Table 11: BioACCESS: Technology Based Solutions for Global Health Needs for Non-communicable Diseases

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SCOPE:
The greatest unmet medical need facing humanity is the delivery of health care to underserved populations, particularly in low- and middle-income countries. Great progress has been made in addressing some of the ravages of infectious diseases by increasing the availability of vaccines and anti-viral drugs for the treatment of HIV infection. An even greater challenge is to increase the availability of treatments for non-communicable diseases (NCDs), including cancer and diabetes whose prevalence is rapidly growing globally, and particularly in low- and middle-income countries (LMC) where many barriers to access to effective treatments exist. Estimates are that by 2030 cancer will kill 1 million Africans a year, even though the most common cancers in Africa are among the most treatable by modern medicine. Diabetes is reaching epidemic proportions globally, with an expected 640 million affected individuals by 2040. In order to stem the tide of these ravages, the barriers to access to effective treatments—including biologic drugs that are among the most important treatments for NCDs—must be identified and the means of overcoming these barriers, both technological and non-technological, developed and implemented. This roundtable will introduce a multidisciplinary program for identifying constraints on access to biologics in LMC and approaches to addressing these constraints.

DISCUSSION NOTES:
The roundtable started with an overview of the shifting epidemiology from infectious to chronic non-communicable diseases (NCDs), with a concentration of new cases and preventable deaths taking place in low-and middle-income countries (LMICs). While biologics are the most effective or only therapy for many NCDs (e.g. insulin for diabetics), their unique molecular, manufacturing, supply, and regulatory complexity – as compared to small-molecule drugs – as well as high-prices, prohibit widespread and affordable access. NCDs will continue growing in LMICs due to increasing life expectancy and exposure to various socioeconomic, behavioral, and environmental risk factors. To meeting patient needs, a framework called Access-by-Design was presented. It seeks to identify, assess, and overcome barriers to biologics access by embedding principles of access within all systems and processes across the value-chain.

The discussion centered around key barriers and potential solutions for improving access, especially in resource constrained settings. Diabetes, with a focus on insulin access, was used as a case study to facilitate discussion. Participants shared perspectives, lessons learned, and recommendations on the topic. Key outcomes include the following:

- A whole-of-system approach that better accounts for the supply-side and demand-side of access, as well as their interactions, is needed. Prevention is also key to effectively
controlling and reducing rates of diabetes.

- A paradigm change is needed, with patients at the center of decision making when designing systems and processes across the healthcare delivery chain.
- Lessons can be learned from the infectious disease space (e.g. vaccines delivery, ARTs for HIV), as interventions have historically been designed for patient populations in LMICs, unlike many traditional biologic therapies (e.g. mAbs).
- There is value in collecting data and experiencing realities “on-the-ground”, as they provide unique insight into key considerations that should inform the design of healthcare systems and innovations.
- granularity in data, especially sub-national, can aid in identifying challenges unique to certain geographies, thus allowing for the design of appropriate innovations, in the form of technologies, policy, and so on. This includes, for example, better understanding urban-rural divides and how risk factors drive changes in incidence of disease.
- Sociopolitical and cultural considerations can be impactful, pointing to the need for better understanding the root cause of barriers that often make technology transfer difficult.
- The Rule of Halves signals the presence of barriers to access across the healthcare value-chain and the need to think beyond business as usual. According to the Rule of Halves, approximately half of the most common chronic disorders are undetected, half of those detected are not treated, and half of those treated are not effectively controlled.
- Various levers can be used to incentivize behavior change (e.g. bans on public smoking). Similarly, manufacturing, supply, and procurement of medicines, as well as diagnostics and monitoring, needs to be designed to maximize patient care.
- There is uncertainty in the relative impact of interventions and true cost of access, beyond the cost-of-goods. Measures of total system effectiveness, cost, and risk can be useful to better understand where the most significant barriers exist and thus opportunities for innovation.
- Working across stakeholders (e.g. government, NGOs, philanthropy, academia, industry, etc.) is crucial to better align incentives and ensure a concerted effort towards access.