Risk Communication

This section discusses issues related to risk communication across a range of publicly perceived high-risk industries (such as pharmaceuticals, nuclear, oil, etc.). It reports critically and provides analysis on risk communication as an outcome of risk research within these industries. Contributions are intended to include methods working towards the advancement of risk perception research and describe any lessons learned for successfully communicating to the public about risk.

Ex-Post Pharmacovigilance and Trust: A Perspective

It is widely recognised that, since the mid 1980s, Europe has become increasingly stringent in terms of risk regulation as compared to the United States. One exception is in the realm of medicine regulation, where policy measures appear to have converged.[1] The safety controls currently in place for medicines to reach the markets of developed nations are now dictated by a standardised global approach which has become increasingly complex since modern controls were introduced in the 1960s.[2] Increased complexity has brought higher costs and more time spent in the course of the drug approval process.[3] Such economic factors threaten the availability of potentially innovative future medicines, particularly if increased caution towards investing in research and development is established as an industry-wide trend.[4] Government and industry are therefore considering regulatory overhauls towards achieving a sustainable and innovative product pipeline,[5] but must also take into consideration the accompanying public reaction.

This paper examines the public perception implications of a regulatory shift towards the strengthening of pharmacovigilance systems for medicines towards *ex-post* regulation. As it stands, internationally standardised medecine regulation in developed countries is a complex, lengthy, and costly process. The approval process comprises several stages that are rigorous and time-consuming, resulting in a mere one in 10,000 compounds from corporate research and development reaching the market.[6] Marketing authorisation is granted at the pre-marketing stage and only after exhaustive satisfaction of three basic regulatory principles: safety, efficacy, and quality. Earlier drug approval would mean switching the emphasis from costly pre-market testing of prescription drugs towards complete lifetime product monitoring, wielding considerable savings. By shifting regulation towards increased post-marketing vigilance and allowing medicines to be approved earlier in the market lifecycle, research and development costs could be cut dramatically.[7] While the benefits of this change for the industry may be apparent, at the same time it would be possible to deal with several ethical and moral challenges arising from earlier drug approvals.

Regulatory agencies have already faced public scrutiny in the light of drug approvals perceived as hasty. Atagonistic public criticism has, in parallel, drawn attention to what is perceived as sluggishness in the drug approval process. It is difficult in this contradictory landscape to reach public consensus on a timeline that is acceptable, since opinions vary regarding what frequency of Thalidomide-type disasters may be tolerated as a trade-off against speedier approvals for potentially life-saving drugs.[8] With regard to the latter, media attention in the late 1980s highlighted claims that the US FDA was creating unnecessary delays in the approval of medicines for fighting the HIV/AIDS epidemic. ACT-UP and other HIV activist organisations staged large-scale protests which, on 11 October 1988, culminated in the arrest of approximately 180 protesters on US FDA

1 Löfstedt Ragnar E./Vogel D., "The changing character of regulation: A comparison of Europe and the United States", *Risk Analysis* (2001), Vol. 21, No. 3, pp. 399–406; Vogal, David, "The Politics of Risk Regulation in Europe and the United States", *The Yearbook of European Environmental Law* (2003), pp. 3 et sqq.

2 For a more detailed discussion on the standardized drug approval process see Hodges, Christopher, "Regulating Risk or Advancing Therapies? – Regulation and Sustainability of Medicines in a Cash-limited Economy", *European Business Law Review* (2008), Vol. 19, No. 2, pp. 365–86.

3 *Ibid*, pp. 365–86; Boston Consulting Group, *A Revolution in R & D: How Genomics and Genetics are Transforming the Biopharmaceutical Industry* (2001); DiMasi, J. A. et al., "The Price of Innovation: New Estimates of Drug Development Costs," *J Health Economics* (2003), pp. 151–85.

4 Epstein, R., *Overdose: Hoe Excessive Government Regulation Stifles Pharmaceutical Innovation* (Yale University Press 2007).

5 Medicines and Healthcare Products Regulatory Agency, *Challenges and Priorities for the Next Five Years* (2007), Q.11.; Jack, A., "Pharma Bosses Call for the Faster Approval of Medicines of New Medicines," *Financial Times,* 4 July 2007.

6 PhRMA, "PhRMA: New Medicines, New Hope", (2002), Retrieved August 4, 2006, from http://www.phrma.org.; statistic taken from the Pharmaceutical Industry Profile (Pharma Research and Manufacturers of America, 2005).

7 Hodges, Christopher, *ibid*, pp. 365–86.

8 Hilts, P. J., Protecting America's Health: The FDA, Business, and One Hundred Years of Regulation, 2003.

territory. These protests contributed, in part, to the expedited approval of medicines for life-threatening diseases and earlier access for patients with limited treatment options.[9]

Not long afterwards, it was observed that overall drug approval times had "dramatically decreased" in the United States from 1992 to 2001 as compared to earlier periods.[10] This decrease appears to have corresponded to the passage of the 1992 Prescription Drug User Fee Act (PDUFA), which imposed performance goals on the US FDA and allowed it to levy fees on pharmaceutical firms to provide the resources necessary to meet these goals.[11] Although the US Congress has renewed PDUFA twice since it originally passed, there is little evidence of its effectiveness. The debate continues as to whether or not it is appropriate for the regulator to accept financial resources in the form of approval processing fees from the industry it is intended to arbitrate.[12]

Further, regulatory agencies are criticised for lingering in decision-making over the recall of dangerous products; such delays bolster public distrust in the regulator and perpetuate its perceived 'inappropriate' relationship with the pharmaceutical industry.[13] A considerable number of inquiries to examine the drug approval process have been launched based on the large number of drug recalls and general concern over the mounting rate of drug-related injuries. Examples include Pfizer's *Zoloft*, Bayer's *Baycol* and Merck's *Vioxx*. These recalls have led to claims that regulatory agencies are not doing enough to protect the public[14], ending with a public commissioned 2006 US Institute of Medicine Report revealing what have come to be seen as major deficiencies at the US FDA.[15]

The media-driven amplification[16] of such claims (and their subsequent investigation) has led to negative public perceptions of the regulators of medicines. In the United States, a 2007 Harris Poll found that only 45 % of all respondents trusted 'somewhat' or 'strongly' the United States Food and Drug Administration; only 27 % of respondents somewhat or strongly trusted pharmaceutical companies.[17] Furthermore, a 2006 Harris Poll found that 71 % of American adults believe it is highly and/or very important that prescription drugs remain under close review even after FDA approval.[18] While the US FDA has been legally sanctioned to take steps towards getting increased public disclosure, particularly with regards to approved drugs under further investigation[19], there is no doubt that any changes in the EU (and, ultimately, in global) legislation towards an enhanced reliance on post-marketing pharmacovigilance will be confronted with antagonism. A successful shift in regulation must be underpinned by public acceptance of the justification for earlier marketing approval, otherwise it could lead towards unintended consequences.

One such consequence could be increased patient non-compliance with drug treatment regimens. According to current statistics, non-compliance with chronic prescription drug therapies range anywhere from 50–70 %. This not only leads to poorer end-prognoses, but adds up to 100 billion dollars in terms of public health costs stemming from more rapid onsets of disease, higher rates of hospitalisation and lost productivity.[20] Current research being undertaken by the author suggests a statistically significant link between distrust and patient non-compliance.[21] It is therefore suggested that any empha-

9 Lewis, Carol, "Advisory Committees: FDA's Primary Stakeholders Have a Say", *Food and Drug Administration: For Consumers* (2009). Available on the Internet at http://www.fda.gov/ForConsumers/ByAudience/ForPatientAdvocates/PatientInvolvement/ucm123870.htm.

10 Berndt, E. R. et al., "Industry funding of the FDA: effects of PDUFA on approval times and withdrawal rates", *Nature Reviews Drug Discovery* (2005), Vol. 4, pp. 545–554.

11 Food and Drug Administration, *Prescription Drug User Fee Act (PDUFA)* (2009). Available on the Internet at http://www.fda.gov/ForIndustry/UserFees/PrescriptionDrugUserFee/default.htm.

12 American Enterprise Institute for Public Policy Research, *Shortening Drug Approval Times via Industry Funding of the FDA*, Conference Minutes, 16 February 2005, Washington DC.

13 Hilts, P. J., *ibid*; Spiers, A. S. D., *Save the FDA* (2005), 330: 308.

14 Löfstedt, R., "The Impact of the Cox-2 Inhibitor Issue on Perceptions of the Pharmaceutical Industry: Content Analysis and Communication Implications", *Journal of Health Communication* (2007), Vol. 12, No. 5, pp. 471–491.

15 Institute of Medicine, *The Future of Drug Safety: Promoting and Protecting the Health of the Public* (2006).

16 For more on the media's role in the amplification of risk see Kasperson, J. et al., *The Social Contours of Risk* (Earthscan 2005).

17 Harris Poll (a), "Large Numbers of People Do Not Trust the Institutions They Identify as Most Responsible for Drug Safety", (April 25, 2007), The Harris Poll, from http://www.harrisinteractive.com/news/allnewsbydate.asp?NewsID=1216.

18 Harris Poll, "U.S. Adults Desire Ongoing Review of Pharmaceuticals", (December 21, 2006), The Harris Poll, 89, from http://www.harrisinteractive.com/harris_poll/index.asp?PID=716.

19 Food and Drug Administration's Amendments Act, Section 921, Adverse drug reaction reports and postmarket safety (Washington DC: US Congress FDAAA 2007).

20 Osterberg, L. and Blaschke, T., "Adherence to Medication", *New England Journal of Medicine*, Vol. 353, pp. 487–97.

21 Chakraborty, S., (in press), "The Role of Trust in Patient Non-compliance", *Risk Analysis* (in peer review).

sis that shifts towards ex-post pharmacovigilance without taking into account the role played by distrust has the potential to exacerbate the percentage of non-compliant patients. Further research must be commissioned to understand the lay (i.e. non-expert) concerns associated with earlier drug approvals in relation to their perceived benefits.

Existing cognitive behavioural research in the field of risk perception emphasises the importance of understanding lay values, which are often overlooked during the expert decision-making process, but are required for successful policy implementation. Both qualitative and quantitative methods have been applied to the systematic investigation of divergences between lay and expert evaluations of risk.[22] A thorough analysis of lay mental models of the perceived risks associated with earlier drug approvals would help to elucidate an appropriate course of action. While opposition to increased ex-post pharmacovigilance is conjectured to be linked to distrust, several additional (mis)conceptions may arise regarding compromised standards of safety and/or (mis)understanding of economic motivation in relation to pharmaceutical innovation and sustainability. These attitudes may then be considered using the current regulatory system now developed for a better accommodation of public concerns.

Over the years, this new model of regulation has evolved to include more public participatory and transparency measures in the policy decision-making process.[23] This shift has therefore required an increased consideration and acknowledgement of potentially divergent lay values from what could be otherwise considered the most unanimous and scientific information available on a particular risk. Even with the best information, the regulation of medicines is a fundamentally complex process involving careful consideration of risk-benefit trade-offs. Understanding the lay cognitive processes involved in evaluating these trade-offs is the first and necessary step towards a successful public involvement in this new model of regulation.

It has been established that, thanks to media-driven attention to the accusations of independent interest groups against regulatory processes, together with public perceptions of scandals and cover-ups going hand-in-hand with the pharmaceutical industry, an atmosphere of distrust has been created. It has also been established that this atmosphere must be taken into account in relation to any shifts in the regulatory approval process. The technology for effective and reliable post-marketing vigilance of products in large populations is becoming increasingly available, making the case for earlier drug approvals stronger. Yet it is not enough to have the capability of harnessing modern information technology towards this goal in order to ensure a successful drive towards pharmaceutical sustainability:[24] public perceptions of risks associated with earlier drug approvals must be taken into account. More specifically, the emphasis placed on value-based concerns such as trust must be further explored and established. To this end, there is considerable scope for increased research in this area for the ultimate purpose of creating the appropriate risk communication and/or policy measures to target public concerns. Anything less could potentially lead to increased rates of non-compliance, resulting in a triumph of fear over future sustainability.

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22 Bostrom, A./Atman, C. J. et al., "Evaluating risk communications: Completing and correcting mental models of hazardous processes, Part 2", *Risk Analysis* (1994), Vol. 14, No. 5, pp. 789–798; Fischhoff, B./Bostrom, A. et al., *Risk Perception and Communication* (Oxford University Press 2002).

23 European Commission, European Governance: A white paper, COM 2001 428 Final (Brussels: European Commission 2001); Löfstedt, R. E., "Risk communication and management in the twenty-first century", *International Public Management Journal* (2004), Vol. 7, pp. 335–346.

24 Global Harmonization Taskforce, available on the Internet at http://ghtf.org.