

```html

In outpatient medication reconciliation, accurately documenting supplements and cannabinoids has become an essential part of delivering safe, effective care—especially when patients present with their own products. For nurses and clinicians, reading and interpreting Certificates of Analysis (COAs) is both an art and a science. One of the most common questions I get asked during training sessions is: “**Should I chart the cannabinoid content as a percentage by weight or milligrams per serving?**” This blog post dives deep into COA basics, exploring the importance of batch number matching, potency units, and how to reconcile acid vs neutral cannabinoids to ensure you document doses precisely.

## Why COAs Matter in Medication Reconciliation

A Certificate of Analysis (COA) is a document provided by third-party labs that validates the contents, potency, and purity of a given supplement or cannabis product. Reputable companies like **Joy Organics** commonly include COAs to support their claims of potency and quality. COAs are especially important because supplements are not federally regulated like medicines, so verifying what the patient actually takes can prevent inaccuracies or potential interactions.

- **Establishes Trust:** Confirms what’s in the bottle matches the label.
- **Identifies Contaminants:** Checks for pesticides, heavy metals, and microbial contaminants.
- **Ensures Potency:** Verifies levels of active compounds like CBD, THC, or other cannabinoids.
- **Supports Clinical Decisions:** Helps clinicians accurately reconcile doses and counsel patients.

## Match the Batch Number & Date — Why It’s Crucial

One key error I see regularly in notes is documenting supplements referencing a COA that doesn't match the patient’s actual batch. To avoid this, always ask to see the *actual bottle* when a patient says they are taking a cannabinoid supplement. Here’s what to look for:

- **Batch Number:** Usually printed on the carton or label. This number identifies the exact batch tested by the lab.
- **Expiration or Manufacture Date:** Some COAs include a date to confirm freshness.
- **QR Code Lookup:** Many companies, including Joy Organics, provide a *QR code batch lookup* on their packaging. Scan these to access the COA online directly from the source.

Never chart a supplement dose from a COA without confirming the batch number matches the product the patient brings. This step avoids potential errors from referencing outdated or incorrect potency results.

## Potency Units: Percentage by Weight vs Milligrams per Serving

### Understanding Percentage by Weight

COAs usually express <https://nursekey.com/reading-a-certificate-of-analysis-a-clinicians-guide-to-supplement-quality/> cannabinoids in two common ways: **percent by weight (%)** and **milligrams per serving (mg)**. The percent by weight describes how much of a specific cannabinoid (e.g., CBD) makes up the total weight of the sample tested. For example, a COA might show:

This means that 20% of the tested sample mass consisted of CBD. To translate this into a dose, you need to know the serving size the patient actually uses.



## Milligrams per Serving: The Clinician's Friend

Milligrams per serving (mg/serving) translates the percentage into an amount reflecting what the patient ingests each time. For example, a tincture serving size might be 1 mL, equating to 25 mg of CBD per serving. Some COAs or packaging labels provide this info directly, but sometimes you need to calculate it.

For accurate documentation dosing, I always **chart milligrams per serving first, then note how the patient actually takes it** (e.g., "Patient takes 1.5 mL, 37.5 mg CBD per dose"). This helps clinical teams quickly interpret actual cannabinoid intake for decision-making.

## How To Calculate mg per Serving from Percentage by Weight

1. Confirm the item's total weight or volume per serving (e.g., 1 gram serving in a gummy, or 1 mL in an oil).
2. Multiply the total serving weight by the cannabinoid percentage.
3. Example: 1 gram gummy with 20% CBD would contain 200 mg CBD per gummy ( $1 \text{ g} \times 20\% = 0.2 \text{ g} = 200 \text{ mg}$ ).

*Important note:* This math only works if you know the exact serving size and formulation. Misestimating serving sizes is a red flag on my mental checklist.

## Acid vs Neutral Cannabinoids and Total Calculations

Cannabinoids exist in the plant in both acid and neutral forms, such as CBD-A (acidic) and CBD (neutral). Fresh or raw products may contain mostly cannabinoid acids, which convert to neutral forms when heated or processed (a process called decarboxylation).

Form Common Compounds Note Acid Form CBD-A, THC-A Less bioavailable until converted Neutral Form CBD, THC Active form in most supplements

COAs often report both acid and neutral cannabinoids separately. For clinical documentation, the total potential CBD or THC is usually calculated by converting acid forms to neutral equivalents using a factor (~0.877), then summing:

$$\text{Total CBD} = \text{CBD} + (\text{CBD-A} \times 0.877)$$

Many labs and companies like **NSF** certify products with this total cannabinoid content. Documentation should ideally reflect the **total calculated milligrams per serving**, accounting for acid and neutral forms combined.

## Proper Documentation Dose: Best Practices

When documenting cannabinoid supplements, here is my practical checklist:

- **Always ask to see the actual bottle.** Verify batch number and expiration.
- **Scan QR codes** to confirm the most recent COA from the manufacturer's site (Joy Organics uses this extensively).
- **Record the milligrams per serving first**, then document how the patient actually takes it (mL, drops, gummies).
- **Note if the dose reported is mg of neutral cannabinoid or total (acid + neutral).**
- **Flag any vague notes** — "CBD oil" with no dose, COAs with no batch number, or pass/fail only panels without numerical potency values.
- **Use total cannabinoid mg calculated from acid and neutral forms if both are reported.**

For example, a good note might read:



"Patient uses Joy Organics CBD tincture, batch #12345 (confirmed via QR code). COA: 20 mg CBD and 5 mg CBD-A per 1 mL serving. Total CBD calculated ~24.4 mg/mL. Patient takes 1.5 mL/day = 36.6 mg total CBD daily."

## Quality Certifications to Trust

When evaluating COAs, give preference to products verified by reputable certifications:

- **USDA Organic** seal — signifies organic farming and processing standards.

- **NSF Certification** — rigorous lab testing and manufacturing compliance.
- **Third-party COAs** with transparent batch numbers and detailed cannabinoid profiles.

Products from trustworthy companies like **Joy Organics** often include all these features and make it easier for clinicians to reconcile medications accurately.

## Summary Table: Percent by Weight vs Milligrams per Serving

| Factor                                    | Percent by Weight (%) | Milligrams per Serving (mg)     | Definition             | Amount of cannabinoid as % of sample mass |
|-------------------------------------------|-----------------------|---------------------------------|------------------------|-------------------------------------------|
| Absolute cannabinoid dose in each serving | Requires              | Serving Size?                   | No                     | Yes                                       |
| Calculation Required?                     | Yes (to get mg dose)  | No (directly usable for dosing) | Best For Documentation | Dose No (incomplete without serving size) |
| Yes (clinically relevant dose)            |                       |                                 |                        | Yes                                       |

## Final Thoughts

When you see a COA during medication reconciliation, your approach should always start by verifying batch matching and expiration with packaging and QR codes. Then, translate cannabinoid percentages into milligrams per serving based on the patient’s actual usage. Account for both acid and neutral cannabinoid forms in total dose calculations. This approach gives you a practical, clinically relevant documentation dose that improves patient safety and care quality.

If you’re new to this, always ask patients to bring the bottle so you can interpret labels and COAs clearly instead of relying on vague descriptions. With trusted brands like **Joy Organics**, validated by **NSF** or bearing the **USDA Organic** seal, your confidence in documentation accuracy will grow.

Remember these small habits today to prevent large medication errors tomorrow—the difference between “CBD oil” written in the notes and a clear “36 mg total CBD daily” dose can make all the difference in patient outcomes.

...