MCP SERVER | NO CODE | CLOUD HOSTED

Weight to Liquid Dose Calculator MCP for AI Agents

Accurate Medication Dosing Calculations by Patient Weight

The Weight to Liquid Dose Calculator handles complex pharmaceutical dosing by converting patient body weight into precise liquid medication volumes. It lets healthcare staff accurately determine total milligrams required and calculate the exact milliliters needed for administration, eliminating manual math errors in critical care settings.

A+ Quality Score 100/100

pediatrics | dosage | medication | clinical | pharmacology

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vinkius.com/mcp/weight-to-liquid-dose-calculator

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.

Weight to Liquid Dose Calculator MCP

3 tools available
Cloud-hosted on Vinkius

This tool tackles one of medicine's most stressful calculations: figuring out the right dose when you only have a patient's weight and a concentration ratio. Instead of juggling formulas on paper or relying on memory, this MCP handles the full dosing path for you. You input the key variables—the patient's mass, the prescribed dose rate, and the drug's current concentration. The system first calculates the total milligrams needed using `calculate_mass_requirement`. Next, it converts that required mass into the corresponding liquid volume via `convert_mg_to_ml`, and finally delivers the exact amount to administer using `calculate_full_liquid_dose`. It's a critical safety check for weight-based dosing. By connecting this MCP through Vinkius, your AI client can provide instant, verifiable calculations right where you need them.

Core Capabilities

01 — Determine required total milligrams

Calculates the overall mass of medication needed by multiplying the patient's weight by the prescribed dosage rate.

02 — Convert drug mass to liquid volume

Takes a calculated target milligram amount and converts it into the precise milliliters (mL) required for administration based on concentration.

03 — Calculate final administered dose

Determines the single, actionable liquid volume that must be drawn up and given to the patient.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/weight-to-liquid-dose-calculator** — connect your AI agent in three steps.

01 Provide your AI client with three pieces of data: the patient's weight, the drug's prescribed dosage rate (e.g., mg/kg), and the concentration in the vial (mg/mL).

02 The MCP first calculates the total required milligrams using `calculate_mass_requirement`. Then, it takes that mass and converts it to a liquid volume using `convert_mg_to_ml`.

03 Finally, it runs the result through `calculate_full_liquid_dose`, giving you one definitive number: the exact milliliters to administer.

The bottom line is that your agent handles the entire chain of calculations, from weight input to final volume output, ensuring maximum accuracy and saving time during critical care protocols.

Built For

This tool is built for clinical staff who deal with complex drug dosages daily. If you're a nurse or pharmacist tired of cross-referencing charts and doing manual math in high-stress situations, this MCP solves that specific pain point.

Registered Nurse (RN)

Uses this to verify complex pediatric doses at the bedside, ensuring the correct mL volume is drawn up for a child based on weight and drug concentration.

Pharmacist

Verifies hospital protocols by running multiple dose scenarios through the calculator, checking conversions from mg to mL before dispensing medications.

Pediatric Specialist

Calculates dosing for patients with fluctuating weights or complex drug regimens, ensuring safety and precision across various weight brackets.

What Changes When You Connect

01 Stop risking errors. Use `calculate_mass_requirement` to immediately determine the total milligrams needed, regardless of how complex the weight-based calculation is.

02 Save time on conversions. The `convert_mg_to_ml` tool handles unit translation instantly, taking you from a measured mass to the volume required for administration.

03 Get one final answer. By running through `calculate_full_liquid_dose`, you get the single, actionable milliliter volume without having to manually calculate the last step.

04 Boost patient safety in pediatrics. The calculator is designed specifically to manage complex weight-based dosing scenarios common with children's medicine.

05 Reduce chart errors. You eliminate the need for multiple manual calculations across different pages of a drug protocol, keeping your documentation clean and precise.

Real-World Applications

Calculating Pediatric IV Drip Rates

A pediatrician needs to administer an antibiotic at 12mg/kg to a child weighing 18kg. The drug is supplied as 60mg/mL. Asking your agent solves this: first, calculate the total mass (216mg). Then, convert that to volume (3.6mL), providing the perfect IV drip rate instantly.

Protocol Change Verification

A nurse needs to switch a drug protocol from 10mg/kg to 8mg/kg for an adult patient weighing 75kg. Instead of recalculating everything, the agent uses `calculate_mass_requirement` and then runs the new figure through `calculate_full_liquid_dose` to verify the precise change in dosage.

Emergency Triage Dosing

During a rapid triage event, you only have the patient's weight (105kg) and the desired dose rate. The agent calculates the initial milligrams needed using `calculate_mass_requirement`, letting the team know exactly how much drug to prepare immediately.

Patterns to Avoid

Using simple unit converters

✗ AVOID

Trying to calculate dosage by just dividing total weight by a fixed number or using an online calculator that ignores the prescribed dose rate (mg/kg). This misses critical steps.

✓ INSTEAD

Use this MCP. Your agent handles the sequence: first, use `calculate_mass_requirement` with the weight and dose rate; then convert to volume using `convert_mg_to_ml`; finally, get the result from `calculate_full_liquid_dose`.

Manual cross-referencing of protocols

✗ AVOID

Opening three different drug guides—one for weight, one for concentration, and a third for volume conversion. This is slow and prone to human error.

✓ INSTEAD

Let your agent manage the entire process in one command. It uses all the necessary calculations internally to give you a single, reliable final dose.

Relying on institutional memory

✗ AVOID

Guessing or remembering complex ratios for different drug classes during a stressful shift. This is dangerous and inconsistent.

✓ INSTEAD

You feed the data into this MCP. It runs all the numbers against established pharmacological rules, giving you an objective calculation every time.

The Right Fit

Use this Weight to Liquid Dose Calculator if your primary need is calculating liquid medication volumes based on a patient's body mass and concentration ratios. This tool excels at sequential calculations (weight -> mass -> volume). Don’t use it if you just need to convert units (e.g., grams to kilograms); basic converters are fine for that. Also, don't use this if you need to manage drug inventory or track patient history; those require different types of

MCPs entirely. This tool is purely for calculating the *actionable dose* at a specific moment in care.

Weight to Liquid Dose Calculator: Solving Dosage Math Errors in Pharmacology

Right now, determining a liquid dose requires multiple manual steps. You start with the patient's weight and multiply it by the prescribed rate (mg/kg). Then you have to look up the vial concentration (mg/mL) and divide the result. It’s copy-pasting data between spreadsheets or writing formulas on a whiteboard, all while under immense time pressure.

With this MCP, your agent handles the entire chain of logic instantly. You provide the three variables—weight, dose rate, and concentration—and you get the single final milliliter number back. It’s not just calculation; it's safety delivered at the speed of thought.

Weight to Liquid Dose Calculator: Streamlining Clinical Calculations in Pediatrics

Pediatric dosing is notoriously complex because every drug must be adjusted for weight, and concentrations vary widely. Today, this means multiple checks across different protocol sheets just to confirm the dose, wasting precious minutes that could be spent on patient care.

Now, you send the data to your agent. It manages the entire process from start to finish—calculating the mass required and then converting it to a safe volume. This doesn't just speed things up; it creates a verifiable record of accuracy for every dose.

3 Tools for Accurate Drug Dosage Calculations and Pharmacology

These three tools allow you to calculate the required milligrams from patient weight, convert that mass into liquid volume, and determine the final dose to administer.

#	TOOL	DESCRIPTION
01	`calculate_full_liquid_dose`	Determines the single, final volume of liquid medication that needs to be administered to the patient.
02	`calculate_mass_requirement`	Calculates the total required milligrams of medication based on the specific weight of the patient.
03	`convert_mg_to_ml`	Converts a specified mass (milligrams) of medicine into the corresponding liquid volume in milliliters.

See It in Action

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

U A patient weighs 22kg, and I need to administer an antibiotic at 15mg/kg. The vial is 7.5mg/mL. How much liquid should I draw up?

Dosing Calculation Report

- **Patient Weight:** 22 kg
- **Target Dose Rate:** 15 mg/kg
- **Vial Concentration:** 7.5 mg/mL

Calculations:

1. **Total Mass Required:** 330 mg (22kg * 15mg/kg)
2. **Volume Conversion:** 44 mL (330mg / 7.5mg/mL)

✅ **Final Liquid Dose to Administer: 44 mL**

U What is the required dose for a baby weighing 12kg, if the drug needs to be 8mg/kg and the concentration is 50mg/mL?

Dosage Calculation Report

- **Patient Weight:** 12 kg
- **Target Dose Rate:** 8 mg/kg
- **Vial Concentration:** 50 mg/mL

Calculations:

1. **Total Mass Required:** 96 mg (12kg * 8mg/kg)
2. **Volume Conversion:** 1.92 mL (96mg / 50mg/mL)

✅ **Final Liquid Dose to Administer: 1.92 mL**

U I need to administer 400 milligrams of drug, but the concentration is 10mg/mL. What volume do I draw up?

Dosing Calculation Report

- **Target Mass:** 400 mg
- **Vial Concentration:** 10 mg/mL

Calculations:

1. **(Mass is already set)**
2. **Volume Conversion:** 40 mL (400mg / 10mg/mL)

✅ **Final Liquid Dose to Administer: 40 mL**

Frequently Asked Questions

01 **How does the Weight to Liquid Dose Calculator handle pediatric dosing?**

The calculator is optimized for pediatrics. You simply provide the child's weight and the drug's dose rate, and it automatically runs all necessary conversions to tell you the exact milliliter volume needed.

02 **Can I use this MCP if the concentration changes in the vial?**

Yes. Just provide the current concentration (mg/mL) along with the weight and dose rate. The calculator will adjust every step, ensuring your final liquid volume is accurate for the drug you have on hand.

03 **Is this better than using a standard online dosing chart?**

It's much more reliable because it runs all three steps—mass calculation, unit conversion, and final dose determination—in one controlled environment. You don't have to trust multiple separate sources.

04 **What kind of calculations does the Weight to Liquid Dose Calculator perform?**

It performs clinical pharmacology math: it takes patient weight, calculates the total milligrams needed for a dose rate, and then converts that milligram amount into the precise milliliters you need to administer.

05 **Does this MCP work if I don't know the specific drug name?**

No, it requires three inputs: patient weight, the prescribed dosage rate (mg/kg), and the concentration. It doesn't care about the drug name; it just handles the math.

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 `"weight-to-liquid-dose-calculator": { "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

Weight to Liquid Dose Calculator 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

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

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