Title: Is Australia ready for biosimilars?

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Extended Abstract:

Despite the relatively recent realisation of biosimilar: the first PubMed indexed article was published in August 2004, the first biosimilar somatropin was approved by the European Medicines Agency in April 2006 and that the MeSH term “biosimilar pharmaceuticals” was only introduced in 2012; much have already been written about raising the awareness of differences between biosimilars and originating pharmaceuticals. In brief, biosimilars are large 3-dimension complex molecules. All steps of the production and purification process can significantly influence both the biological and clinical properties of the biosimilar hence there is greater process-related validity that can impact on efficacy and safety of the end-product pharmaceutical.

The biosimilar market is potentially the single fastest growing pharmaceutical sector. The current biosimilar market represents 16% of the global pharmaceutical expenditure. However, the biosimilar pharmaceutical market is growing at a compound annual growth rate of 65.8% as compared to some 15% for small molecule generic pharmaceutical. By 2020, 12 biological products which have a global sale of US$67bn will come off patent by 2020. This has stimulated the emergence of non-conventional pharmaceutical investors such as Fujifilm and Samsung as well as host countries such as Brazil, Mexico, China, India, South Korea, Turkey and Russia, which view biosimilars as a key macroeconomic driver of growth. Furthermore there is high expectation from health care authorities and insurer that cost saving will also result from the use of biosimilar such as the use of small molecule generic. Consequently there is much interest on biosimilars from insurers on seeing biosimilar as a mean of containing raising healthcare costs and also interest from pharmaceutical manufacturers because of demands, the lower costs of entry as compare to coming out with new pharmaceuticals.

The consideration of biosimilar regulation, however, demands attention beyond quality, safety and efficacy. The potential implications of extended patent protection, international trade and globalisation require a congruent policy approach to their regulation.

In Australia, prior to entry into Australian market, the regulation of biosimilar need to consider intellectual property implications, specifically use of copyright, trade mark, patent registration as well as Australia’s obligations under international treaties such as Australia-US Free Trade Agreement. Patent has often been viewed as a mean of incentivising innovation. To that extent economic imperatives have been used as a justification for wider intellectual property. Pharmaceutical manufacturers often applied for separate patent
protection on end-product and the process of manufacturing. However, unlike small molecule generic, downstream in biosimilar is much more closely linked to the upstream product. Therefore restriction on upstream patent prevent downstream innovation. The 2013 Raising the Bar amendment to the Patent Act aimed to increase the threshold for obtaining patent. The new test under the amendment required the “ordinary skilled person” to now consider information outside of one’s jurisdiction. With globalisation and the higher threshold, this may mean researchers and pharmaceuticals manufacturers are less likely to publish their findings prior to entry into market hence locking up knowledge. Furthermore, there is also the issue with the use of traditional medicines of which biological pharmaceutical is derived.

At entry into market, there is the issue of use of confidential information when Therapeutic Goods Administration adjudicates on quality and safety. Internationally, the European Medicines Agency has led the regulation of the quality, safety and efficacy of biosimilars; however, many countries have developed their own biosimilar regulatory frameworks. Despite the similarity of these with European guidelines, differences do exist across jurisdictions and have implications for cross-jurisdictional registration and regulation. For instance, comparison of biosimilar product stability profiles not required in Japanese biosimilar regulation; Canadian, European Union, South Africa expressly demand for sufficient duration to allow detection of relevant differences in immunogenicity between biosimilars and reference product as compared to other jurisdictions.

Post-entry into market, there is the issue of access especially via Pharmaceutical Benefits Scheme, the need for greater prescriber and dispenser awareness especially in the context of what is interchangeable or substitutable. Under the National Health Act, biosimilar under section 99ACEA is defined narrower as “same pharmaceutical item” or “same drug” whilst the regulation 2.14 (Schedule 1 items 3.1 – 3.2) defined biosimilar more broadly as “same active ingredient and the same form and manner of administration as an existing special pharmaceutical product”. There is disparity in the definition under the Act and this has direct implication on what is interchangeable and/or substitutable. Furthermore, the definition also have implications for F1-F2 pricing of pharmaceuticals which was introduced to contain costs in the Pharmaceutical Benefit Scheme. All the current biosimilar products in Australia are still in F1 pricing.

Notwithstanding the fact that Australia is a relatively small pharmaceutical market and that there are only 14 biosimilar products currently approved for use, Australia’s geographical proximity to pharm-emerging countries and its trade relation with the major pharmaceutical markets have positioned Australia in a unique position to influence international development and regulation of biosimilars.

Focusing on China, there are two significant developments in People Republic of China (China) in recent time which worth mentioning. In April 2009, the State Council passed the Deepening the Health Care System Reform which mandates increased Basic Medical Insurance coverage from 65% of population to 90% by 2011 and to revise the Essential Drug Lists. These aim to establish an universal healthcare systems by which all Chinese citizens will be able to access affordable pharmaceutical and medical care. We are also now coming towards the end of China’s 12th Five-Year Plan (2011-2015) which biosimilar was identified as a one of the seven macroeconomic drivers for growth and Chinese Government has invested significantly in promoting biosimilar market. Twenty biotech zones were set up nationally. This in return attracted significant interest from the top 20 multinational
pharmaceutical companies. The China’s biologic market is worth US$1.5bn and 40% comes from biosimilar. The compound annual growth rate of biosimilar in China is 25-30% over the past decade. If market continues to grow at 25%, biosimilar market in China could grow to US$2bn, around 20% of the global biosimilar market, by 2015. China has a potential market size of 600-800 bn RMB according to Chinese Academy of Science hence the biosimilar market was identified as a key sector in the 12th Five-Year Plan. There are now over 100 biologicals in China with 47 1st generation biosimilars. This is to be compared with 20 biosimilars currently approved by the European Medicines Agency. Furthermore, the China State Food & Drug Administration since April 2011 mandated Good Manufacturing Practice for pharmaceutical manufacturing so as to ensure quality and safety but also to be able to compete internationally through export. The average price cut of biosimilar is 60% as compared to 23% in Europe and 20% in USA.

The challenges that Australia and China are confronted with may seem quite different but at the heart of it, both countries want economic growth while ensuring quality and safety, and equitable access. The Australia’s National Medicines Policy (2000) potentially provides the foundation for a partnership approach to biosimilar regulation, minimise duplication of regulatory efforts while at the same time fostering a viable pharmaceutical industry. Issue with regulating biosimilars need to be informed through conversation, cannot be dealt with in isolation.

Biography:

David is an early career academic with the School of Clinical Sciences at the Queensland University of Technology. His research focuses on quality use of medicines and expanded scope of health professional practice. David holds a Bachelor of Law from Notre Dame University (2011), Doctor of Public Health from Curtin University (2010), and a Master of Medical Science in Surgery from University of Western Australia (2003). David received some $400,000 in competitive research grant as chief investigator and a $3m grant as an associate for building a rural GP Superclinic. To date, David had published 64 monographs, and currently serves on the committee of the Public Health Association of Australia - Primary Health Care Special Interest Group and as a Director on the Board of the Young Australia League Inc.