Pak J Med Res
Vol. 58, No. 4, 2019

Editorial

Dual Use Research of Concern

Sumera Naz, Faiza Bashir
PHRC Head Office, Islamabad.

Dual Use Research of Concern (DURC) is a relatively new phenomenon having significance in life sciences research. The most commonly cited definition of this phenomenon is from US Federal policy document which states that, *"DURC is life sciences research that, based on current understanding, can be reasonably anticipated to provide knowledge, information, products, or technologies that could be directly misapplied to pose a significant threat with broad potential consequences to public health and safety, agricultural crops, other plants, animals, the environment, materiel, or national security."* [1]

The relatively new concept of DURC has primarily emerged from the experimentation on H5N1 which the researchers claimed well conducted to abreast with the knowledge of transmissibility of virus in ferrets.[2] Though the experiment produced the much-needed knowledge about the natural course of the disease, it hit the world with the "Dual use dilemma"; where if such knowledge is in the hands of malevolent agents could create a disaster.[3]

The life sciences research is largely of proven benefits; but the case of H5N1 created concerns among the scientific community and regulators about the potential of misuse of knowledge.[2] Some of the examples for understanding of phenomenon include biosecurity risks of products, technologies, knowledge and information access and practical illustrations can lead to be enhancing the virulence of the pathogens, increasing the transmissibility of a pathogen, altering the host response towards negative aspects, enhancing the susceptibility of a host population and invoke the eradicated pathogens etc.[4]

Though largely we talk of life sciences research on humans such DURC is not only limited to humans but extends to animals and plants research. Although the concerns raised by multiple countries has resulted in wider sensitization and many countries are in process of deliberations. Only USA and Israel have come up with regulations to have a regulatory oversight on research conducted in their geographical boundaries.[5,6] While organizations and bodies like WHO [7] and Welcome trust etc.[8,9] have drafted guidelines. Certain other countries including China,[10] Australia [11] Canada [12] are in process of drafting country specific policies.

Situation in Pakistan: In Pakistan two bodies are important regarding oversighting the research being conducted in country. One is Foreign office Strategic Exports Control Division which regulates the export of biological material for research while second is National Bioethics Committee (NBC) which reviews the ethical aspects of the national level research intended to be conducted in Pakistan. In order to oversight the intent of research and to have an insight of the potential misuse no regulatory mechanism or policy exists in the country. DURC being a new dimension and a very new concept has neither gained attention and nor there is an orientation about it among the research community. The understanding of the phenomenon is also complex owing to the involvement of multiple stakeholders such as public health professionals, safety and security organizations, export division/ departments, academia, donor agencies, regulatory bodies, Biosafety and biosecurity bodies, bioethics organizations health ministries, legal bodies, and last but not the least the community itself.

Being a new concept DURC requires sensitization at all levels. Mitigating the risks would require holistic oversight mechanisms at research organizations which must be mandated to inquire from researchers to identify in advance the potential risks of their research. Funding agencies must have mechanisms in place to not fund the research having potential to be misused. This could be achieved by seeking deep insight from the experts, regulatory bodies and development of codes of conducts and policies compounded by awareness and educational interventions enabling enthusiastic researchers to be able to predict in advance the

Corresponding Author:
Sumera Naz
PHRC Head Office, Islamabad
Email: naz.sumera@gmail.com

Received: 09 January 2020, **Accepted:** 21 January 2020,
Published: 30 January 2020

possible uses and potential of misuse of their research findings.[4] The publishers must also be considered while managing DURC so that they publish only that information which is asserted by scientist and verified at the level of publisher that research findings would not be misused. Further the issue is inherently linked to ethical considerations and mechanisms should be in place to ensure that Bioethics Committees (institutional, provincial and national) are closely oversighting the research in a country.[4,5,13]

Another concern is lack of global guidance on DURC; requiring capacity building or frameworks for management especially for resource constraint countries where research is not regulated properly, and a lot is in the hands of private research enterprises like contract research organizations.[4]

The newly emerging dual use dilemma must be openly articulated among all the relevant stakeholders. Further optimally functional mechanisms and intersectoral working relationships are mandatory to mitigate the concerns arising from DURC. While authors propose cautionary measures at multiple levels; by no means our concerns and mitigating mechanisms at country level be discouraging or hindering the beneficial life sciences research.

Conflict of interest: None declared.

References

1. US Federal Government, United States Government policy for oversight of life sciences dual use research of concern. Washington DC, 2012. (Accessed on 2nd December 2019) Available from URL: http://www.phe.gov/s3/dualuse/Documents/us-policy-durc-032812.pdf.
2. Fauci AS, Collins FS. Benefits and risks of influenza research: lessons learned. Science 2012, 336 (6088): 1522-3.
3. Lev O. Regulating dual-use research: Lessons from Israel and the United States. J Biosaf Biosec2019; 1(2): 80-5.
4. World Health O. Report of the WHO informal consultation on dual use research of concern Geneva, Switzerland. (Accessed on 2nd December 2019) Available from URL:https://www.who.int /csr/durc/en/
5. United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concer, 2014. (Accessed on 2nd December 2019) Available from URL: https://www.phe.gov/s3/dualuse /Documents/ oversight-durc.pdf
6. Casadevall A, Dermody TS, Imperiale MJ, Sandri-Goldin RM, Shenk T. Dual-use research of concern (DURC) review at American Society for Microbiology journals. mBio 2015; 6(4): e01236-e1315.
7. World Health O. Responsible life sciences research for global health security, WHO, Geneva, 2010. (Accessed on 2nd December 2019) Available from URL:https://www.who.int/csr/resources/publications/HSE_GAR_BDP_2010_2/en/
8. Guidelines on Good Research Practice, Wellcome Trust, 2005. (Accessed on 2nd December 2019) Available from URL:https://wellcome.ac.uk/funding/guidance/good-research-practice-guidelines
9. BBSRC, MRC, Wellcome Trust. Managing Risks of Research Misuse, A Joint Biotechnology and Biological Sciences Research Council (BBSRC), Medical Research Council (MRC) and Wellcome Trust Policy Statement, London, 2015. (Accessed on 2nd December 2019) Available from URL:https://mrc.ukri.org/research/policies-and-guidance-for-researchers/managing-risks-of-research-misuse/
10. Ministry of Science and Technology of the People's Republic of China, The Safety Management Regulations for Biotechnology Research and Development (Draft). (Accessed on 2nd December 2019) Available from URL: http://www.most.gov.cn /tztg/201903/t20190311_145548.htm.
11. Smith FL, Kamradt-Scott A. Antipodal biosecurity? Oversight of dual use research in the United States and Australia. Front Pub Health 2014; 2: 142
12. Williams-Jones B, Olivier C, Smith E. Governing 'dual-use' research in Canada: a policy review. Sci Publ Policy 2014; 41(1): 76-93.
13. Patrone D, Resnik D, Chin L. Biosecurity and the review and publication of dual-use research of concern. Biosecur Bioterror 2012; 10(3): 290-8.