MCP SERVER | NO CODE | CLOUD HOSTED

# Safe Syringe Rounding MCP for AI Agents

## Preventing Medication Overdoses in Clinical Settings

Safe Syringe Rounding ensures medical accuracy by calculating liquid doses down to the nearest syringe marking. This MCP helps healthcare professionals prevent overdoses by determining the safest volume to draw up, while also confirming if that dose fits within the physical limits of the chosen syringe.

A+ Quality Score 100/100

medical-safety | syringe-rounding | dosage-calculation | overdose-prevention | healthcare-tools

MAINTAINED BY VINKIUS CLOUD FOR AI AGENTS · JULY 2026
vinkius.com/mcp/safe-syringe-rounding

SCAN TO VIEW

# The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

# Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

## Four Pillars of the Vinkius Runtime

**01 — Security by design**

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

**02 — Built on MCP Fusion**

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

**03 — Deterministic observability**

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

**04 — Autonomous operations**

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

| AES-256 | Ed25519 | 24h TTL | V8 Isolate |
|---|---|---|---|
| Encryption at rest | PKI vault signatures | Ephemeral session keys | Sandboxed execution |

## One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

## Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

**01 — Ed25519 PKI Vault**

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

**02 — V8 Isolate Sandboxing**

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

**03 — SSRF Guard**

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

**04 — DLP & PII Redaction**

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

**05 — Cryptographic Audit Trail**

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

**06 — Honeytoken Trap System**

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

# Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

**01 — Server deactivated**

The MCP server is immediately taken offline across the entire cluster.

**02 — All tokens revoked**

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

**03 — WebSocket connections killed**

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

## Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

**Control Plane**

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

**Agent Activity**

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

**FinOps**

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

**Tool Health**

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

**Firewall & DLP**

PII redaction activity, sensitive data protection counters, and security event timeline.

**Incident Log**

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

# Safe Syringe Rounding MCP

3 tools available
Cloud-hosted on Vinkius

Calculating medication dosages manually is risky business. You don't want a rounding error leading to an overdose. This MCP gives medical staff critical protection against calculation mistakes. Instead of relying on memory or complicated formulas, your agent handles the math for you. It figures out the precise volume that must be drawn up while guaranteeing it never exceeds the prescribed dose. The tool verifies if the calculated amount even fits in the syringe you're using. You can connect this through Vinkius and give your AI client immediate access to standardized, life-saving dosing instructions right when you need them.

## Core Capabilities

**01 — Determine safe dosage volume**

Calculates the maximum permissible dose by rounding down to the nearest physical syringe increment.

**02 — Verify syringe limits**

Checks if a specified total volume physically fits within a chosen syringe model.

**03 — Generate clear drawing instructions**

Outputs easy-to-read, imperative commands for staff detailing exactly where to draw the liquid (e.g., 'Draw to the 1.6ml mark').

## One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/safe-syringe-rounding** — connect your AI agent in three steps.

01 You provide your agent with the required medication dosage and the specific type of syringe you're using.

02 The MCP first verifies that the requested volume is physically possible in that syringe, flagging errors if it exceeds capacity. If safe, it calculates the maximum dose by rounding down to the nearest marking.

03 Finally, the system generates a clear, step-by-step instruction for staff, giving them an actionable command like 'Draw to the 1.6ml mark' instead of just raw numbers.

The bottom line is, it takes complex dosing rules and turns them into three simple outputs: safety confirmation, capacity check, and a clear action plan.

## Built For

This MCP is for clinical staff—nurses, paramedics, and pharmacy techs. If your job involves preparing medication doses in a high-stakes environment, you need this. It removes the guesswork from dosing calculations, letting you focus on patient care instead of math.

**Registered Nurse**

Using it to check complex or non-standard drug orders before administering medication to prevent dangerous overdosing.

**Paramedic/EMT**

Quickly verifying safe, rounded dosages on the field when standard markings are insufficient or ambiguous.

**Pharmacy Technician**

Confirming that a calculated dose is both accurate for safety and physically possible with the available dispensing equipment.

## What Changes When You Connect

01 You eliminate the risk of rounding up doses. The `calculate_safe_volume` tool ensures every calculated dose is rounded down, guaranteeing patient safety.

02 It instantly validates equipment usage. Use `check_volume_capacity` to know right away if a required medication volume physically fits in the syringe you're using.

03 You get actionable instructions, not just numbers. The `get_drawing_instruction` tool outputs clear commands like 'Draw to the 1.6ml mark,' saving time and reducing confusion at the bedside.

04 The MCP standardizes dosing calculations across various medical scenarios. It provides a consistent safety layer regardless of drug type or dosage complexity.

05 It integrates directly into your existing workflow via Vinkius, giving your agent instant access to life-critical protocols without needing manual lookups.

## Real-World Applications

**The doctor orders a dose that is slightly too high for the syringe.**

A nurse needs to administer 6.2ml but only has a 5ml syringe. The agent runs `check_volume_capacity` and immediately tells them, 'No, that volume exceeds the capacity of the 5ml syringe,' stopping a potential error before it starts.

**Calculating safe dosage from an ambiguous prescription.**

A pharmacy tech needs to draw up 1.67ml but must follow strict rounding protocols. The agent uses `calculate_safe_volume` and confirms the safest dose is exactly 1.6ml, giving confidence in the preparation.

**Need a clear order for staff training.**

During training, an agent needs to generate documentation on proper technique. It uses `get_drawing_instruction` and gets a perfect command: 'Draw to the 0.55ml mark,' which is ready to be printed or used in a manual.

# Patterns to Avoid

## Calculating dose based on memory

✗ AVOID

Manually calculating a dose like 1.67ml and assuming it's safe, potentially rounding up when protocols demand rounding down.

✓ INSTEAD

Use `calculate_safe_volume` to automatically determine the maximum permissible dose by always rounding down to the nearest marking, guaranteeing safety first.

## Ignoring syringe physical limits

✗ AVOID

Attempting to draw up a 6ml medication into a smaller, 5ml tuberculin syringe because the calculation seemed okay on paper.

✓ INSTEAD

Always run `check_volume_capacity` first. It immediately flags when a volume exceeds what the specific physical container can hold.

## Using raw numbers for orders

✗ AVOID

Writing down '1.6ml' but needing to communicate this clearly to an assistant or trainee.

✓ INSTEAD

Run `get_drawing_instruction`. It translates the number into a clear, imperative command like 'Draw to the 1.6ml mark,' removing ambiguity.

## The Right Fit

Use Safe Syringe Rounding if your workflow involves any manual dosage preparation where rounding down is mandatory for safety (e.g., pediatric doses). Specifically, use it when you need to confirm both the calculated safe volume ( `calculate_safe_volume` ) and the physical feasibility of that dose ( `check_volume_capacity` ). Don't use this MCP if you are simply querying drug databases or looking up general guidelines; those require a reference tool. You also don't need it if your doses never deviate from standard, whole-number markings; then a simple calculator will suffice. However, if the ambiguity of fractional milliliters is part of your daily reality, this is essential.

---

# Safe Syringe Rounding MCP for AI Agents: Preventing Dosing Errors in Healthcare

Today, preparing medication doses involves a tedious mix of reading physical labels, cross-referencing formularies, and manually calculating fractional volumes. Staff often have to stop what they're doing to ensure that the dose is both safe—meaning it rounds down correctly—and actually fits in the syringe at hand. This process is ripe for human error.

With this MCP, your agent takes over the math entirely. You provide the required dose and the equipment type; the system automatically calculates the safest volume using `calculate_safe_volume` and instantly verifies that the physical container can hold it all. The result isn't just a number; you get immediate confirmation of safety.

---

# Safe Syringe Rounding MCP for AI Agents: Creating Clear Medication Instructions

The manual step that always causes confusion is translating the calculated volume into an unambiguous instruction. Writing down 'Draw to 1.6ml' can still be interpreted differently in a fast-

By using `get_drawing_instruction` , you generate a clear, single command for your team. It gives them the exact language they need—like 'Draw to the 1.6ml mark.' The process goes from calculation to actionable instruction in one seamless step.

paced environment. This ambiguity wastes time and increases risk.

# Safe Syringe Rounding: 3 Tools for Accurate Dose Preparation

These tools allow your agent to perform safe volume calculations, check syringe capacity limits, and generate clear drawing instructions instantly.

| # | TOOL | DESCRIPTION |
|---|---|---|
| 01 | `calculate_safe_volume` | Determines the exact, safe volume to draw up by ensuring it never rounds up above the prescribed dose. |
| 02 | `get_drawing_instruction` | Creates a straightforward, human-readable command for staff based on the calculated and rounded volume. |
| 03 | `check_volume_capacity` | Confirms whether a specific total volume can actually be contained within the syringe you've selected. |

# See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

**U** I have a prescription for 3.45ml using a small syringe. What's the safe volume?

**Dosage Safety Check**

Based on rounding down to the nearest marking, the safe volume is **3.4ml**.

Please confirm this dose fits in your equipment. (Capacity check needed)

*Action:* Draw to the 3.4ml mark.

**U** Can I fit 7ml into a standard 6ml vial?

**Capacity Report**

❌ **FAIL:** The requested volume (7ml) exceeds the physical capacity of the selected syringe (6ml).

Please switch to a larger unit before proceeding.

**U** Give me the full instruction for 0.59ml in a tuberculin syringe.

**Drawing Instruction**

The safe, rounded volume is **0.5ml**.

*Instruction:* Draw to the **0.5ml mark** using the tuberculin syringe.

# Frequently Asked Questions

01 **Why does the tool round down instead of to the nearest value?**

In medical dosing, exceeding a prescribed volume (overdose) is much more dangerous than a slight under-dose. Rounding down ensures the practitioner never exceeds the intended amount.

02 **Which syringe types are supported?**

The server supports `1ml_tuberculin` (0.01ml increments), `3ml` (0.1ml increments), and `5ml` (0.2ml increments).

03 **How can I use this with Claude Desktop?**

You can connect to this server using your personal Connection Token from the Vinkius dashboard via the Vinkius Edge URL.

# Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

| CLIENT | WHERE TO CONFIGURE |
|---|---|
| Claude AI | Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint |
| Cursor | Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint |
| VS Code | Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"safe-syringe-rounding": { "url": "…" }` |
| Windsurf | MCP Settings → `mcp_settings.json` → Add endpoint URL |
| ChatGPT | Settings → Tools & plugins → Add MCP server → Paste endpoint |
| Gemini | Extensions → Add MCP Server → Paste endpoint URL |

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

# Safe Syringe Rounding is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

**Start at cloud.vinkius.com →**

vinkius.com · support@vinkius.com

## INDEPENDENT PLATFORM DISCLAIMER

Vinkius is an independent platform and is not affiliated with, endorsed by, sponsored by, verified by, or otherwise authorized by Safe Syringe Rounding. All third-party trademarks, logos, and brand names are the property of their respective owners. Their use in this document is strictly for informational purposes to identify service compatibility and interoperability.

## DOCUMENT INFORMATION

| | |
|---|---|
| Generated | July 2026 |
| MCP Server | Safe Syringe Rounding MCP |
| Server ID | `019f26f1-39bd-708e-8f6c-65e3d235f50c` |
| Platform | Vinkius Cloud for AI Agents |
| Endpoint | `https://edge.vinkius.com/{token}/mcp` |

## LICENSE & USAGE

This document is generated automatically by the Vinkius PDF Engine. Content reflects the MCP server configuration at the time of generation and may change as updates are deployed. For the most current information, visit vinkius.com/mcp/safe-syringe-rounding.