

Taming of the Flu: Working Through the Tamiflu Patents in India

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With an impending Avian influenza or bird flu pandemic, the issue of patents and public health has once again taken centre stage. Oseltamivir (known by its brand name 'Tamiflu'), a patented antiviral pill, has emerged as the world's first line of defence against bird flu. A key priority for most nations is to create sufficient stockpiles of this pill that can then be easily distributed and administered during a pandemic. Keeping this end in mind, this paper explores the patent position in India and looks at ways to work around a patent, should one issue in future, to accelerate access in the event of a pandemic. The paper recommends various strategies for creating an optimal and affordable stockpile and calls on the government to take a more definite stand in the matter.

Keywords: Tamiflu, compulsory licensing, government use, acquisition of patents, parallel imports

The relationship between patent rights and access to essential medicines has elicited mainstream media attention again—and this time, in the context of the notorious Avian influenza or what is commonly referred to as 'bird flu'.¹ This contagious disease, caused by the H5N1 virus that normally infects only birds (and, less commonly, pigs) is slowly crossing over to infect humans.² Owing to fears that this virus will mutate to a form that is easily transmissible between humans, most nations are bracing themselves for an influenza pandemic.³ The WHO, which uses a series of six phases of pandemic alerts as a system for informing the world of the seriousness of the threat opines that the world is now in Phase 3 and that 'a new influenza virus subtype is causing disease in humans, but is not yet spreading efficiently and sustainably among humans'.⁴

Unfortunately, there is no vaccine as yet⁵ and Oseltamivir (known by its brand name 'Tamiflu'), a patented antiviral pill, has emerged as the world's first line of defence against bird flu. Oseltamivir, which belongs to a class of medicines called neuraminidase inhibitors (NAI) prevents the influenza virus from spreading inside the body and can be used both for prevention and treatment of influenza.⁶

A key priority for most nations is to create sufficient stockpiles of Oseltamivir that can then be easily distributed and administered during a pandemic. Needless to state, the existence of a patent on the pill assumes some significance, as it invariably impacts the ability of nations/national entities to create affordable stockpiles.

Gilead Sciences Inc, which owns patent rights over Oseltamivir in several countries entered into an exclusive agreement with Roche in 1996 to develop, manufacture and market the product.⁷ Despite apprehensions of its ability to meet global requirements in the event of a pandemic, Roche initially went on record stating that it intended to remain the sole producer of Tamiflu. Subsequently, owing to widespread protests and threats of compulsory licensing, Roche committed, in principle, to a wide licensing scheme that would guarantee adequate and timely supplies.

At first, Roche insisted on using its patent-based rights to limit production to its manufacturing facilities and three favoured, but secret, out-source manufacturers (sub-licensees). When public outcry revealed that it would take Roche ten years, even with expanded capacity, to satisfy minimal requests for international stockpiles, Roche made widely publicized offers to enter into discussion with any party who is able to fully or partially produce

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substantial quantities of Tamiflu, for emergency pandemic use, which a specialized timeline and in accordance with appropriate quality specifications, safety and regulatory guidelines.⁸

To date, Roche has granted only two sub-licenses—the first to Shanghai Pharmaceutical Group for manufacture and supply in China and the second to Hetero Drugs for manufacture and supply in India and to other developing and least developed country markets.⁹ Given Roche's initial desire to control production and the fact that the specific terms of the sub licenses are not known, one is not certain if supply by Roche and/or its partners would, by itself, be sufficient to ensure adequate and affordable production of Tamiflu.

In this climate of uncertainty, what are the options for a country that is interested in creating an adequate stockpile to ensure a timely supply of Tamiflu in the event of a pandemic? Analysis is limited to India, particularly, since it is home to leading generic manufacturers that are well equipped to manufacture and supply Tamiflu at extremely low costs, not just within India, but throughout the world.¹⁰

The specific issues to be addressed in this paper are:

- (i) Given the recent introduction of a product patent regime for pharmaceutical inventions in India,¹¹ can a company like Cipla manufacture and supply Oseltamivir?
- (ii) In what ways can the Indian government work through the Tamiflu patents to facilitate the creation of stockpiles that would ensure a timely and adequate distribution of Oseltamivir in the event of a pandemic?

Exploring the Patents Covering Tamiflu

Till date, there are two patents covering novel processes for the manufacture of Oseltamivir and two applications claiming compositions containing the compound Oseltamivir and/or its salts/esters in India. Since a decision on the patent applications is still pending at the Indian Patent Office, it is very difficult to estimate whether applications covering the Oseltamivir compositions in India will mature into patents. However, a *prima facie* estimate suggests that these applications, as they stand now, may not necessarily pose an obstacle to those generic manufacturers who wish to manufacture Oseltamivir in India.

While there are several patent applications relating to processes for the manufacture of Oseltamivir in India, only two applications had matured to a patent.¹² However, these process patents too are not likely to pose significant problems for Indian generic manufacturers, for whom the creation of alternative processes is fairly routine business now.

Lack of any product patents covering Oseltamivir in India is because prior to 2005, India did not grant pharmaceutical product patents. However, applications claiming such products were put away in a mailbox to be examined in 2005.¹³ Pursuant to the introduction of such a mailbox facility, Gilead filed two applications. One of them titled 'Carbocyclic compounds' was filed in 1996¹⁴ and the other titled 'Novel compounds and methods for synthesis and therapy' was filed in 1999.¹⁵

A *prima facie* reading of these applications, indicates that none of them cover the compound Oseltamivir itself—rather claims are made to compositions containing Oseltamivir or its salts/esters.¹⁶ This is surprising, given that patents claiming the compound Oseltamivir have been granted in US and the Indian applications claim priority from these US patent applications.¹⁷ This lapse may be corrected at a later stage by Gilead amending its patent application to include a claim to the compound itself. The Indian patent office permits such amendment, provided that the compound is disclosed somewhere in the application and that the amendment does not claim any new subject matter. However, if the grant is made in the form in which the application stands now, it appears that generic manufacturers could manufacture Oseltamivir, provided that they use a different composition and not the patented ones. In fact, generic manufacturers could even challenge the claim to the composition on the following grounds:

- (i) A claim to a composition comprising the compound and/or its salts/esters is anticipated by/obvious from the main Oseltamivir compound.
- (ii) A claim to a composition comprising the compound and/or its salts/esters does not have increased efficacy (when compared with the main Oseltamivir compound) and is therefore violative of Section 3(d) of the Indian Patent Act. Section 3(d) states in pertinent part states that 'the mere discovery of a new form of a

known substance which does not result in the enhancement of the known efficacy of that substance' would not be patentable. A recent decision by the patent office involving Novartis' controversial anticancer drug, Gleevec, pegs the demonstrable 'efficacy' standard at a fairly high level, with the patent office holding that an increase of 30% bio-availability between the free base and the beta-crystal form of imatinib mesylate (the subject matter of the patent application) did not amount to an improvement in efficacy.¹⁸

- (iii) A composition comprising the Oseltamivir compound and/or its salts/esters contravenes Section 3(e) of the Act as it amounts to a 'substance obtained by mere admixture resulting only in the aggregation of the properties of the components thereof'.

However, if amendments to include the main Oseltamivir compound are permitted, then one could argue that the claim to such compound is anticipated by/obvious from the 'Markush' structure of Zanamavir, which has already been disclosed in prior art.¹⁹ Even if the Oseltamivir molecule was shown to be a new form/derivative of Zanamivir, it would fall under Section 3(d) of the Act unless increased efficacy of Oseltamivir over Zanamivir is shown.

Assuming that the mailbox applications are meritorious enough to warrant the grant of a patent in the form claimed and/or with amendments permitting a claim covering the main Oseltamivir compound, such grant may not occur prior to 2009 due to fact that there are about 8926 mailbox applications²⁰ waiting to be examined. Of course, with recent initiatives aimed at modernising the patent office and streamlining the application process,²¹ the time period may be lesser.

Given the critical role that any Oseltamivir patent is likely to play in India's preparedness/response to a pandemic, neither the Indian government nor generic manufacturers can afford to wait until 2009 for the patent position to clear up. Therefore, the Gilead mailbox applications ought to be taken up on a fast track basis for determination. A precedent for such fast tracked process has been established with the recent examination and denial of a patent to Novartis's Gleevec drug referred to earlier, which was decided upon within approximately one year of the 2005 Act coming into force.²² If Gilead, or any other interested party, such as, Cipla, is permitted under Section 11B, were to request an immediate

examination of the pending Oseltamivir mailbox applications, it is possible that a decision could be issued within a similar time frame.

Retrospective Damages

As is evident from the above, till such time as a product patent relating to Oseltamivir issues, generic manufacturers are free to manufacture Tamiflu, provided they use a different process.²³ But will they be liable for damages retrospectively? Not so, under the new patent regime, since the section that provides for retrospective damages does not apply to pharmaceutical 'mailbox' applications. Section 11A(7) of the Patents Act provides that patentees are entitled to claim damages retrospectively from the date of publication of their patent applications—which means that the moment a patent application is published (as opposed to a patent being granted), a third party runs the risk of damages if he/she infringes. The Act however provides that such retrospective rights under Section 11A do not apply to pharmaceutical mailbox applications.²⁴ Indian generic manufacturers can therefore manufacture Tamiflu undeterred till a patent actually issues.

Post Patent Options

Assuming that the mailbox applications mature to patent grants and that generic manufacturers find it difficult to come up with alternative formulations, what are the options for continued production?

Voluntary Licensing

The first and most obvious option is to negotiate a voluntary license with Roche/Gilead. Indeed this is what the generic manufacturers appear to be doing²⁵ and as noted earlier, Roche recently granted a sub-license to Hetero Drugs. As is to be expected with voluntary licences, and as has been the case thus far with the sub-licensing of Tamiflu,²⁶ little detail has emerged as to the terms and condition of the licence with Hetero. Based on the bare essentials provided in Roche's press statement and other media reports, one has reason to doubt the potential of this licensing arrangement to cater appropriately to a timely and affordable creation of stockpiles:

Firstly, it appears that the license is restricted to manufacturing and supplying Oseltamivir for the purpose of government stockpiling only (in India and other developing and least developed countries).^{9,27} If this is so, then NGOs, private hospitals and inter-governmental agencies, that have, in the past, been

successful in getting essential medicines across to vast cross sections of people in disadvantaged regions may be excluded from requesting the Tamiflu pill.²⁸

Some news reports state that Hetero is to produce one million capsules of Oseltamivir phosphate for the Indian Government.²⁹ This is just 0.1% of India's one billion population and appears to be a number far lower than the stockpile numbers of countries with lesser populations such as the UK and France.³⁰ Therefore, it remains to be seen whether the sub-licence will allow for adequate stockpiling numbers.

Given the uncertainty with the licensing arrangement, the government ought to request information from Roche/Hetero regarding the license, in order to assess whether the quantities under the license would be sufficient to match an optimal stockpile number.

Compulsory Licensing

Should an attempt at voluntary licensing fail, a private entity such as Cipla or Ranbaxy or a public entity such as the government could invoke one of the many compulsory licensing grounds available under the Indian patent regime.³¹ For the sake of clarity, the grounds have been divided into two categories, those that can be invoked directly by a private entity such as Cipla or Ranbaxy (labelled for the sake of convenience as 'private grounds') and those that can only be invoked by or with the help of the government (labelled for the sake of convenience as 'public grounds').

Private Grounds

Some of the key grounds that can be invoked by Cipla or Ranbaxy are highlighted below:

- (i) Section 84 (1) (a) can be invoked when 'the reasonable requirements of the public with respect to the invention have not been satisfied'. Given Roche's current inability to cater (by itself and/or with Hetero) to a potential pandemic, this appears to be a good ground to invoke.
- (ii) Section 84 (1) (b) comes into operation when 'the patented invention is not available to the public at a reasonably affordable price.' Roche's Managing Director in India recently promised that Roche will bring in Tamiflu to India at approximately Rs 64 per tablet³²—if Roche lives up to this, it may be difficult to argue that the price is unaffordable.

Unfortunately, the above grounds kick in only after three years from the date of the patent grant. What does a generic manufacturer do in the interim? This is where 'public grounds' (such as those in Section 92) come to the rescue.

In addition, there are two other 'private' compulsory licensing grounds introduced by the 2005 Act. The first one, a truly unique provision aimed at aiding generic manufacturers, provides that in the case of those mailbox applications that result in the grant of a patent, an automatic compulsory licence would issue to those generic companies that made a 'significant investment' and were 'producing and marketing' a drug covered by the mailbox application prior to 2005.³³ Thus for example, in the context of Gilead's mailbox applications relating to Tamiflu, if a company such as Cipla were producing a generic version of Oseltamivir prior to 2005, then it could ask for a compulsory license on a 'reasonable royalty' basis. However, since neither Cipla nor any of the other Indian generic manufacturers produced any Tamiflu prior to 2005, they cannot invoke this ground.

The second ground added by the 2005 amendments enables exports to countries with inadequate manufacturing capabilities and incorporates what is commonly referred to as the 'Paragraph 6 Decision'.³⁴ Section 92A states that compulsory licence shall be available for manufacture and export of patented pharmaceutical products to any country having insufficient or no manufacturing capacity in the pharmaceutical sector for the concerned product to address public health problems, provided compulsory licence has been granted by such country or such country has, by notification or otherwise, allowed importation of the patented pharmaceutical products from India.

Given that many countries are looking to Indian generic manufacturers for their Tamiflu supplies in the event of a pandemic,⁹ this is a very useful provision and is relatively easy to invoke.³⁵ This provision applies to even developed countries with insufficient Tamiflu manufacturing capacity, provided of course that they have not 'opted out' as importers.³⁶

Public Grounds

Section 92 covers the main 'public' compulsory licensing ground and stipulates that the government may, by notification in the Official Gazette, declare that compulsory licences should be granted in respect of any patent, irrespective of the time that has elapsed since the grant of such patent, in respect of cases of:

- (i) national emergency
- (ii) extreme urgency or
- (iii) public non-commercial use.

Subsequent to such declaration, even a private entity such as Cipla can apply for a license and ‘in settling the terms and conditions of a license granted under this Section, the Controller shall endeavour to secure that the articles manufactured under the patent shall be available to the public at the lowest prices consistent with the patentees deriving a reasonable advantage from their patent rights.’ Thus, unlike Section 84, which is triggered upon the occurrence of events that could, in a wide sense, be classified as ‘abusive practices’ by the patentee, Section 92 caters to a ‘public interest’ situation. The key advantage of Section 92 is that, unlike Section 84 discussed earlier, there is no 3-year waiting period—i.e. the government can invoke these provisions immediately to ensure adequate and timely production of Tamiflu stockpiles. Importantly, Section 92(3) gives the Controller discretionary powers to not follow the cumbersome procedure under Section 87 (ref. 37). Needless to state, the absence of some of these procedural pre-requisites would ensure a quicker license under Section 92 than under Section 84.

Apart from cases of ‘national emergency’ and ‘extreme urgency’, Section 92 can be invoked to further a ‘public non-commercial use’. This term has not been defined but presumably, any programme where the government manufactures (or authorises manufacture of) Oseltamivir for ‘stockpiling’ purposes or provides the drug at cost or for free would presumably amount to a public non-commercial use.³⁸ A commentary notes the wide ambit of the term ‘public non-commercial use’:

There are many ways that the terms ‘public non-commercial use’ may be defined in good faith. The term ‘public’ could refer to use by a government, as opposed to private, entity. The term may refer also to the purpose of the use, that is, use for ‘public’ benefit. A private entity could be charged with exploiting a patent for the benefit of the public. ‘Non-commercial use’ may be defined either in relation to the nature of the transaction, or in relation to the purpose of the use. Regarding the nature of the transaction, ‘non-commercial’ may be understood as ‘not-for-profit’ use. A commercial enterprise does not ordinarily enter the market without intending to earn a profit. Regarding the purpose of the use, ‘non-commercial’ may refer to the supply of public institutions that are

not functioning as commercial enterprises. The supply of a public hospital operating on a non-profit basis may be a ‘non-commercial’ use of the patent.

In short, Section 92 is a fairly robust provision that could come to the aid of a generic manufacturer (albeit via intervention from the government) that seeks to manufacture Oseltamivir in the event of a pandemic.

Government Use

Apart from compulsory licensing provisions, India’s patent regime envisages another variety of non-voluntary licensing i.e. government use of inventions/patents. As evident from the term, this means that in certain cases, the government is free to use a patented invention without running the risk of being sued for infringement. The government use provisions are encapsulated in two different parts of the Patents Act—the first in Section 47 and later in Chapter XVII. The provisions are dealt with separately for the sake of clarity and owing to different nature of ‘use’ contemplated under both these provisions.³⁹

Chapter XVII

Under Chapter XVII (Sections 99 to 103) titled ‘Use of inventions for purposes of government’, the Central Government or anyone authorised by it may use an invention for the purposes of the Central Government, a State Government or a Government Undertaking on payment of adequate remuneration or compensation.

As evident from the above, although it is only the Central government that can invoke this provision, the ‘purpose’ for which it can be invoked is not limited to the Central Government—rather it can be invoked for the ‘purposes’ of any State Government or even a government undertaking.⁴⁰

This provision is therefore wide in scope and can be invoked to help produce Oseltamivir for use in government hospitals and other entities that are related to the government in some substantial way. However, it cannot come to the aid of private companies such as Cipla and Ranbaxy, unless the Central Government authorises these companies to produce Oseltamivir for a ‘government’ purpose. An important question to ask would be: whether the threat of a bird flu pandemic would cause all actions involving stockpiling and/or supply of medicines to affected individuals, whether through public or private channels, to be construed in some broad sense as being ‘for the purpose of the government’?

Section 99 clarifies that an invention is said to be used for the purposes of the government if it is made, used, exercised or vended for the purposes of the government. Section 100 (6) qualifies this further by stating that ‘the right to make, use, exercise and vend an invention for the purposes of government under sub-section (1) shall include the right to sell on non-commercial basis, the goods have been made in exercise of that right’.

It is not clear as to why this ‘right to sell on a non-commercial basis’ was included, particularly, since the right to ‘vend’ ordinarily connotes the right to sell, whether on a commercial or a non-commercial basis. Although the word ‘includes’ in the provision would ordinarily suggest something in addition to the normal right to vend, it appears that the intention of the Parliament was to restrict the right to vend to only ‘non-commercial’ purposes.⁴¹ If this is so, a government undertaking could produce Oseltamivir and sell it to private entities, provided that it sold such quantities ‘at cost’ or for free and for a ‘government purpose’.

This section goes on to state that a purchaser of goods so sold, and a person claiming through him, shall have the power to deal with the goods as if the Central Government or the person authorised under sub-section (1) were the patentee of the invention. A liberal reading of this section would even mean that a private party could buy up stocks from the government and then sell at a profit to others interested in purchasing Oseltamivir pills, provided that the first sale by the government was for a ‘government purpose’.

The ‘government use’ provisions encapsulated in Chapter XVII kick in at any time after an application for a patent has been filed at the patent office.⁴² However, this does not make much of a difference in the case of the Oseltamivir applications, as the provisions on retrospective damages do not apply here.²⁴

Section 47

Sections 47(1), (2) and (4) also deal with the government use of inventions and stipulate that the grant of a patent shall be subject to the following conditions:

1. any machine, apparatus or other article in respect of which the patent is granted or any article made by using a process in respect of which the patent is granted may be imported

or made by or on behalf of the Government for the purpose merely of its own use;

2. any process in respect of which the patent is granted may be used by or on behalf of the Government for the purpose merely of its own use;
3. in the case of a patent in respect of any medicine or drug, the medicine or drug may be imported by the Government for the purpose merely of its own use or for distribution in any dispensary, hospital or other medical institution maintained by or on behalf the Government or any other dispensary, hospital or other medical institution which the Central Government may, having regard to the public service that such dispensary, hospital or medical institution renders, specify in this behalf by notification in the official gazette.

In order to appreciate the full import of Section 47, it is important to distinguish this provision from the provisions under Chapter XVII. The key distinctions can be summarized as under:

1. While Chapter XVII envisages ‘government use’ to include ‘making, using, exercising or vending’ the invention in question, the term ‘use’ in Section 47 does not have such a broad ambit i.e. although the said use under Section 47 would include the right to make the patented product, it does not include the right to sell it. The limitations on ‘use’ under Section 47 stem from the phrase ‘for the purpose merely of its own use’.⁴³

Consequently, the ‘use’ contemplated under Section 47 corresponds to the ordinary ‘use’ right that is granted exclusively to a patentee under most patent regimes. The only exception is in Section 47 (4), which grants an additional right to distribute the invention in any dispensary. Here again, an important limitation is the fact that such drugs/medicines cannot be manufactured by the government, but have to be imported.

2. Unlike Chapter XVII, Section 47 expressly provides for imports. However, it might be argued that the right to exercise and vend the invention under Chapter XVII would impliedly include the right to import as well.⁴⁴
3. While the government use provisions under Chapter XVII are subject to the payment of

royalties (unless the use falls within the parameters of Section 100 (2), providing for use when the invention has been recorded in a document or tested or tried by or on behalf of the Government), Section 47 does not require any royalties to be paid. A commentator rightly notes, 'this follows from the fact that such use is made a condition of the grant'.⁴⁵ For this very reason, Section 47 does not come with any of the procedural pre-requisites that characterise 'government use' invocation under Chapter XVII.⁴⁶

4. While Chapter XVII can be invoked at any time after application for a patent has been filed, the provisions of Section 47 can be resorted to only after the patent grant.
5. The word 'Government' in Section 47, though not defined under the Patents Act, will have the meaning attributed to it under the General Clauses Act to include both the Central Government and the State Government.⁴⁷ Thus, while under Chapter XVII, a State Government would need the authorization of the Central Government to avail of the 'government use' provisions, under Section 47, the State Government can directly avail of these provisions without any kind of Central Government authorization. In this respect again, Section 47 appears to provide a wider scope for Government use than does Chapter XVII.
6. While the term 'for the purpose of the government' has been given a fairly wide meaning under Chapter XVII to include the purposes of even a 'government undertaking', the term 'merely of its own use' under Section 47 suggests that such use can only be that of either the Central Government or the State Government.

In short, the government use provisions in the patent regime are fairly extensive. Since the options under Chapter XVII and Section 47 have their respective merits and demerits, an optimal strategy in the face of a Tamiflu pandemic would involve a harmonious utilisation of both these options. Thus for example, while Section 47 is advantageous in that it dispenses with the need to pay any royalties, to the extent that the government wishes to sell any Oseltamivir manufactured under government use provisions, it ought to resort to Chapter XVII.

Notwithstanding the above, it bears noting that despite seemingly extensive powers to use virtually any invention/patent, there is very little evidence of the Indian government invoking these provisions in practice.⁴⁸

Acquisition of Patents

The provisions referred to above deal with the 'use' of an invention by the Government. In some cases, the Government can even 'acquire' an invention. Section 102, the key section in this regard, reads in pertinent part as follows

The Central Government may if satisfied that it is necessary that an invention which is the subject of an application for a patent or a patent should be acquired from the applicant or the patentee for a public purpose, publish a notification to that effect in the Official Gazette, and thereupon the invention or patent and all rights in respect of the invention or patent shall, by force of this section, stand transferred to and be vested in the Central Government.

An Avian influenza pandemic would presumably satisfy the 'public purpose' requirement above.⁴⁹ However, it is doubtful whether an acquisition is 'necessary' at this stage,⁵⁰ particularly, since generic companies are free to manufacture Oseltamivir today, provided they use processes that are different from Gilead/Roche's patented processes. Also, Roche has committed to supply at reasonably affordable prices³² and has signed up one sub-licence agreement with an Indian generic company.⁹

Parallel Imports

A creative option is for Indian generic companies to relocate their Tamiflu operations to Bangladesh and begin manufacturing Oseltamivir either directly or through local tie-ups.⁵¹ However, notwithstanding Bangladesh's prowess as a strong pharmaceutical manufacturing base, there are likely to be some resource-based constraints in implementing this strategy immediately. Also an advantage is that, Bangladesh, being a least developed country, has time till 2016 to provide product patents for pharmaceutical inventions.⁵² Therefore, Cipla or Ranbaxy can manufacture without fear of patent infringement till the year 2016. They could even export the product from Bangladesh to India.

One might legitimately query as to how such exports might be possible, particularly, if Gilead's mailbox application matures to a patent at a later stage in India—such patent would ordinarily enable Gilead/Roche to stop any unauthorised imports into India. A recently introduced provision in India's patent regime changes this 'ordinarily' available right to the advantage of Ranbaxy or Cipla, as explained below:

The earlier Section 107A (b) in the Patents Act stated that it was not an infringement to import a patented product, provided such import was from an exporter, who was 'duly authorised by the patentee to sell or distribute the product'. The 2005 Act now makes such import easier by dispensing with the authorisation required from the patentee. It only mandates that the exporter of such patented product only be 'duly authorised under the law to produce and sell or distribute the product'. In absence of a patent in Bangladesh, and/or any other law barring manufacture/exports, Cipla or Ranbaxy would presumably be 'duly authorised' under the laws of Bangladesh to 'sell or distribute the product'.

Response and Strategy

Recent estimates suggest that Tamiflu has to be administered within 5 days of a person being infected—the priority therefore, is to create stockpiles that can then be administered to patients in the event of a pandemic.⁵³ An optimal response/policy would involve the following:

1. First estimating how much the government needs to stockpile to cater to a pandemic. This determination would in turn depend on several other factors, including whether such stockpiles should be for treatment only or for prophylaxis as well.⁵⁴ Since there is no patent covering Oseltamivir at the moment, the government could easily place orders with generic manufacturers such as Cipla and Ranbaxy to ensure the creation of adequate stockpiles at low prices.⁵⁵

If generic manufacturers mount an effective opposition against Gilead's mailbox applications in India and are successful in ensuring that the patents are not granted, then the above strategy could continue unhindered.

2. However, should the applications mature to patents, any future strategy would depend on whether the patents are granted only in terms

of the claims as they stand now i.e. covering only compositions containing Oseltamivir and not the Oseltamivir compound itself. In such an event, there is some flexibility for generic manufacturers to deploy different formulations and work around the Gilead patents. In fact, generic manufacturers could even oppose claims to the compositions on the ground that the main compound anticipates or makes obvious the composition.

3. If, however, amendments to include claims to the Oseltamivir compound are permitted, and a patent comes into existence before a pandemic and the stockpile figures have not been met, then the government should, as a first step, ask Roche to supply at the same rates as the generic prices. This should be based on the understanding that this rate is to operate only during the 'stockpiling' process.⁵⁶ When the stockpiles begin to be used (in the unfortunate event of the virus spreading through humans), Roche would be paid a license fee, agreed to before hand by Roche, the government and generic manufacturers in India.

If Roche declines to accept the above terms and demands prices that are significantly higher, the government should exercise one or more of the compulsory licensing/government use options outlined earlier in this paper:

- (i) It could invoke Section 47 to authorise the creation of stockpiles. In such a case, no royalties need be paid to Roche/Gilead.
- (ii) Should a pandemic occur, warranting the use of the stockpiled medicines, the government could use Section 92 and/or Chapter XVII and/or Section 47 to further produce/authorise production and/or sale of Oseltamivir. However, there are two caveats:
 - a. Any such sales by either the government or entities authorised by the government would have to remain 'non commercial' in nature.
 - b. Some license fee would have to be paid to Roche.

Conclusion

As on date, Cipla and other generics are free to manufacture Oseltamivir. However, should Gilead's mailbox applications mature to patents and the claims amended to include the main Oseltamivir molecule,

the Indian patent regime offers a comprehensive compulsory licensing/government use framework that would enable the continued production of Oseltamivir at affordable prices.

Unfortunately however, the government appears to be shying away from taking a stand in this matter, owing to perceived fears that this would send out the wrong signals to multinational pharmaceutical majors, from whom they expect significant investments in the post product patent era. In fact, it took a while for the government to even clarify the obvious point about Roche's patent—i.e. that generics could manufacture at this stage, as there were no patents covering Tamiflu.²³

No doubt, one cannot state with any certainty that the notorious avian flu would definitely mutate to a form easily transmissible among humans. However, the threat is a very real one and when it strikes, it will do so mercilessly without giving any advance warning. It is as 'immediate' as can possibly be and no government can afford to 'fence sit' in such a matter. Other governments appear to be more active in this regard. Illustratively, following a breakdown in talks with Roche and Gilead, the Taiwanese government granted a compulsory license to Taiwanese drug firms. This license, valid till 31 December 2007, enables them to manufacture Tamiflu for domestic use only, subject to the caveat that such manufacture can take place only when there is a shortage of supply from Roche.⁵⁷

As a first step, the government ought to fast track the examination of the Gilead's mailbox applications. More importantly, the government ought to arrive at an optimal stockpile number and work towards ensuring that supplies matching such number are met. Amongst other things, it ought to evaluate whether the sub-licensing arrangement with Hetero is sufficient to ensure such supplies.

No doubt, patents incentivise innovation, particularly, in the area of pharmaceuticals and some respect ought to be accorded to patent rights. However, given an impending public health disaster, the government can afford to accord a little less respect. After all, it must be borne in mind that even the world's patent friendliest nation, the US had wilted on its pro patent stand in the face of the Anthrax crisis in 2003. As rightly stated by one commentator in the context of intellectual property rights and developing countries:

A mere 60 cases of one infectious disease moved these patent pillar nations to compromise business interests for public health. Developing countries house a sizable percentage of population with various diseases. Expecting developing countries to place business interests of developed nations ahead of the local public health issues is impractical.⁵⁸

The Indian government should therefore take a clear stand and devise an appropriate strategy/policy.

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- 5 A recent news item states that a vaccine discovered by the Chinese is producing good results at the clinical trial stage, 'Study on human bird flu vaccine goes well', CRIEnglish.com 21 January 2006, <http://en.chinabroadcast.cn/2238/2006-1-21/65@294748.htm>.
- 6 Factsheet Tamiflu (15 December 2005) http://www.roche.com/med_mbfstamiflu.pdf; Alison Abbott 'Avian flu special: What's in the medicine cabinet?' *Nature* 435 (7041) (2005), 407-409. Experts agree that Tamiflu is the best of the four currently available anti-influenza drugs. The other drugs include Zanamivir (otherwise known by its branded name Relenza), Amantadine and Rimantadine. However these are not as effective as Tamiflu.
- 7 Roche launched Tamiflu for the first time in 1999/2000.
- 8 Baker Brook K, 'Roche's secret sub-licenses for Tamiflu will not bring poor people in from the cold', *Health GAP*, 31 October 2005.
- 9 Roche update on Tamiflu global supply to meet future world demands – From partnerships to regional sub-licenses, <http://www.roche.com/med-cor-12-12-2005> and Roche grants Tamiflu sub-license to India's hetero drugs to make flu medicine for India and developing countries, <http://www.roche.com/med-cor-23-12-2005>.
- 10 Datta Jyothi, Tamiflu: An export opportunity for domestic drug cos, *The Hindu Business Line*, 19 December 2005. <http://www.thehindubusinessline.com/2005/12/20/stories/2005122001790300.htm>.

- 11 The Patents (Amendment) Act 2005 (hereafter '2005 Act') was India's last step towards achieving complete TRIPS compliance. This Act was published as law in the Gazette of India on 5 April 2005.
- 12 IN 190983 (application No 2791/DEL/1998) titled 'Novel compounds and methods for synthesis and therapy' in the name of Gilead claims a process of making enteric coated Oseltamivir capsules. IN 192890 (application No 153/MAS/01) titled 'Tamiflu via Diels Alder' in the name of Hoffman-La Roche claims a Diels-Alder process using furan as the raw material. Other patent applications claiming processes for making Oseltamivir have been filed by Roche: application No 305/MAS/2001 titled 'Tamiflu gallocoxylic acid approach'; application No 443/MAS/2000 titled 'Process for preparing neuraminidase inhibitor'; and application No 1037/MAS/2000 titled 'Phosphine reduction of azides to amides'.
- 13 Pursuant to a TRIPS obligation, the Indian patent regime was amended in 1999 to provide that applications claiming pharmaceutical inventions would be accepted and put away in a mailbox, to be examined in 2005—these applications are commonly referred to as 'mailbox applications'. By virtue of this 'mailbox facility', applications would be judged for 'novelty' on the basis of the filing date and not with reference to 2005—the year in which product patents were first incorporated into the patent regime.
- 14 396/DEL/1996, the claims are directed at compositions comprising Oseltamivir, methods of treatment (i.e. method of inhibiting the activity of neuraminidase) and use claims (use in the preparation of another compound). More specifically, claims 1 to 37 and claims 40 and 71 claim a composition. Claims 41 through to 68, which are dependent on claim 40, claim various compounds of the composition recited in claim 40. Claims 38, 39 and 72 recite methods of inhibiting the activity of neuraminidase. Claims 69 and 70 recite use of compound for preparation of another compound.
- 15 1132/DEL/1998, this was published for opposition on 1 July 2005.
- 16 One of them very broadly claims compositions comprising Oseltamivir or its salts. Any Oseltamivir composition will fall within the scope of such claims. The claims of the other application are equally broad-based except for the limitation that they claim only enteric-coated compositions. Drugs may have an enteric coating which is designed to allow the drug to pass through the stomach intact with the drug being released in the intestines, Nithya Subramanian 'Ranbaxy seeks directive on generic manufacture of Tamiflu', *The Hindu Business Line*, 19 November 2005, <http://www.thehindubusinessline.com/2005/11/19/stories/2005111903120200.htm>
- 17 Claim 1 of US Pat No. 5763483 covers the compound Oseltamivir. The other US patents of interest are US Pat Nos. 5866601 (which is the Convention Priority application for 396/DEL/1996), 5952375 and US Pat Publication No. 2004/053999 (which is the Convention Priority application for 1132/DEL/1998).
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- 19 Biota Scientific Management PTY Ltd, patent application Nos WO 91/16320 (Priority date 24 April 1990) and WO 92/06691 (Priority date 19 October 1990). It bears noting that 396/DEL/96 and 1132/DEL/98 acknowledge these two earlier prior arts in their specifications.
- 20 As per information received from the Office of the Controller General of Patents, Designs and Trademarks; Basheer Shammad, Limiting the patentability of pharmaceutical inventions and microorganisms: A TRIPS compatibility review, December 2005 (Forthcoming publication based on a commissioned project by the Intellectual Property Institute (IPI), London).
- 21 To address infrastructure issues, the government has launched a project to computerise the four patents offices with a total outlay of Rs 115 crore. While their physical infrastructure has been modernised, records have not yet been computerised; Mishra Gaurie, Pending patents gathering dust in office, *Rediff.com*, <http://www.rediff.com/money/2005/nov/10bs2.htm>.
- 22 The entire pre-grant opposition process against Novartis' application took approximately five months. (As per information available to Tahir Amin, who was part of the team from the Alternative Law Forum and Lawyers Collective representing the Cancer Patients Aid Association in its pre-grant opposition against Novartis' application).
- 23 Generic Cos permitted to make Bird flu drug, *Sify Business*, 11 November 2005, <http://sify.com/finance/fullstory.php?id=13982089>.
- 24 For a more detailed treatment *see* Basheer Shammad India's tryst with TRIPS: The Patents (Amendment) Act 2005, *Indian Journal of Law and Technology*, 1 (2005) 33.
- 25 Mathew James and Prasad Gireesh C, Ranbaxy Cipla in talks with Roche for Tamiflu deal, *Economic Times*, 13 December 2005, <http://economictimes.indiatimes.com/articleshow/1329036.cms>.
- 26 Few, if any details, have emerged about the proposed terms of Roche's secret licensing agreements. However, public statements from Roche indicate that it is offering time-limited sub-licenses for public sector, emergency stockpiling only, *see* Baker, ref. 8.
- 27 Hetero Drugs get sub-licence for Tamiflu' *Sify Business*; 23 December 2005, <http://sify.com/finance/fullstory.php?id=14056401>; Bird flu pill arrives in tieup, *The Telegraph India*, 23 December 2005, http://telegraphindia.com/1051224/asp/business/story_5640145 and Government signs bird flu drug deal, *The Economic Times*, 3 January 2006, <http://economictimes.indiatimes.com/articleshow/1355972.cms>.
- 28 As is often the case with developing and least developing countries, the provision of health care services, including access to medicines, is divided between government run health care services, mission hospitals, NGOs and other private institutions. For an example of health care sourcing in a developing country, *see* Lettington Robert Lewis and Munyi Peter, Willingness and ability to use TRIPS flexibilities – Kenya Case Study, Chapter 2, DFID Health Systems Resource Centre (September 2004).
- 29 The dose for the adult treatment of influenza is a 75 mg capsule, taken twice daily for five days. One pack of Tamiflu contains a full treatment course of 10 capsules. *See Factsheet Tamiflu* (ref. 6). Therefore, one million capsules amounts to 100,000 full treatment courses.

- 30 The UK and France together are expected to reach nearly twenty nine million doses alone in the next year or so, Bird flu: Country preparations, BBC News online, 11 January 2006, <http://news.bbc.co.uk/2/hi/health/4380014.stm>.
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- 32 'The medicine will be imported from Switzerland, he said, and will be sold at the prices agreed upon for least developed countries. In India, Roche will bring in Tamiflu at 12 euros (Rs 640) for 10 tablets, plus customs duty, he said. According to an industry representative, Tamiflu sells in developed markets close to 50 euros (over Rs 2,600)', Datta Jyothi, Roche to begin Tamiflu supply by April, The Hindu, 16 November 2005, <http://www.thehindubusinessline.com/2005/11/16/stories/2005111603130100.htm>.
- 33 Such licence is subject to a payment of a 'reasonable royalty', see proviso to Section 11A (7) of the Patents Act.
- 34 WTO General Council, The Implementation of Paragraph 6 of the Doha Declaration the TRIPS Agreement and Public Health, WT/L/540 (30 Aug 2003), <http://docsonline.wto.org/DDFDocuments/t/WT/L/540.doc>. Following the recent meeting on 6 December 2005 between WTO members, Paragraph 6 of the Doha Declaration and the text of the TRIPS General Council Decision of 30 August 2003 was permanently inserted into the text of TRIPS as Article 31bis, thus modifying Article 31(f) which states that production under compulsory licence should predominantly be for the domestic market, http://www.wto.org/english/thewto_e/minist_e/min05_e/draft_text3_e.htm.
- 35 Compare this with a recent EU initiative (*Proposal for a Regulation of the European Parliament and of the Council on compulsory licensing of patents relating to the manufacturer of pharmaceutical products for export to countries with public health problems*, Interinstitutional file 2004/0258 (COD), Council of the EU, 9 December 2005) that mandates far stricter conditions for invoking the compulsory licensing provision. See Vaver David and Basheer Shammad, Popping patented pills: Europe and a decade's dose of TRIPS (forthcoming publication in EIPR).
- 36 The opt out countries include Australia, Canada, the European Communities and its member States, Iceland, Japan, New Zealand, Norway, Switzerland and the United States of America. See TRIPS Council Decision IP/C/41 (6 December 2005), http://www.wto.org/english/info_e/search_results_e.asp.
- 37 Among other things, Section 87 gives an opportunity to the patent owner to oppose the compulsory license application and even appeal against any adverse order in this regard.
- 38 Resource Book on TRIPS and Development, ICTSD-UNCTAD Capacity Building Project on IPRs and Sustainable Development (2004), 471 www.iprsonline.org.
- 39 Section 99(3) recognizes this distinction by specifically stipulating that nothing contained in Chapter XVII would apply to a 'Government use' envisaged under Section 47.
- 40 Section 99, the term 'government undertaking' is defined widely to include: any industrial undertaking carried on by a department of the Government, or by a corporation established by a central, provincial or state act, which is owned or controlled by the Government, or by a Government company as defined in Section 617 of the Companies Act, 1956.
- 41 Ideally, the phrase used should have been 'is limited to' and not 'shall include'. However, this appears to be a genuine drafting mistake and one ought to read the statute bearing this in mind.
- 42 Section 100 (1).
- 43 The wide definition of 'Government use' under Chapter XVII cannot apply to Section 47 for two reasons. Firstly, Section 99 (1) which grants the purported width to the notion of 'use' under Chapter XVII begins by stating 'For the purposes of this Chapter...'. Therefore, this wide meaning attributed to 'use' will apply only to Chapter XVII and not Section 47. Secondly, Section 99(3) expressly states that nothing contained in Chapter XVII shall apply in respect of any use of the patented invention under Section 47.
- 44 Basheer Shammad, Government Use of Inventions, Report Commissioned by IIP, Tokyo, (June 2005).
- 45 Narayanan P, *Patent Law*, 3rd edn (Eastern Law House, Calcutta) 1998, p. 253.
- 46 Apart from cases of national emergency, other circumstances of extreme urgency or non commercial use, section 100 (5) requires that the government inform the patentee as soon as practicable of the fact that the patent is being 'used' by it and of the extent of such use. It has then to discuss the terms of use including that of 'adequate remuneration'.
- 47 Section 3 (23) of the General Clauses Act (X of 1897), Narayanan P, *Patent Law*, 3rd edn (Eastern Law House, Calcutta) 1998, p. 250.
- 48 Basheer Shammad, Government Use of Inventions, Report Commissioned by the IIP, Tokyo. There have, however, been some prominent examples from other countries. Illustratively, in 2003, the Malaysia Government, under Section 84 of the Malaysian Patents Act 1983, issued a two-year Government use licence for Didanosine+Zidovudine (AZT) and Lamivudine+Zidovudine (Combivir) both patented by Glaxo SmithKline, <http://www.cptech.org/ip/health/cl/recent-examples.html>.
- 49 *TR Thanduru v Union of India* (1996) 3 SCC 690, which stated that the expression 'public interest' has a legal connotation. It means something in which the public has a vital interest in either a pecuniary or a personal sense.
- 50 It is important to note that like the Chapter XVII provisions, Section 102 can be utilised even prior to the patent grant.
- 51 'Among the 49 LDCs, Bangladesh fortunately is the only country, which has a strong pharmaceutical manufacturing base. Analysts think if Bangladesh can avail itself of the opportunity, it could export up to Tk 100 billion worth of drugs annually', Shahiduzzaman Khan, Pharma sector holds out new promise, Financial Express, 5 January 2006, http://financialexpressbd.com/index3.asp?cnd=1/5/2006§ion_id=1&newsid=11946&spcl=no.
- 52 Decision of the Council for TRIPS on the Extension of the Transition Period under Article 66.1 of the TRIPS Agreement for Least-Developed Country Members for Certain Obligations with Respect to Pharmaceutical Products, IP/C/25 27 June 2002, http://www.wto.org/english/tratop_e/trips_e/art66_1_e.htm.
- 53 Bird flu virus resisting drug, BBC News, 21 December 2005, <http://news.bbc.co.uk/2/hi/health/4545606.stm>.
- 54 In the context of Singapore and an optimal stockpile strategy, see Lee V J *et al.*, Economics of neuraminidase inhibitor stockpiling for pandemic influenza, Jan 2006,

<http://www.cdc.gov/ncidod/EID/vol12no01/05-0556.htm> which recommends: 'The decision to stockpile requires predetermined objectives; non-economic, moral, and ethical implications should be considered. Treatment-only maximizes economic benefits, while prophylaxis saves most lives. Policymakers have to act decisively, and determine the sub-populations to be given priority, to enable preparedness plans to succeed.'

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- 56 Love James, A better way of stockpiling emergency medicines, <http://news.ft.com/cms/s/253d4b12-474f-11da-b8e5-00000e2511c8.html>.
- 57 Hille Katherine, Taiwan employs compulsory licensing for Tamiflu, *Financial Times*, 25 November 2005, <http://news.ft.com/cms/s/cebeb882-5dcb-11da-be9c-0000779e2340.html>.
- 58 Ragavan S, Can't we all get along? The case for a workable patent model, *Arizona State Law Journal*, 35 (2003) 117.