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Image-guided biopsy: the right sample before the right treatment

A scan can show that something is there. It usually cannot say what it is. For many findings, a biopsy – a small sample examined by a pathologist – is what turns “something” into a diagnosis. This issue explains image-guided biopsy, why technique and planning shape whether a sample answers the question, and how travelers can coordinate one in Los Cabos.

Educational only. Not medical advice. One Stop Cabo Health is a medical concierge – not a hospital. Licensed physicians provide clinical care.

From a finding to a diagnosis

Many biopsies begin with a finding: a nodule on a scan, [an abnormal result on a checkup](#). According to RadiologyInfo.org – the patient information site of the Radiological Society of North America (RSNA) and the American College of Radiology (ACR) – when imaging cannot clearly define an abnormality, a biopsy may be necessary. Biopsies are often used to diagnose cancer, but also infections and inflammatory and autoimmune conditions.

The National Cancer Institute (NCI) puts it plainly: a biopsy is often the only way to tell for sure whether a finding is cancer. A pathologist examines the sample and writes a pathology report, and the details in that report can help show which treatment options might work.

That is the diagnosis-first idea in its most concrete form. Treatment decisions rest on the report. The report rests on the sample.

What interventional radiology brings to a biopsy

Interventional radiology (IR) is a medical specialty that uses imaging – X-ray, fluoroscopy, computed tomography (CT), magnetic resonance imaging (MRI), or ultrasound – to pinpoint a problem and guide minimally invasive procedures in real time, according to the Society of Interventional Radiology (SIR). Biopsy is among the procedures SIR lists. See the [image-guided procedures we coordinate in Los Cabos](#).

In an image-guided needle biopsy, the doctor passes a needle through the skin (percutaneously) to the abnormal area, using imaging to decide exactly where it goes. RadiologyInfo.org notes that these procedures are most often performed by a specially trained radiologist, interventional radiologist, or neuroradiologist. (IR also covers image-guided pain procedures — a topic for another issue.)

Not every biopsy is image-guided through the skin. NCI also describes biopsies taken during endoscopy — for example, [during a colonoscopy](#) — and during surgery. The right route depends on where the finding is.

Matching the guidance to the target

Each imaging method brings something different to the needle:

- **Ultrasound** shows the needle as it moves. In its guide to ultrasound-guided breast biopsy, RadiologyInfo.org describes how, with continuous ultrasound imaging, the physician can view the biopsy needle advancing to the lesion in real time — without exposure to ionizing radiation.
- **CT** is commonly used for targets in the chest and abdomen. Before sampling, a limited CT scan confirms where the target is and the safest approach, and the skin entry point is marked.
- **MRI** guidance is used for some findings that MRI shows best — certain breast findings, for example.

The limit: the abnormality has to be visible with the chosen method, so the radiologist uses the guidance best suited to the area, RadiologyInfo.org notes.

Image guidance has also changed where samples are taken. In a randomized trial published in the *New England Journal of Medicine* in 2018, men with suspected prostate cancer who had MRI first — followed by biopsy aimed at the suspicious areas MRI showed — were diagnosed with clinically significant cancer in 38% of cases, compared with 26% for standard ultrasound-guided biopsy without prior MRI. In the MRI group, 28% of men had MRI results not suggestive of cancer and did not undergo biopsy. The MRI target could be mapped onto live ultrasound visually or with software, often called MRI-ultrasound fusion. The findings apply to that setting; the broader lesson is that better targeting starts before the needle does.

Core needle biopsy or fine-needle aspiration

Two needle techniques do most of the work:

- **Fine-needle aspiration (FNA)** uses a thin needle and a syringe to withdraw fluid or clusters of cells.
- **Core needle biopsy** uses a spring-loaded needle to take small cylinders, or “cores,” of tissue. The American Cancer Society notes that a core biopsy removes more tissue than an FNA without needing surgery. A vacuum-assisted device can collect larger pieces still.

Neither is automatically better. Cells can answer some questions; others need more tissue.

RadiologyInfo.org notes that a needle biopsy sometimes does not obtain enough tissue and has to be repeated — particularly when the question is lymphoma. The choice depends on the target, the safety of the approach, and what the pathologist will need — which is why that conversation belongs before the procedure, not after.

Why some biopsies come back nondiagnostic

A biopsy can be technically successful and still not answer the question. SIR's quality standards separate two ideas: diagnostic yield (the share of biopsies that result in a diagnosis) and sample adequacy (whether the sample contains enough material for a diagnosis to be made).

A best-practice guide from the National Lung Cancer Roundtable, published in *CA: A Cancer Journal for Clinicians*, lists common reasons a biopsy is nondiagnostic: the sampled site did not contain the disease, the target was hard to sample during the procedure, the sample held too few tumor cells, or the lesion contained extensive necrosis (dead tissue). The guide notes that a nondiagnostic biopsy sets back the entire path from diagnosis to treatment.

Several of those reasons come down to targeting – choosing the most informative lesion, and the most informative part of it. SIR also describes rapid on-site evaluation, in which a cytopathologist checks FNA samples during the procedure to confirm needle placement and likely adequacy; availability varies.

A nondiagnostic result usually means another procedure. For thyroid nodules, for example, the 2023 Bethesda System for Reporting Thyroid Cytopathology recommends repeating a nondiagnostic FNA with ultrasound guidance, which yields a diagnostic result in 60%–80% of cases. A repeat often works – but it means another appointment, another wait, and for a traveler, possibly another trip.

After the needle: specimen handling and pathology

What happens to the sample matters as much as how it was taken. NCI explains that most tissue is fixed, usually in formalin, embedded in a paraffin wax block, and cut into thin slides; those blocks can be saved and analyzed later. The American Cancer Society notes that, depending on the testing method, a sample may need to be sent fresh or in a preservative – so the planned tests should be known before the procedure.

NCI notes that a pathology report typically reaches the doctor within 10 days, and that additional test results may arrive in separate reports. Good coordination means the team taking the sample, the pathologist, and the physicians who will plan treatment agree in advance on the question and the tests.

Enough tissue for molecular testing

For many cancers, the diagnosis is no longer only “what type.” NCI notes that pathology increasingly includes molecular analysis to refine the diagnosis and inform treatment. That raises the bar for the sample. NCI lists “not enough tumor tissue in your biopsy sample” among the reasons biomarker testing may not help a patient. The National Lung Cancer Roundtable guide adds that when a sample provides a diagnosis but not enough tissue for biomarker testing, repeating the biopsy is generally advisable – weighed against the risk of delaying treatment, the likely benefit of testing, patient preference, and the risk of the biopsy itself. NCI notes that a blood-based “liquid biopsy” may be an option when a tissue biopsy cannot be done safely.

The practical point: ask before the biopsy whether molecular or genomic testing is likely, and make sure the plan accounts for it.

Two common starting points

If you are in Canada and waiting for imaging

Imaging is often the first step toward a biopsy. In the Fraser Institute's *Waiting Your Turn 2025* survey of physicians, the national median wait was 8.8 weeks for a CT scan, 18.1 weeks for an MRI scan, and 5.4 weeks for an ultrasound. The survey does not report a separate wait for biopsy. Bring referral letters, imaging reports, and the images themselves, and plan for the pathology report and written plan to go back to your family physician.

If you are in the United States with a recommendation in hand

You may already have a finding, a biopsy recommendation, or a prior biopsy that came back nondiagnostic. A review of the images and any prior pathology before a procedure far from home is a reasonable step. NCI notes that patients can seek a second opinion from another pathologist; doing so requires the slides and/or paraffin block from the lab or hospital that holds them.

Planning travel around a biopsy

Most needle biopsies are outpatient, but they still need planning. RadiologyInfo.org advises telling your physicians about all medications — including aspirin, blood thinners, and herbal supplements — and allergies; you may be asked not to eat or drink for eight hours beforehand, and if you receive sedation, someone needs to take you home. Do not stop a prescribed medication on your own; that decision belongs to your physicians.

Plan around results, too: who receives the pathology report, who explains it, and how later test results reach you and your physicians at home. The Centers for Disease Control and Prevention (CDC) recommends seeing your own health care provider or a travel medicine clinician at least four to six weeks before a medical trip and bringing copies of your records, including test results.

Records for the doctors at home

The CDC recommends getting copies of all your medical records before you return home — translated into English if needed. For a biopsy, a useful packet includes the guiding imaging, the procedure note (target, type of guidance, needle technique, number of samples), the pathology report, any pending test reports, and where the slides and tissue blocks are stored — which matters if your physicians at home want a second opinion or more testing.

Where a medical concierge fits

One Stop Cabo Health is a medical concierge, not a hospital. Licensed physicians make every clinical decision, and a biopsy happens only if they find it indicated. Our role is ownership of the sequence: one dedicated concierge who coordinates image and record review, specialist evaluation, the biopsy appointment, the handoff to pathology, delivery of results, and the records that travel home with you.

Care is coordinated at top-level private hospital facilities in Los Cabos — on one itinerary, with one point of contact.

Diagnosis first, then the treatment plan

This series started with one idea: a clear diagnosis comes before a treatment plan. A biopsy is often where that idea becomes literal — the sample, the pathology report, and any molecular results are what treatment decisions are built on. Issue 02 covered what comes before an operating room; Issue 03 applied the same plan-first thinking to plastic and reconstructive surgery.

- [Diagnosis first: why a clear plan beats “wait and see”](#)
- [Before the operating room: why pre-surgical evaluation exists](#)
- [Plastic and reconstructive surgery: why the plan comes before the package](#)
- [Executive health checkup in Los Cabos](#)
- [Family history of GI cancer: endoscopy and colonoscopy](#)
- [Image-guided procedures we coordinate](#)

Have a finding that needs a clear answer?

[Start a confidential case](#)

[See the image-guided procedures we coordinate](#)

contact@onestopcabohealth.com · Same-day typical reply

Frequently asked questions

What is an image-guided biopsy?

An image-guided biopsy is a procedure in which a doctor uses imaging — such as ultrasound, computed tomography (CT), or magnetic resonance imaging (MRI) — to guide a needle through the skin to an abnormal area and remove a small sample for a pathologist to examine. It is usually performed by a radiologist or interventional radiologist, and most needle biopsies are done on an outpatient basis.

What is the difference between a core needle biopsy and fine-needle aspiration (FNA)?

Fine-needle aspiration (FNA) uses a thin needle and a syringe to withdraw fluid or clusters of cells, while a core needle biopsy removes small cylinders of tissue. A core biopsy removes more tissue than an FNA without surgery. Which one fits depends on the target, safety, and the tests the pathologist will need.

Why do some biopsies come back nondiagnostic?

A biopsy is nondiagnostic when the sample cannot support a diagnosis. Common reasons include sampling a site that does not contain the disease, difficulty reaching the target, too few abnormal cells in the sample, or extensive dead tissue (necrosis) in the lesion. A nondiagnostic result often means a repeat procedure, which is why targeting and planning matter.

Why does a biopsy need enough tissue for molecular or genomic testing?

Molecular, or biomarker, tests look for specific changes in tumor cells that can help guide treatment, and they need enough tumor tissue to run. The National Cancer Institute (NCI) lists insufficient tumor tissue in the biopsy sample as one reason biomarker testing may not help. Asking before the biopsy whether these tests are likely helps the team plan the sample.

How do I start an image-guided biopsy case with One Stop Cabo Health?

Email contact@onestopcabohealth.com or start a confidential case on the contact page with a short description of the finding and any imaging reports, images, or prior pathology reports. One concierge typically replies the same day. Licensed physicians review your case and decide whether more imaging, a biopsy, or another step fits, and a written plan follows.

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Ready for a clear answer first?

Tell us about the finding and share any imaging, reports, or prior pathology you already have. One dedicated concierge replies, usually the same day.

Start a confidential case

Image-guided procedures we coordinate

Executive health checkup in Los Cabos

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Read online: www.onestopcabohealth.com/insights/image-guided-biopsy