Between Prevention and Treatment: Status-defining technologies

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The increasing capability to detect disease and intervene on the basis of biochemical markers indicative of pathology signals a significant shift in our orientation toward health and disease. Theragnostic technologies, using synthetic biology and nanotechnology, combine therapy with diagnostic capabilities to operate, in essence, as an internal "biophysician". This development generates multiple complexities, including possible implications for the concept of disease and illness (see Stempsey, 2006). If an internal mechanism effects cure upon manifestation of indicators of emerging pathology, the "disease" never actually materializes since the biochemical markers trigger cure, thus arresting development to frank onset. In this way, it is a prevention technology, yet is triggered by indications of onset. Consequently, we either must regard this as as a form of prevention or "treating" pre-disease. Alternatively, we must expand the scope of disease.

Prevention technologies are not limited to those that operate as targeted disease pre-treatment. This can also be said to include such technologies that are being developed to detect Alzheimer's disease pre-symptomatically, e.g. PET scans and biomarkers. Based on the long-honored mantra that "early intervention results in better outcomes", the quest for pre-disease detection technologies may seem to be developing independently of societal understanding and regard for health status. Such pre-disease intervention technologies are likely to have reverberating impact on multiple domains, including health care and other work/life spheres. This work explores the potential shift in the concept of disease and health brought on by prevention technologies and possible implications for selected societal domains and institutions.