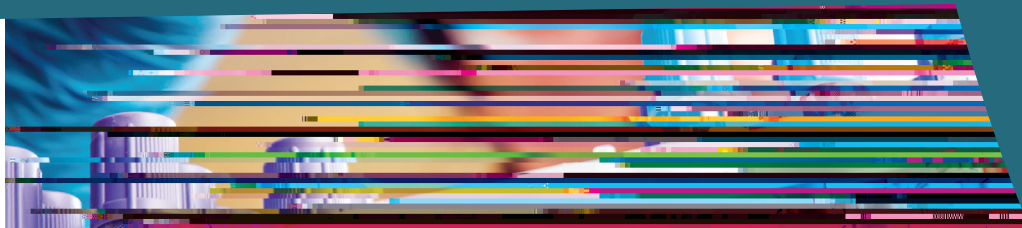


Global Health Brief

Liquid Biopsy – Clinical Uses and Implications

Cancer is one of the leading causes of death globally, accounting for approximately 29% of all deaths. New cancer cases are expected to increase by approximately 50% by 2030. Cancer also has massive global financial implications. The total impact of cancer on the global economy in 2008 (the latest year for which figures are available) was USD 895 billion, or 1.1% of the world's domestic product (GDP) that year. Its burden on health and finances could increase significantly without effective management, as there is a higher probability of cure if the disease is detected early. Researchers have long been exploring alternate ways to screen for and detect cancer. One of the most recent years is liquid biopsy; i.e., the testing of blood or other bodily fluids for cancer-related biomarkers. This is not a new concept. Circulating protein tumor markers such as cancer-specific antigen (PSA) have been used for years to screen for cancers. However, many cancers do not have a reliable protein biomarker, and even for those that do, the biomarker can be elevated for reasons unrelated to tumor growth. Also, traditional diagnostic techniques such as tissue biopsy or imaging studies are often used for diagnostic purposes; rather, they are recommended only if the patient shows symptoms or if a doctor suspects a disease might already be well-established. Recent advances are making it possible to test blood or other bodily fluids for cancer-related biomarkers such as circulating tumor cells (CTCs) and circulating tumor DNA (ctDNA). As these technologies move into clinical practice, insurance professionals must understand them and their uses.

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About liquid biopsies

A liquid biopsy is a test that detects the presence of tumor products circulating in bodily fluids (e.g., blood, urine, saliva, cerebrospinal fluid, etc.). These tumor products can include:

1. Circulating tumor cells (CTCs): Cancer cells which have been shed from a tumor and are present in bodily fluids
2. Circulating tumor DNA (ctDNA): Strands of single- or double-stranded DNA released by cancer tumor cells into the blood.
3. Circulating transcriptome: Coding and non-coding RNA molecules in bodily fluids
4. Exosomes: e

could lead to higher cancer incidence rates than anticipated. This could impact the pricing assumptions of certain products, especially those offering early-stage