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**“History, Evidence and Reason:
A review of proposals for and innovative sources of funding to stimulate R&D”**

The Cameron Institute welcomes this opportunity to comment upon the proposal for new and innovative sources of funding to stimulate research and development with specific reference to pharmaceuticals focusing on diseases that disproportionately affect developing countries.

Of course, government prize monies and patent pools are neither new nor innovative in and of themselves. Cash prizes incited the development of margarine, the successful canning of vegetables, Lindbergh’s nonstop flight over the Atlantic, the world’s first privately designed spacecraft, and the discovery of gold in the most recent instance. Certainly cash remains an incentive for discovery. Patent pools (the voluntary cross-licensing of two or more firm’s patents) have improved sewing machines, early twentieth century combat aircraft, and more recently digital technologies.

However, not all of these examples are research laboratory examples – because there are so few of them to quote. And then the prize money only rewarded the researchers involved for filing the patent. Up to ten times the prize money has been spent in many cases to actually commercialize the product, such as Virgin Galactic building the privately designed spacecraft.

The above examples of the successful use of cash prizes and patent pools to incent innovation are limited in number and almost always build upon existing patented technologies and did not lead to novel discovery per se, such as required to combat malaria, TB, dengue fever and so on.

Historically, however, intellectual property protection in the form of patents has led to the lion’s share of innovation over time and across nations. If prizes and patent pools were more efficient means of stimulating and rewarding innovation then the free market system would have already rid us of patents and supplanted them with these two options. Such has not been the case, for good reason. All of the most socially significant and economically disruptive innovations have been achieved under the patent regime.

Today, pharmaceutical firms often face a sunk-cost of over \$1.3 billion dollars in bringing a new medicine to market, while conducting research on approximately 700,000 different substances along the way to one success. Prizes large enough to cover those costs as well as the expected revenue stream from a product that would rid the world of

tens of millions of cases of a particular disease would have to be enormous. Perhaps Messrs, Buffet, Gates or Soros could fund such a prize out of their personal fortunes but to ask that of any national government at this juncture in economic history would be unrealistic.

Innovation is a series event: continual, building upon success after success, large leaps followed by incremental adaptations and then large leaps again. Prizes, by definition are one-shot phenomena. They reward achievement to a certain point and then no more. The one sure thing that researchers and public health officials have learned about many diseases is that they evolve over time just like every other living organism, and medicines to combat them need to evolve and improve over time thus requiring a multitude of prizes for every step of the way is this ongoing process. That is fine, but who can afford to pay these huge sums again and again except for the very fewest of the richest on earth. And they are not stepping forward – because they understand the limitations of these two funding devices.

Prize monies and patent pools also incent linear thinking – incremental development of a particular molecule, probiotic or nanotechnology towards a specific end often to the exclusion of serendipitous discoveries that have often become the most beneficial and disruptive ones,

One real hazard of both prizes and patent pooling is if the rights to a discovery fall out of private hands. Under the patent regime and related regulatory regimes, private enterprise is held accountable for any deleterious effects from their innovations. How are governments to be held accountable in these types of instances when the majority of governments on earth are not duly elected representative democracies, and those that are find it difficult for their governments to be held accountable for the simplest of things today?

Also, patent pools also raise the very real probability of collusion and other monopolistic behaviours not seen in the current, patent driven, market competition of the pharmaceutical industry. Collusion and monopoly stifle innovation; competition breeds it. Patent pooling is thus counter-intuitive to innovation. What phenomenal, innovative pharmaceutical discoveries ever came out of the totalitarian states of the world in the past fifty years?

The life's work of dedicated researchers all too infrequently leads to innovation and discovery. The best that governments can do – and intergovernmental bodies as well – is to provide an environment in which research may flourish. This has to do with non-punitive tax regimes; open and safe investment climates and capital markets; political stability; freedom of movement of goods, labour, money, technology and ideas; and financial support for both base research as well as commercialization.

Intellectual property is not a barrier to develop drugs for the developing world. In fact, intellectual property is not a barrier to anything in my knowledge. Intellectual property, and most importantly the protection thereof, breeds innovation; allows otherwise

conservative beings to take risks; rewards a life-time's work; protects one's work from theft, misuse, and from falling into the hands of those with less than pure motives; and guarantees a high level of dissatisfaction with the status quo.

If we are to improve the public health of developing countries, and we agree that innovation is part of the solution, then intellectual property – by definition – becomes part of the solution and not a barrier. The literature is quite clear that the protection of intellectual property stimulates innovation and the dissemination of its fruits – not the other way around.

Of course, the whole funding issue ignores the real issues confronting public health in developing countries, and that is the lack of freedom and infrastructure to allow medicines – even if they existed - to be distributed and administered to those who need them.

The real barriers to improving the health of the developing nations are barriers that the WHO, WHA and United Nations continue to ignore: money, power, politics and ideologies. Even if new drugs are commercialized to combat the diseases that plague the developing nations they will be no more effective than existing drugs for other diseases that are not reaching those who need them most, not because of patents or industry location, but because military dictatorships and pseudo-democratic governments (where they pretend to exist) either stockpile them for the elites, sell them on the black market at prices well beyond what was intended, or sell them abroad. Even in situations that exist where the little that can get through to the neediest will get through without interference there is often inadequate infrastructure, human resources, and transport available to facilitate the timely delivery and use of dated product. To focus on intellectual property as a barrier in face of the above realities is nothing short of ignoring the truth and running to seek a scapegoat for their own failings as governments have done time and time again.

In the simplest terms, the above barriers prevent markets from emerging in developing countries – even when the price for a product is zero.

The symmetry amongst innovation, free markets and democratic societies is no mistake. Patents and other forms of intellectual property protection are just simple, albeit very powerful, devices by which innovation is optimally incited in free societies. Prizes and patent pooling have already proven to be of limited value in the developed countries, and will not deliver the fruits of scientific discovery in regions of the world where there is no track record of economic freedom or personal freedom. It is no accident that much of the world's innovativeness comes from countries like the United States, Canada and the United Kingdom.

And the key to this success has been private property – in this case, patents. Patents represent the material manifestation of an individual's intellectual labours. Patent pooling, more so than cash prizes in this case, would reduce the value attached to discovery and thus retard the pace of innovation – the exact opposite to the hoped-for effect.

Free markets are the only proven economic means by which to create sustainable societies; communism has failed; socialism has failed; fascism has failed; and democratic socialism is failing as this is being written. Free markets recognize that it is in humankind's nature to enquire, to achieve, to compete, and to live in community. Cash prizes, if offered by the super-rich of society may supplement patents; patent pooling will most likely not.

There are two worlds: the free and innovative; and the authoritarian and exploitive. Free societies breed innovation. Authoritarian societies try their best to exploit the innovation of others for their elites but do no discovery themselves.

Governments offering full value-recovery prizes would create a zero-sum game in the end as governments, by definition, add no value to an economy – they simply remove value through taxation, no-value-add spending, and redistribution. Worse still, in today's economic mess, governments borrow against future generations or print money to extract value from the economy today – an exponential whammy!

Here is hoping that those who will deliberate these submissions look to history, the evidence, and reason in making their recommendations.

Respectfully submitted,

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A Side Note:

When talking about history, evidence and reason, one has to look no farther than the case of DDT. In 1972 DDT was banned by the Environmental Protection Agency based upon no evidence of it doing any harm. To this day there is no evidence that DDT has killed any living organism other than that targeted. In 2006, the WHO revisited the idea of once again using the most effective means still known to combat malaria – DDT. Hundreds of millions of people died needlessly because of the moratorium on DDT, all because of one alarmist amateur who observed correlations in a limited space and time that became truisms for the uncritical, non-scientific bureaucrats of the day.

The Cameron Institute was incorporated in January 2009 as an alternative, not-for-profit, public policy think tank specializing in the independent study of health, social and economic issues both in Canada and around the world. It is governed by a volunteer board of directors representative of the scientific, clinical and policy sectors. The Cameron's values are best summarized in three words: freedom, choice and responsibility.