressure from the White House to be helpful to the Ebola effort, but not surprisingly, the agency has serious concerns about rushing to disseminate products that have not been adequately tested. If today's hearing is any indication, FDA will be pulled in opposing directions. One lawmaker pressed FDA to explain why the agency has a clinical hold on TKM Ebola. Another urged FDA not to allow Africa to become a testing ground for vaccines that have not been proven safe and effective in humans in broad trials.

Therapeutics

ZMapp is an experimental drug cocktail that has shown therapeutic promise in animal testing. It is manufactured by **Mapp Biopharmaceutical Inc**. derived from products developed by LeafBio, and Toronto-based Defyrus Inc, a private bio-defense company that is funded by the Canadian government. The ZMapp cocktail seeks to boost the immune system using antibodies made from tobacco plants manufactured by Kentucky Bioprocessing, which was acquired in January by **Reynolds American, Inc (RAI)**, the parent company of R.J. Reynolds Tobacco.

It was recently administered to several humans for the first time as an experimental treatment, including the two Americans who survived. It is impossible to know whether ZMapp benefited those patients. There was a limited supply of the drug and it is now completely depleted. BARDA is supporting efforts accelerate the production of ZMapp so that clinical trials can begin, but it will take some time as there is not even a production facility.

TKM Ebola is manufactured by **Tekmira Pharmaceuticals (TKMR)** of Vancouver, Canada. It uses small interfering RNAs (siRNAs) to inhibit the production of Ebola. The FDA changed the status of the drug from a full clinical hold to a partial clinical hold after the two American aid workers were infected. That news initially sent shares of TKMR up 45%, but FDA still has some significant concerns about the side effects of the drug. Some lawmakers are pressing FDA on the partial hold.

There is some speculation that a third infected American, Dr. Rick Sacra, was given TKM Ebola, but this is unconfirmed. Sacra, who also received an experimental blood transfusion from Dr. Kent Brantly, has had his condition recently upgrated to "good."

Tekmira started phase 1 clinical trials in January, and FDA gave its drug fast-track approval in March.

BCX4430 is being developed by **BioCryst Pharmaceuticals** (**BCRX**) with support from NIH's NIAID. The drug's novel approach would interfere with the virus' reproductive process against a broad spectrum of viruses. It has reportedly protected animals from becoming infected with Ebola, and a Phase 1 clinical trial is slated to begin by the end of 2014 or early 2015.

Vaccines

GSK Vaccine – NIH is supporting the development of a vaccine by GlaxoSmithKline (GSK) that would use a Chimpanzee virus to introduce Ebola into the body and stimulate an immune response. It has shown promise in animal models, and earlier this month NIH began a very tiny human trial on 20 human volunteers. So far it has been administered to 13 people with no adverse effects. There are at least 400 doses available, and NIH plans to expand the study by year's end.

VSV-EBOV – is a vaccine developed by a government lab in Canada is licensed to **NewLink Genetics (NLNK)**, a company in Ames, Iowa. It is also about to enter a phase 1 clinical trial. Reportedly over 1,000 doses of the vaccine are available and may be tested on first responders and health care providers.

There are additional vaccines under development that would protect against multiple hemorrhagic diseases, including Ebola. NIAID has been supporting **Crucell** (parent company **JNJ**) in the development of a vaccine. Crucell and **Bavarian-Nordic**, a biotechnology company located in Denmark, recently announced they will collaborate on a two-dose vaccination regimin that will begin phase 1 testing in 2015.

Profectus Biosciences is a company in Maryland that is developing a vaccine based on VSV that can be used to protect against Ebola and the Marburg virus.

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