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In my 11 years working in adult primary care and cardiology clinics—and now specializing in outpatient medication reconciliation—one question keeps popping up when patients bring in supplements like hemp-derived oils and tinctures: “The lab report here says ‘ND’ for CBD. Doesn’t that mean none?”

Turns out, it’s a common misconception. “ND” is often misread as “none detected,” as in “there’s zero” of the substance. But in high-quality Certificates of Analysis (COAs), “ND” means something very specific: *Not Detected at the Limit of Detection (LOD)*. That subtle difference matters a lot when we are reconciling patients’ actual supplement use, especially products from companies like **Joy Organics** who invest in transparency, or USDA Organic and **NSF** certifications.



## COA Basics and Why They Matter

First, let’s quickly review what a **Certificate of Analysis (COA)** is. It’s a lab report that confirms what’s inside a supplement. For cannabinoid products, COAs tell us:

- What cannabinoids are present
- Their concentrations or potency (usually in mg per serving)
- Whether harmful contaminants like pesticides or heavy metals are absent
- Batch-specific information that ensures this COA matches the exact product being used

COAs help healthcare providers verify what the patient is actually taking and spot potential safety or interaction issues. But not all COAs are created equal—some labs simply report pass/fail, or fail to include a batch number. That’s a red flag. Reputable brands like **Joy Organics** include QR code batch lookup on the packaging, so you can scan and verify the precise COA for the bottle in hand. Always ask patients to show the actual bottle.

## ND = “Below Detection Limit,” Not “None”

Now, back to **ND with LOD**. The **LOD** stands for the instrument’s *Limit of Detection*. It’s the lowest concentration the testing equipment can reliably detect.

So when a COA says “ND,” it means the cannabinoid is present at a level *below that limit*. That could mean:



- The compound is truly absent
- Or it's there—but in such a tiny amount the lab's instruments can't detect it reliably

This difference is crucial because some patients or providers interpret ND to mean zero content, which would be inaccurate. Instead, it means “too low for detection with this test.”

### Patient-Friendly Explanation Example:

*“Think of it like this: the lab is like a security camera with night vision. If nobody walks in front of it, it records no movement — that's zero. But if someone is there far away and the camera can't pick them up clearly, [nursekey.com](https://nursekey.com) it notes 'Not Detected' because it's below what it can see — not necessarily zero.”*

## Batch and Date Matching: The Key to Accuracy

When documenting supplements, always check the *batch number* and manufacturing date printed on the carton or bottle. COAs are batch-specific, meaning your patient's bottle has a unique report. This feature is standard with trusted brands like **Joy Organics**, who put batch numbers on their boxes and include a **QR code batch lookup** that links directly to the COA. Here's why this matters:

- **Matching the product:** Ensures you're reviewing the correct COA for what the patient actually has.
- **Tracking quality:** Some batches might have slightly different potency or contaminant levels depending on production.
- **Safety:** Identifying expired or recalled products ensures patient safety.

Never accept a generic COA without batch verification. COAs lacking batch numbers or with mismatched dates are a red flag signaling unreliable or outdated testing.

## Potency Units and Serving Size

Potency is often listed as mg (milligrams) of cannabinoid per serving. Here's my mental checklist when reviewing a COA during patient intake:

1. **Units first:** I note doses in mg per serving first, then qualify how the patient really takes it. For example, a tincture label may say 10 mg CBD per 1 ml dropper, but the patient might be taking half a dropper.
2. **Serving awareness:** Some products vary in serving size. Gummies might contain 5 mg CBD each, while oils report mg per drop or ml.
3. **Total cannabinoids vs individual potency:** A COA breaks down cannabinoids like CBDA (acid form), CBD (neutral form), CBG, THC, etc.

Understanding these units is key to safe medication reconciliation—document the exact dose, not just the product name.

## Acid vs Neutral Cannabinoids and Total Calculations

Cannabinoids exist in two main chemical forms in hemp products:

- **Acid form:** For example, CBDA, THCA — these are unheated, non-psychoactive precursors.
- **Neutral form:** CBD, THC — formed when acid cannabinoids decarboxylate (via heat or time).

COAs often report both acid and neutral cannabinoid levels separately. To calculate total CBD equivalents, labs commonly convert acid cannabinoids to neutral form using a conversion factor (~0.877) to reflect molecular weight changes during decarboxylation.

|                              |                      |                   |                              |                 |
|------------------------------|----------------------|-------------------|------------------------------|-----------------|
| Cannabinoid Type             | Reported Amount (mg) | Conversion Factor | Equivalent Neutral Form (mg) |                 |
| CBDA (acid form)             | 20 mg                | 0.877             | 17.54 mg                     |                 |
| CBD (neutral form)           | 10 mg                |                   | 10 mg                        |                 |
| <b>Total CBD equivalents</b> |                      |                   |                              | <b>27.54 mg</b> |

Brands like **Joy Organics** and labs certified by **NSF** or compliant with **USDA Organic** protocols always present these calculations clearly. If a COA just adds acid + neutral without conversion, or omits acid cannabinoids, consider it incomplete and question its reliability.

## How To Use This Knowledge in Clinical Practice

Here's how I apply this practically when a patient says, "My COA says ND for THC, so it has no THC." My short mental checklist is:

1. Ask to see the actual product's bottle and packaging, not just screenshots.
2. Check the batch number and verify the COA via QR code batch lookup if available.
3. Identify the LOD from the COA's notes—what is the minimum detectable level?
4. Clarify that ND means below instrument threshold, not necessarily zero.
5. Review acidity vs neutral cannabinoid data for total potency calculations.
6. Document exact doses in mg per serving, as per patient's intake habits.

This process prevents errors, ensures patient safety, and builds trust during medication reconciliation.

## Why Brands and Certifications Matter

When choosing hemp and cannabinoid supplements, I always recommend patients gravitate toward brands with transparent quality practices:

- **Joy Organics** – Implements batch numbers and QR codes linking directly to up-to-date COAs.
- **USDA Organic** – Certifies products for organic farming and processing standards.

- **NSF** – Provides independent certification covering ingredient authenticity and Good Manufacturing Practices.

These certifications and transparent COAs ensure you see “ND” with proper context and prevent misleading interpretations.

## Summary: The Takeaway for Patients and Providers

- **ND on a COA means “Not Detected at the Limit of Detection,”** not “none.” It reflects instrument sensitivity, not absence.
- **Always verify batch number and COA matching with QR code or printed carton info.**
- **Review potency in mg per serving and account for acid vs neutral cannabinoid conversions.**
- **Choose products backed by credible brands like Joy Organics with USDA Organic or NSF certifications** for reliable information.
- **Ask patients to show the bottle—never rely solely on verbal reports or partial screenshots.**

Understanding ND with LOD improves our patient communication and ensures medication reconciliation is thorough and scientifically accurate. Next time a patient says, “ND means none,” you’ll confidently clarify that it means “below detection limits,” helping them (and your clinical team) make safer, informed decisions.

If you’re new to reviewing COAs or supplement reconciliation in your clinic, keep this blog post handy. And as always, trust the bottle in hand and the batch information—not just words on a paper!

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