90.2 Next Generation Sequencing (NGS) for Patients with ~~Advanced Cancer~~ and Germline (Inherited) Cancer

A. General

Clinical laboratory diagnostic tests can include tests that, for example, predict the risk associated with one or more genetic variations. In addition, in vitro companion diagnostic laboratory tests provide a report of test results of genetic variations and are essential for the safe and effective use of a corresponding therapeutic product. Next Generation Sequencing (NGS) is one technique that can measure one or more genetic variations as a laboratory diagnostic test, such as when used as a companion in vitro diagnostic test.

~~Patients with cancer can have recurrent, relapsed, refractory, metastatic, and/or advanced stages III or IV of cancer. Clinical studies show that genetic variations in a patient's cancer can, in concert with clinical factors, predict how each individual responds to specific treatments.~~

~~In application, a report of results of a diagnostic laboratory test using NGS (i.e., information on the cancer's genetic variations) can contribute to predicting a patient's response to a given drug: good, bad, or none at all. Applications of NGS to predict a patient's response to treatment occurs ideally prior to initiation of such treatment.~~

This National Coverage Determination (NCD) is only applicable to diagnostic lab tests using NGS for somatic (acquired) and germline (inherited) cancer. Medicare Administrative Contractors (MACs) may determine coverage of diagnostic lab tests using NGS for RNA sequencing and protein analysis. MACs also have discretion to determine coverage of diagnostic lab tests using NGS for any non-cancer (e.g., infectious disease and heart disease) use. These uses are outside the scope of this NCD.

B. Nationally Covered Indications

1. Somatic (Acquired) Cancer

Effective for services performed on or after March 16, 2018, the Centers for Medicare & Medicaid Services (CMS) has determined that Next Generation Sequencing (NGS) as a diagnostic laboratory test is reasonable and necessary and covered nationally, when performed in a Clinical Laboratory Improvement Amendments (CLIA)-certified laboratory, when ordered by a treating physician, and when all of the following requirements are met:

1. Patient has:

- either recurrent, relapsed, refractory, metastatic, or advanced stage III or IV cancer; and,
- ~~either not been previously tested using the same NGS test for the same primary diagnosis of cancer, or repeat testing using the same NGS test only when a new primary cancer diagnosis is made by the treating physician n~~*ot been previously tested with the same test using NGS for the same cancer genetic content*; and,
- decided to seek further cancer treatment (e.g., therapeutic chemotherapy).

2. The diagnostic laboratory test using NGS must have:

- Food & Drug Administration (FDA) approval or clearance as a companion in vitro diagnostic; and,
- an FDA-approved or -cleared indication for use in that patient's cancer; and,
- results provided to the treating physician for management of the patient using a report template to specify treatment options.

2. *Germline (Inherited) Cancer*

Effective for services performed on or after [DATE], CMS has determined that NGS as a diagnostic laboratory test is reasonable and necessary and covered nationally for patients with germline (inherited) cancer, when performed in a CLIA-certified laboratory, when ordered by a treating physician and when all of the following requirements are met:

A. *Patient has:*
   i. *ovarian or breast cancer; and,*
   ii. *a clinical indication for germline (inherited) testing for hereditary breast or ovarian cancer; and,*
   iii. *a risk factor for germline (inherited) breast or ovarian cancer; and*

iv. *not been previously tested with the same germline test using NGS for the same germline genetic content.*

B. *The diagnostic laboratory test using NGS must have all of the following:*
   i. *FDA-approval or clearance; and,*
   ii. *results provided to the treating physician for management of the patient using a report template to specify treatment options.*

~~Effective for services performed on or after [Month/XX] [Day/XX], [20XX], the CMS, proposes that NGS as a diagnostic laboratory test when performed in a CLIA-certified laboratory, when ordered by a treating physician and when all of the following requirements are met:~~
~~The patient has:~~
- ~~ovarian or breast cancer;~~
- ~~clinical indications for germline (inherited) testing,~~
- ~~risk factors for germline (inherited) cancer breast or ovarian cancer; and~~
- ~~not been previously tested using NGS.~~

~~The diagnostic laboratory test using NGS must have all of the following:~~
- ~~FDA approval or clearance;~~
- ~~an FDA approved or cleared indication for use in that patient's cancer; and~~
- ~~results provided to the treating physician for management of the patient using a report template to specify treatment options.~~

C. Nationally Non-Covered *Indications*

1. Somatic (Acquired) Cancer

Effective for services performed on or after March 16, 2018, NGS as a diagnostic laboratory test for patients with acquired cancer *(somatic)* are non-covered if the cancer patient does not meet the criteria noted in section B.1. above.

D. Other

1. Somatic (Acquired) Cancer

Effective for services performed on or after March 16, 2018, Medicare Administrative Contractors (MACs) may determine coverage of other NGS as a diagnostic laboratory test for patients with *advanced* cancer only when the test is performed in a CLIA-certified laboratory, ordered by a treating physician, and the patient has:
- either recurrent, relapsed, refractory, metastatic, or advanced stages III or IV cancer; and,
- ~~either not been previously tested using the same NGS test for the same primary diagnosis of cancer or repeat testing using the same NGS test was performed only when a new primary cancer diagnosis is made by the treating physician~~ *not been previously tested with the same test using NGS for the same cancer genetic content*; and,
- decided to seek further cancer treatment (e.g., therapeutic chemotherapy).

2. Germline (Inherited) Cancer

Effective for services performed on or after [Month/XX] [Day/XX], [20XX], Medicare Administrative Contractors (MACs) may determine coverage of other Next Generation Sequencing (NGS) as a diagnostic laboratory test when performed in a CLIA-certified laboratory, when ordered by a treating physician, when results are provided to the treating physician for management of the patient and when all the following conditions are met:

The patient has:
- ~~a cancer diagnosis other than breast or ovarian cancer,~~ Any cancer diagnosis
- clinical indications for germline (inherited) testing *of hereditary cancers* ,
- risk factors for germline (inherited) cancer ~~other than inherited breast or ovarian cancer~~, and
- ~~not been previously tested using NGS~~ *not been previously tested with the same germline test using NGS for the same germline genetic content. .*