MCP SERVER | NO CODE | CLOUD HOSTED

Pediatric Fluid Calculator MCP

Accurate fluid math based on weight in kilograms.

Pediatric Fluid Calculator uses the Holliday-Segar rule to determine precise fluid maintenance needs for children. It calculates total daily volume, sets appropriate hourly infusion rates, and provides specific electrolyte recommendations based solely on weight in kilograms. This MCP handles complex pediatric math—from 4ml/kg for the first 10kg down to 1ml/kg above 20kg—so clinicians get accurate data instantly.

A+ Quality Score 100/100

pediatrics | fluid-calculation | holliday-segar | medical-engine | nursing

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vinkius.com/mcp/pediatric-fluid-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.

Pediatric Fluid Calculator MCP

3 tools available
Cloud-hosted on Vinkius

When you're caring for a child, getting fluid maintenance calculations wrong isn't an option. This MCP provides clinically precise tools that determine exactly how much fluid a pediatric patient needs daily and hourly. It uses the established Holliday-Segar method, which means it correctly handles weight segmentation: 4ml/kg up to 10kg, then 2ml/kg for the next 10kg block, and finally 1ml/kg for anything over 20kg. You just input the patient's weight in kilograms and get a full breakdown of their fluid requirements—total daily volume, specific hourly rates, and recommended electrolyte concentrations. By connecting this through Vinkius, your AI client accesses established medical standards without you having to switch between calculation sheets or consult multiple reference guides. It’s reliable data that goes straight into your workflow.

Core Capabilities

01 — Determine total daily volume

Calculates the full 24-hour fluid requirement, giving both the total milliliter count and how it should be distributed.

02 — Calculate hourly infusion rate

Converts the required daily amount into a specific milliliters per hour rate for IV pumps.

03 — Get electrolyte recommendations

Provides targeted concentration suggestions for key electrolytes based on the patient's weight tier.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/pediatric-fluid-calculator** — connect your AI agent in three steps.

01 Enter the child's current body weight in kilograms into your AI client.

02 The MCP runs complex pediatric math, applying the Holliday-Segar formula across multiple weight segments automatically.

03 Your agent returns a set of actionable metrics: total daily volume (ml/24h), hourly infusion rates (ml/hr), and electrolyte concentration suggestions.

The bottom line is you get clinically accurate, multi-faceted fluid calculations in one place.

Built For

Nurses, pediatric residents, and clinical care coordinators who manage IV drips and fluid balance are the primary users. They need to move fast when calculating rates, minimizing manual math errors and ensuring immediate adherence to established medical protocols.

Pediatric Nurse

Uses this MCP to quickly verify infusion rates for new drips and ensure the total daily volume matches physician orders while factoring in weight segments.

Pediatric Resident Physician

Relies on these calculators during rounds to confirm appropriate fluid maintenance protocols and check electrolyte requirements against patient vitals.

Clinical Pharmacist

Checks the hourly rates calculated by this MCP before dispensing IV fluids, ensuring they match established weight-based dosing guidelines.

What Changes When You Connect

01 Instantly calculate the full 24-hour fluid volume using `calculate_daily_volume`, eliminating complex, segmented manual calculations.

02 Get immediate IV pump rates with `calculate_hourly_rate`, converting total daily needs into precise milliliters per hour.

03 Avoid guessing electrolyte levels. Use `get_electrolyte_recommendation` to get weight-specific concentration suggestions for Sodium and Potassium.

04 Handles the tricky math of pediatric fluid dosing, automatically applying 4ml/kg (first 10kg), 2ml/kg (next 10kg), and 1ml/kg (over 20kg).

05 Reduces clinical friction. Instead of opening three different calculators, you run one prompt against this MCP to get all necessary data points.

Real-World Applications

A child's fluid needs changed overnight.

The nurse needs to adjust the IV drip rate for a 12kg patient who developed dehydration. She asks her agent: 'What is the hourly infusion rate for a 12kg patient?' The system runs `calculate_hourly_rate` and immediately returns the required ml/hr, so she can safely program the pump without delay or error.

Setting up a new drip protocol.

A resident is starting a complex fluid regimen. They ask for the total daily volume for a 25kg patient. The agent runs `calculate_daily_volume`, providing not just the total ml, but also detailed distribution instructions across the day.

Checking electrolyte balance.

The pharmacist is reviewing bloodwork and needs to know if the fluid mix is right. They ask for `get_electrolyte_recommendation` for an 8kg infant. The tool provides specific mEq/L targets, allowing them to validate the order instantly.

Comparing complex protocols.

A clinician needs to compare a standard maintenance drip versus a high-output fluid regimen. They input both weights and run `calculate_daily_volume` on each, getting two distinct, comparable total ml/day figures.

Patterns to Avoid

Using adult dosing calculators

✗ AVOID

Attempting to calculate a 10kg child's fluid needs using standard body weight formulas meant for adults results in wildly inaccurate and potentially dangerous doses.

✓ INSTEAD

Always use this MCP. Input the patient weight, then run `calculate_daily_volume` to ensure the tool applies the correct pediatric segmentation rules (4ml/kg, 2ml/kg, etc.).

Calculating rates manually

✗ AVOID

Manually dividing the total daily volume by 24 hours is inaccurate because it fails to account for segmented weight tiers or specific infusion needs.

✓ INSTEAD

Let your AI client use `calculate_hourly_rate`. It handles the division and conversion correctly, providing a precise ml/hr rate based on the child's actual weight.

Forgetting electrolyte checks

✗ AVOID

Only calculating fluid volume without checking associated mineral levels can lead to dangerous imbalances like hyper or hypo-natremia.

✓ INSTEAD

Always complete your protocol by running `get_electrolyte_recommendation`. This confirms the concentration of key minerals needed for safe patient care.

The Right Fit

Use this MCP if you need fluid maintenance calculations specifically for pediatric patients and require dosing based on weight segmentation. It's built around calculating total daily volume, hourly rates, and electrolyte targets—all critical steps in IV drip management. Don't use it if your patient is an adult; the formulas are wrong for that age group. Also, don't use it just to check general vitals or calculate things outside of fluid maintenance (like blood glucose monitoring); this MCP only handles structured weight-based fluid math.

The difficulty with pediatric fluid calculations is remembering the rules.

Right now, calculating a child's needed fluids means consulting multiple guidelines and doing complex manual math. You have to remember that the formula changes when the patient hits 10kg or 20kg. That multi-step process—4ml/kg for segment one, then switching to 2ml/kg for the next segment, and finally dropping down to 1ml/kg—is a huge source of human error.

With this MCP, you simply input the weight. Your agent handles all those segments automatically. You get clean, accurate results right away: total daily volume, the hourly rate needed, and even the electrolyte recommendations. It removes the math sheet entirely.

The Pediatric Fluid Calculator delivers precise data using calculate_daily_volume.

No more cross-referencing multiple tables or having to write down weight brackets just to figure out a total. You don't have to manually track the transition from 4ml/kg to 2ml/kg across different segments.

The result is immediate, reliable data. The system handles the entire logic chain so you only need to focus on patient care, not complex arithmetic.

Pediatric Fluid Calculator: 3 Tools

Use these connected tools to calculate total daily volumes, determine precise infusion rates, and check necessary electrolyte concentrations for pediatric patients.

#	TOOL	DESCRIPTION
01	`get_electrolyte_recommendation`	Retrieves specific concentration recommendations for key electrolytes based on the patient's body weight.
02	`calculate_daily_volume`	Calculates the total fluid volume needed over a 24-hour period and breaks down how that volume should be distributed.
03	`calculate_hourly_rate`	Determines the exact milliliter rate required for continuous IV infusion, reported per hour.

See It in Action

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

U Calculate the daily fluid volume for a child weighing 15kg.

For a weight of 15kg, the total daily volume is 80ml/day. This includes 40ml for the first 10kg and 20ml for the next 5kg.

U What is the hourly infusion rate for a 25kg patient?

The required hourly infusion rate for a 25kg patient is 104.17 ml/hour.

U What are the electrolyte recommendations for an 8kg infant?

For an 8kg patient (Neonatal/Infant Tier), the recommended concentration is 150 mEq/L of Sodium and 75 mEq/L of Potassium.

Frequently Asked Questions

01 **Does Pediatric Fluid Calculator handle adult weights for calculate_daily_volume?**

No, this MCP is strictly designed for pediatrics. It uses the Holliday-Segar rule and cannot accurately calculate fluid volumes for adults; you need a different tool for that.

02 **What if I only want to know the total daily volume?**

You can run `calculate_daily_volume` by providing just the weight. This will give you the full 24-hour ml count and distribution details for your plan.

03 **How do I get the rate needed for an IV pump?**

Use `calculate_hourly_rate`. Providing the patient's weight makes sure the result is in milliliters per hour, which is exactly what infusion pumps require.

04 **Does it help with electrolyte checks?**

Yes. Running `get_electrolyte_recommendation` gives you specific concentration suggestions for key minerals like Sodium and Potassium based on the patient's weight tier.

05 **Can I input a range of weights?**

No, you must provide a single current body weight in kilograms. The calculations are based on that specific snapshot measurement.

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 `"pediatric-fluid-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

Pediatric Fluid 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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