SY-10 The harm register: every intervention in the library ranked by how it kills when done wrong

HEALING after the FALL, research library, SY-10

Researched 10 October 2026 by Claude Opus agent for THRIVING after the FALL, Book Four. Library document, unverified.

Related prompts: SY-01, ME-14, ME-07, TR-15, PH-10, and SY-07 (the red-flag list, forthcoming).

Findings by section

1. What this register is, and how it was built

This is the book's safety spine. All 155 summaries were read, and the reports whose interventions can kill were read in their harm, red-flag, protocol and numbers sections. Their errors are folded into one ranked table of rows H1 to H58. Every safety-critical claim in the manuscript should point to a row, and every row should be checked in VERIFICATIONS.md before print, on the pattern of the FEASTING file, which records each check and its status (OPEN, CONFIRMED, AMENDED or DROPPED) (THRIVING project, FEASTING VERIFICATIONS.md).

Ranking. Each row carries two scores from 1 to 5.

- **Frequency (F)** is how often the error is likely to happen in a district of 3,000 after the Fall. 5 means every year somewhere in the district. 4 means every few years. 3 means within a generation. 2 means rare, or only where the practice is kept. 1 means only if the book itself teaches it.
- **Severity (S)** is what the error does when it happens. 5 means it usually kills, or kills many at once. 4 means it can kill or maims for life. 3 means lasting harm. 2 means serious but recoverable. 1 means minor.

The rank is F times S. The scores are my judgement on the figures the library cites, not measurements [VERIFY: inference throughout the F and S columns]. The frequencies come from hospitals, poison centres and trained hands, where the error was caught and treated. A village will make some errors more often (measuring, mixing), some less often, and will lose more of those harmed, because dialysis, antidotes, ventilators and transfusion are gone. The case fatalities below are floors.

The register gives limits, not full dose tables, no method for making any drug or extract, and names the harm of a restricted practice without its content (SY-04 rule).

2. The register

Tier 1 holds the errors that every village will meet. Tier 2 holds those most villages will meet in a generation. Tier 3 holds rare errors and those the book can prevent by refusing to teach them. Reports are cited by ID in the second column. "Never" means never give the intervention to that person.

Tier 1 (score 16 to 25)

ID	Intervention (reports)	Error that kills or maims	Record	F×S	Never	Sign it is going wrong	Remedy	Design rule
H1	Any home treatment, remedy or ritual that takes the place of a proven act (TR-15, FO-10, TR-16, WO-08, SY-01)	Wrong timing: waiting	Ritual instead of treatment HR 2.5, 140 of 172 faith-healing child deaths preventable (FO-10, TR-16). Hernia delay over 24 h raised death elevenfold (WO-08)	5×5=25	Children, labouring women, anyone with a red flag	The red flag outlasts the time limit	Send the same day. The remedy may go along	Every protocol carries a time limit and an exit to the next rung (SY-01 rule 7)
H2	Oral rehydration solution (HY-03, ME-08, IN-11, MA-07)	Too much salt: heaped spoon, tablespoon, too little water	Dangerous solutions from 14.7 to 25.6% of mothers a year or two after BRAC teaching. Infant deaths in Amsterdam and Kashmir (HY-03)	5×4=20	No one, the error is in the jug	Thirst out of proportion, doughy skin, then fits	Stop, remake, breastfeed, no rapid plain water	One recipe, one village scoop, one marked litre. In doubt, add water

ID	Intervention (reports)	Error that kills or maims	Record	F×S	Never	Sign it is going wrong	Remedy	Design rule
H3	Every measured dose (ME-02, ME-05, ME-09, OR-09, FO-06, IN-02)	Arithmetic, decimal, mg read as ml, 1% read as 2%, kitchen spoon	One series found 252 tenfold errors in 6,643 medication reports, mostly calculation and decimal slips, morphine the commonest drug. Teaspoons hold 2.5 to 7.3 ml, a drop varies ±50% (ME-02). Of 47 children given paracetamol “with therapeutic intent” at 60 to 420 mg/kg/day, 24 of 43 died (Heubi 1998, via IN-02)	5×4=20	Not applicable	Unusual drowsiness, vomiting, ringing ears, slow breathing after a dose	Hold the next dose, recheck the sum aloud, treat as overdose	Dose tables by weight band, oral syringe, second person reads back, no trailing zero

ID	Intervention (reports)	Error that kills or maims	Record	F×S	Never	Sign it is going wrong	Remedy	Design rule
H4	Needles, blades and instruments (WO-15, WO-12, SY-01, FO-04, TR-15, HY-10, ME-09)	Reuse, boiled taken for sterile, one blade for many	Unsterile injection is the commonest lay harm (FO-04). Catgut gave a tetanus cluster (WO-15). Reused syringes in Roka, Cambodia, gave 242 people HIV in 2014 to 2015 (WO-12)	5×4=20	Not applicable	Abscess in days, tetanus in 3 to 21 days, jaundice in months	Drain, clean, tetanus care. For the next patient, a new needle	One needle and syringe per person per injection. Steam at 121 °C for instruments that enter tissue. Boiling disinfects only (WO-12)
H5	Care of the newborn's cord (MA-05, MA-01, TR-15, TR-14)	Dung, ash, ghee, oil or powder on the cord, unboiled blade	OR 5.1, 69% of neonatal tetanus attributable (Raza 2004, via MA-05). Untreated neonatal tetanus near 100% fatal, 53 to 62% in hospital	4×5=20	Every newborn	Stops sucking on day 3 to 14, stiff jaw, spasms	Warmth, cup-fed expressed milk, dark quiet room. No village cure	Never list. Warning box in every birth protocol

ID	Intervention (reports)	Error that kills or maims	Record	F×S	Never	Sign it is going wrong	Remedy	Design rule
H6	Opium, morphine, paregoric, poppy tea (ME-05, NU-06, WO-11, ME-02, FO-05)	Tincture for paregoric (25-fold), decimal, infant dose, wrong patient, new batch stronger	About 50 mg as tincture killed an adult (ME-05). FDA had 8 tincture-paregoric mix-ups, 3 fatal (ME-02, WO-11). Poppy seed morphine ranges from under 1 to 2,788 mg/kg (WO-11)	4×5=20	Under 1 year, the drowsy, the drunk, head injury, asthma in attack, dysenteric or dehydrated child	Sedation first, then slow breathing, pinpoint pupils, snoring, unrousable	Withhold, wake, breathe for them, naloxone if held, watch as long as the opium lasts	One person only. One solution strength. Oral syringe. Locked logbook. See the breath-line disagreement in section 4
H7	Closing a wound (WO-03, WO-09, IN-15)	Sewing shut a dirty wound or a bite	Gas gangrene is "seen particularly in wounds sutured closed without debridement" (ICRC, via WO-03). Delayed primary closure at day 4 to 7 failed in about 5% of 25,000 wounds (WO-03)	5×4=20	Bites, dirty, crushed or old wounds	Heat, swelling, pus, crackling skin, fever on day 2 to 4	Open the wound, let it drain, pack it	Checklist step: dirty or bitten means pack open, close at day 4 to 7

ID	Intervention (reports)	Error that kills or maims	Record	F×S	Never	Sign it is going wrong	Remedy	Design rule
H8	Fire, charcoal and heat indoors: braziers, sweat houses, temazcal, lodges (ME-14, NU-03, TR-09, MI-10, TR-08, TR-12)	Burning in a closed room, crowding a lodge, the frail in a hot bath	800 g of charcoal in 19 m³ reached 3,000 ppm (ME-14). Temazcal COHb up to 30% (TR-09). Sedona 2009, 3 dead (MI-10). Japan about 19,000 bath deaths a year (TR-12)	4×5=20	Children, heart disease, the drunk, the frail old. Pregnancy [OWNER]	Headache, several ill in one room, confusion, collapse	Out into fresh air, lie on the side, cool if hot	Warning box. Lodge limits of 15 minutes a round and water at each opening [VERIFY] (MI-10)
H9	Foraging for food and medicine (PH-10, PH-01, ME-14, MI-11)	Wrong plant or fungus: hemlock for parsnip, colchicum for wild garlic, foxglove for comfrey, death cap	Marseille: 2,197 food confusions, 1 death, with a hospital (PH-10). 113 of 163 Austrian colchicum exposures were children	4×5=20	Children gathering alone. Anyone, for wild umbellifer roots	Vomiting 6 h or more after mushrooms, burning mouth then weakness, fits within 90 min	ME-14 Protocol 1, fluids by mouth through the false recovery, keep the specimen	Lookalike plates, never-gather list, rule of three confirmations, specimen kept 72 h (PH-10)

ID	Intervention (reports)	Error that kills or maims	Record	F×S	Never	Sign it is going wrong	Remedy	Design rule
H10	The healer's own stock as a means of suicide (MI-08, OR-06, ME-14)	Pesticides and drugs within reach of a person in crisis	Sri Lankan pesticide bans cut suicide by about 70%. House-hold locks gave no benefit (RR 0.93). Paraquat case fatality 43% (MI-08)	4×5=20	Not applicable	A person at risk with access	Ask plainly, stay, contact after any attempt (deaths 2.2% to 0.2%)	Central locked store, one keeper. Safe-messaging rules in the text
H11	Splints, bandages and casts (WO-05, SY-01, NU-05, TR-07, FO-09)	Too tight, a full cast on a fresh fracture	One-day courses cut gangrene amputa-tions from 25 to 7 in Ethiopia (SY-01). Gangrene 2.5% against 10% after trained and untrained boneset-ters (TR-07)	4×4=16	Not applicable	Rising pain, pale, blue, cold or numb fingers or toes	Cut it open to the skin at once	Check the digits hourly for 48 h, not 24 (WO-05 against FO-09). Slabs only in the first 48 h

ID	Intervention (reports)	Error that kills or maims	Record	F×S	Never	Sign it is going wrong	Remedy	Design rule
H12	Lye, caustics and concentrates in soap-making houses (HY-05, ME-14)	Children drinking lye or bleach stored in drink bottles	Uyo: 87.5% of child caustic swallows came from soap-making homes, half developed strictures (HY-05)	4×4=16	Children near the vats	Drooling, refusing to swallow, burns in the mouth	Nothing by mouth, no acid, no vomiting	Locked, labelled, never in a drink bottle
H13	Feeding infants (MA-06, MA-05, ME-01, IN-16)	Honey under 12 months, prelacteal feeds, undiluted or over-strong animal milk	Prelacteal feeds about four times the death risk (MA-05). All 15 hypernatraemic infants in one series had high-sodium feeds (MA-06)	4×4=16	Under 6 months anything but the breast, under 12 months honey	Constipation and a weak cry (botulism), thirst and fits (salt), wasting	Breast or a correct modified feed, send	Never list. "Never stronger, never weaker" (MA-06)
H14	Heat on numb or sleeping skin (NU-08, NU-09, HY-11, ME-06, MA-05)	Hot-water bottle, hot stone, rewarming the cold with a hot bath	Skin burns at 44 °C in hours, 50 °C in two or three minutes. A bottle stays above 50 °C for 3 hours (NU-08)	4×4=16	Numb skin, the unconscious, newborns, the hypothermic	Redness under the heat, blisters	Remove, cool running water 20 min (WO-04)	Never a hot-water bottle on numb skin (NU-09)

ID	Intervention (reports)	Error that kills or maims	Record	F×S	Never	Sign it is going wrong	Remedy	Design rule
H15	Instruments taken as sterile (WO-12, WO-15, CH-07)	Boiled, flamed or spirit-wiped instruments used inside the body	Multicookers fail. Alcohol and flame do not sterilise (WO-12)	4×4=16	Not applicable	Wound infection, tetanus	As H4	Steam 121 °C for 20 to 30 min at the district. Boil 20 min only for what touches skin

Tier 2 (score 12 to 15)

ID	Intervention (reports)	Error	Record	F×S	Never	Sign	Remedy	Design rule
H16	Grain milled at home (TR-15, PH-10, SY-02)	Weed seed in the flour: *Heliotropium*, *Crotalaria*, *Datura*	Gulran, Afghanistan: about 7,800 affected, 1,600 dead. Uganda 2019: over 200 ill from *Datura* in relief food	3×5=15	Children, the old	Swelling bellies in several people after a drought, or a family delirious	Change the grain at once	Protocol 7 of TR-15 after every bad harvest

ID	Intervention (reports)	Error	Record	F×S	Never	Sign	Remedy	Design rule
H17	Induced vomiting (ME-14, ME-08)	Salt water, ipecac, lavage	Salt emesis: 7 of 14 with known outcome died in one review (ME-08), Hamburg autopsies with sodium up to 245 mmol/l (Türk 2005, via ME-14). Lavage aspirates in about 3%	3×5=15	Everyone	Thirst, fits, coma after salt	Airway, side, water for salt	A printed "never", because Hesperian still lists salt water
H18	Uterotonics, fundal pressure and cord traction (MA-01, MA-02, MA-03, TR-14, ME-07)	Given before the last baby, in obstruction, or raw ergot	Ghana: herbs given in 24 of 41 ruptures, 34 babies died. Fundal pressure: cervical tears RR 4.90. Raw ergot varies 70-fold	3×5=15	Any woman before the last baby. Ergometrine with high blood pressure	No pause between contractions, slow fetal heart, sudden pain then quiet	Stop, left side, most skilled hands	One birth attendant holds them. Feel for a second baby first. Herbal uterotonics X

ID	Intervention (reports)	Error	Record	F×S	Never	Sign	Remedy	Design rule
H19	Restraint and confinement (MI-05)	Face-down holds, chest pressure, hours tied, chains, locked rooms	Of 52 Swedish restraint deaths, 90% prone. 142 US restraint deaths in ten years. Erwadi 2001, 25 chained people died in a fire	3×5=15	Prone, the intoxicated, feverish, exhausted, children	Silence after struggle, gurgling, blue lips, limp	Release at once, side, open the airway	[OWNER] rule. Brief, several people, face up or on the side, never alone, never chained
H20	Concentrates that children swallow: essential oils, wintergreen, neem oil, camphor, clove, boric acid, permanganate (PH-09, ME-06, PH-07, CH-07, MA-11, IN-07, ME-08)	Within reach, taken for syrup, drops dosed by mouth	5 ml of eucalyptus oil can poison a child seriously (PH-09). 5 ml of wintergreen, about 7 g aspirin, killed a child of 2.5 (ME-06). Swallowed neem oil poisoned 13 children and killed one (MA-08)	3×5=15	Every child by mouth	Coma within 30 min to 4 h, fits, vomiting	Side, airway, no vomiting, watch 12 h	Locked shelf, “skin only, poison by mouth” on the label

ID	Intervention (reports)	Error	Record	F×S	Never	Sign	Remedy	Design rule
H21	Home preserving and oil infusions (IN-16, ME-01, ME-11)	Low-acid food or garlic in oil kept warm	Botulism outbreaks from both (IN-16)	3×5=15	Infants (honey)	Double vision, drooping eyelids, weakness descending	Breathe for them, send	Checklist for acid, salt and dryness. No garlic or herb oil kept
H22	Initiation cutting, circumcision and genital cutting (TR-07, TR-15)	Dehydration, sepsis, gangrene, shared blades	Eastern Cape, 532 initiation deaths in 8 years (TR-07)	3×5=15 where kept	[OWNER]	Bleeding, fever, a dark wound, no urine	Pressure, fluids, clean wound, send	[OWNER]. One boiled blade each, water allowed, daily check
H23	Local anaesthetic (WO-11, WO-05, WO-06, CH-07, ME-09)	Sites added without totals, 2% used as 1%, no aspiration, cartridges counted not mg	1,473 deaths among 22,050 local-anaesthetic events reported to FDA 1968 to 2023 (via WO-11)	3×4=12	Reduce in the old, frail, liver or kidney disease, late pregnancy	Tingling lips, ringing ears, confusion, twitching, fit	Stop, side, airway, wait	Count mg. Lesser of 3 mg/kg and 200 mg. Aspirate and wait 10 min
H24	Paracetamol (IN-02, ME-06, ME-14)	Adult tablets to children, combinations, extra doses by several carers	See H3. 8% of children got too many doses in PITCH (IN-02)	3×4=12	Under 1 month except by the healer	Silent 24 h, then pain under the right ribs, jaundice	Methionine 2.5 g every 4 h to 10 g within 10 to 15 h (ME-14)	15 mg/kg, 4 doses, 60 mg/kg/day, 4 g adult. "Never round up"

ID	Intervention (reports)	Error	Record	F×S	Never	Sign	Remedy	Design rule
H25	Iron (ME-08, OR-06, HY-08)	Tablets in a child's reach, iron in malaria areas or in the first week of refeeding	Over 60 mg/kg systemic (ME-08). US child iron deaths fell from 29 to 1 after unit-dose packs (OR-06)	3×4=12	Non-anaemic children where malaria is, severe malnutri-tion	Vomiting, then a quiet phase that is not recovery	No charcoal (it does not bind iron), send	Locked. Count tablets for a 10 kg child: 9 is 60 mg/kg
H26	Thorn apple and the night-shades (ME-07, CH-03, MI-11, PH-10, PH-04, WO-11)	Any part by mouth, seed in food	About 0.1 mg atropine per seed. With care children mostly survive: 240 Israeli children, no deaths (ME-07)	3×4=12	Everyone by mouth	Hot, dry, flushed, wide pupils, delirium for 24 to 48 h	Cool, quiet, guarded, fluids	"Nothing from the thorn apple family, ever" (WO-11). Smoking for asthma at the district only [OWNER]

ID	Intervention (reports)	Error	Record	F×S	Never	Sign	Remedy	Design rule
H27	Tourniquet (WO-01, SY-01)	Too late, too loose, no windlass, left on too long	Before shock about 90% survival, after it about 10%. Without a windlass it fails 99% of the time. Convert by 2 h, release danger-ous beyond 6 h (WO-01)	3×4=12	Not applicable	Bleeding continues, or the limb is cold and dark beyond it	Tighten, or convert to packing and pressure	Taught with a windlass and a time written on the limb. SY-01 refuses tourni-quets, see section 4
H28	Sedatives and anticon-vulsants (CH-04, MI-06, ME-14)	Phenobarbital or diazepam stopped suddenly, given below the breath line, more than two rescue doses	Bromide half-life 12 days, phenobar-bital taper 2 to 3 months (CH-04). Alcohol with-drawal fits at 6 to 48 h (MI-06)	3×4=12	Breathing under 10 a minute	Fits after stopping. Slow breathing after a dose	Restart and taper. Breathe for them	Never stopped suddenly. Two rescue doses at most
H29	Antipsychotics in the old and in delirium (CH-12, MI-05)	Given for agitation in dementia, two at once, abrupt stop	Three-year survival 30% on antipsy-chotics against 59% off them (CH-12)	3×4=12	Dementia, delirium	Falls, stiffness, drowsi-ness	Withdraw slowly, look for the six causes (NU-06)	One pre-scriber, review every month

ID	Intervention (reports)	Error	Record	F×S	Never	Sign	Remedy	Design rule
H30	Metals in remedies and cosmetics (TR-09, TR-02, TR-15, TR-11, TR-13)	Azarcon, greta, kohl, bhasma, mercury pills, calomel	Azarcon and greta 70 to 90% lead. One in five Ayurvedic products held lead, mercury or arsenic. Calomel teething powders gave pink disease to 1 in 500 infants	3×4=12	Pregnancy, infants	A dull, anaemic child with belly pain	Remove the source, test siblings	X at every rung
H31	Infant practices: enemas, purges, uvulectomy, cautery (TR-15, PH-06, TR-04, TR-07, IN-08)	Caustic or hot enemas, cuts in the throat, brands	89% of babies under 3 months had an enema in one South African study (PH-06). Uvulectomy complications 29% (TR-07)	3×4=12	Infants	Bloody stool, no wet nappy for 6 h, bleeding, fever	ORS, pressure, send	Never list

ID	Intervention (reports)	Error	Record	F×S	Never	Sign	Remedy	Design rule
H32	Liver and kidney herbs (TR-15, SY-02, PH-08, CH-05, ME-11)	Comfrey by mouth, *Aristolochia* by shared name, kava extract, chaga powder	18 of 39 Belgian patients developed urothelial cancer after more than 200 g *Aristolochia*. 447 Callilepis deaths among 21,687 Durban post-mortems	3×4=12	Everyone for *Aristolochia*, under 18 for comfrey on skin	Jaundice, swelling belly, falling urine weeks later	Stop, never restart	Graded by use, preparation and dose, not by plant (SY-02)
H33	Water treatment and disinfectants (HY-02, HY-05, IN-07, WO-12)	Too little chlorine, wrong strength on skin, too short a boil	32 bleaches from 12 countries were on average 35% off their label (Lantagne 2009, via HY-02). Milwaukee 1993: chlorine missed Cryptosporidium, 403,000 ill (HY-02)	3×4=12	Not applicable	Cholera or typhoid after "treated" water. Burns from strong solutions	Re-treat, make fresh	One chart of strengths. Chlorine 2 mg/l, 30 min contact

Tier 3 (score 10 or under). Rare, confined to the district, or prevented by exclusion.

ID	Intervention (reports)	Error and record	F×S	Never	Design rule
H34	Magnesium sulphate (MA-04, ME-08, ME-09)	Whole bag run in, 50% into a vein, failed kidneys. ISMP logged 52 accidental overdoses. Kano deaths fell from 20.9% to 2.3% with it	2×5=10	Anuria, myasthenia, heart block	Birth attendant only. Knee jerk, breathing, urine before each dose. Calcium gluconate 1 g at hand
H35	Quinine and cinchona (IN-09, PH-04, ME-02)	Kills from about 1.5 g in an adult and 900 mg in a toddler. Bark varies fivefold. Hypoglycaemia	2×5=10	Child titration, black urine	Sugar with every dose, locked
H36	Adrenaline (CH-13, ME-10, ME-09)	Into a vein: 4 of 30 IV boluses overdosed against 0 of 316 IM. Or withheld: given before arrest in only 14% of fatal cases	2×5=10	Never refused in anaphylaxis	“Into the thigh muscle and nowhere else.” Wide teaching, see section 5.7
H37	Insulin and sulfonylureas (CH-01, ME-10)	Dose lowered on urine sugar, sulfonylurea in a hungry village	2×5=10	Type 1 never without insulin	15 g sugar, recheck at 15 min, watch 72 h after a sulfonylurea
H38	Refeeding the starved (HY-09, MA-07)	Too much too soon. About 2,000 died at Belsen after liberation	2×5=10	Iron in week 1, diuretics, added salt	Children 100 kcal/kg/day, adults 5 to 10 kcal/kg/day at the start
H39	Old vermifuges (IN-08, PH-04)	Santonin, chenopodium oil, male fern, thymol, kerosene on hair. Chenopodium oil, 9 of 12 poisonings fatal	2×5=10	Every child	All X

ID	Intervention (reports)	Error and record	F×S	Never	Design rule
H40	General anaesthesia (WO-10, WO-11, ME-03)	Chloroform sudden death about 1 in 2,000, ether fire, ketamine given fast, alcohol to insensibility	2×5=10	Nobody without a second person on the airway	District only. Ketamine over at least 60 s
H41	Surgery beyond the rung (WO-07, WO-08, IN-12, MA-03)	At Lacor, Uganda, all 3 burr-hole patients died and a moratorium followed. An untrained laparotomy "will very likely kill faster than the disease" (WO-08)	2×5=10	Not applicable	Exclusion below the district
H42	Tubes and home fluids (NU-02, ME-08, MA-04)	Nasogastric tube in the lung: 32 deaths after 95 incidents. Home-made injectable fluid: pyrogens and sepsis	2×5=10	Drowsy patient for a tube	Hypodermoclysis isotonic only, 1 ml/min per site, 1.5 l per site a day. No home IV fluid
H43	Foxglove (ME-07, PH-10, OR-03, OR-02, ME-02)	Therapeutic index about 2. Comfrey confusion killed in 1977 and 2010. Untreated serious poisoning kills 20 to 30%	2×5=10	Children, pulse under 60, vomiting, dehydration	[OWNER]. See section 4
H44	Aconite, colchicum, yew, oleander, *Veratrum*, nux vomica, raw ergot (ME-07, TR-03, PH-10, ME-14)	Aconitine kills at about 2 mg. Yew: 20 of 48 published cases fatal (ME-14). Yellow oleander killed 6 to 7% in Jaffna (PH-07)	2×5=10	Everyone	Never grown, never used

ID	Intervention (reports)	Error and record	F×S	Never	Design rule
H45	Veterinary drugs in people (OR-10, ME-09)	Horse ivermectin paste holds 113 mg, about 38 human tablets. Veterinary oxytocin is twice human strength. Xylazine and pentobarbital kill	2×5=10	Everyone without two readers	Marked “VET-ERINARY” in red, never in the human cabinet
H46	Home vaccine making and injected crude broth (HY-10, IN-06)	Lübeck BCG 77 dead, Mulkowal 19 of 19 dead of tetanus, Cutter 11 dead and over 160 paralysed	2×5=10	Everyone	Exclusion
H47	Psychoactive plants with drugs (MI-11, TR-15)	Lithium with a psychedelic, seizures in 47% of 62 reports. Ayahuasca with antidepressants. St John’s wort with salvaged drugs	2×5=10	Anyone on lithium, antidepressants or listed drugs	Interaction check in the self-test
H48	Antibiotics without a sign (SY-03, FO-04, IN-02)	About 30% unnecessary. Resistance, allergy, delay	5×2=10	Known allergy	Written sign-based indication
H49	Snakebite first aid (WO-13)	Cutting, suction, tourniquet, ice, herbs. Herbs applied: 8 of 15 died or were disabled	3×3=9	Everyone	Still, splint, carry, 20-minute clotting test
H50	Ephedra (ME-07, PH-08, CH-03)	Stroke risk above about 32 mg alkaloid a day. 140 FDA reports, 10 deaths	2×4=8	Pregnancy, high blood pressure, heart disease, the old, children	Adults with a cuff only, see section 4

ID	Intervention (reports)	Error and record	F×S	Never	Design rule
H51	Bloodletting and depletion (TR-13, TR-11, IN-04)	Pneumonia case fatality 19.9% bled against 12.8% not bled	2×4=8	Everyone	X
H52	Hypothermia and heat stroke handled wrong (HY-11, IN-02)	Body-to-body or hot bath rewarming, heat stroke not cooled	2×4=8	Not applicable	Cool to 39 °C in 30 min
H53	Compression on a leg ulcer (CH-10)	Arterial disease missed. Pulses find only 43%	2×3=6	ABPI under 0.5	Full compression only at ABPI 0.8 or above
H54	Couching (CH-08, TR-02)	21% of couched eyes had no light perception	2×3=6	Everyone	X
H55	Vitamin A in pregnancy (MA-10, IN-12)	Above 10,000 IU a day causes birth defects	2×3=6	Pregnancy for high doses	Child doses on two days only
H56	Repeated attempts at a foreign body (WO-16)	Pushes it deeper, tears the canal	3×2=6	Not applicable	One attempt
H57	Compulsory debriefing and benzodiazepines after trauma (MI-01)	Both worsen outcomes	3×2=6	Not applicable	X
H58	Home faecal transplant (ME-12)	A home transplant killed	1×5=5	Everyone	Exclusion

3. How the register kills: seven families of error

The 58 rows reduce to seven ways of killing, each with one design answer.

1. **Delay (H1, H7, H27, H41).** A reasonable home treatment kept past the point of handing over. Answer: a time limit on every protocol.
2. **The measure (H2, H3, H6, H23, H24).** The village will lack decimal points more than drugs. Answer: doses worked out by weight band, a syringe, a second reader.
3. **The wrong patient (H6, H13, H18, H26, H29).** Safe in an adult, lethal in an infant, the dehydrated, the old or the pregnant. Answer: the “never” column read before every dose.
4. **The wrong plant (H9, H16, H32, H43, H44).** Marseille saw 2,197 confusions and one death with a hospital. Without one, deaths move towards untreated case fatality. Answer: lookalike plates and the never-gather list.
5. **The closed space (H7, H11, H14, H19).** A sewn dirty wound, a tight cast, a hot bottle on numb skin and

a face-down hold kill alike: what should drain, swell or breathe cannot. Answer: a physical check, count the digits, look at the face.

6. **Contamination (H4, H15, H16, H21, H42, H46).** Needles, catgut, grain, preserves, home fluids and vaccines harm many at once. Answer: exclusion or one trained maker.
7. **The remedy that is the poison (H17, H20, H30, H39, H51).** Salt-water emesis, wintergreen, azarcon, santonin, the lancet. Answer: name them, because readers already use them.

4. Where the library disagrees, carried rather than smoothed

Topic	One position	The other	How the register handles it
Opioid breath line	12 a minute: hold the dose, breathe for them below it (NU-06, ME-14, TR-15)	10 (ME-05, MI-06). Naloxone below 8 (WO-11)	Proposal: hold below 12, breathe for them below 10 or if unrousable [OWNER] [VERIFY]
Magnesium breath line	16 (WHO, MA-04, ME-08, WO-14)	12 (Hesperian)	Hold below 16, emergency below 12 (MA-04)
Magnesium urine line	30 ml/h (MA-04, WO-14)	25 ml/h (ME-08)	30 ml/h, the stricter
Foxglove	One bed, one named healer, logbook, locked chest (ME-07, ME-02)	Never gather for any purpose (PH-10). Grow potent plants only if the district can assay them (OR-03)	OR-02 reconciles by level [OWNER]. Until then, recognition and the comfrey confusion only
Ephedra dose	UK Schedule 20: 600 mg a dose, 1.8 g a day	Chinese practice 3 to 9 g a day. PH-08: 3 g a dose, 9 g a day, with a cuff	A fivefold gap (CH-03). The register adopts adults only, with a cuff, and states both figures
Aconite	Processed aconite at the district (TR-03 Protocol E)	X for all internal use (TR-11, TR-15, PH-08)	X. Processing cannot be checked after the Fall
Restraint	Deaths in prone holds, chains and long restraint (MI-05)	The causal link is unproven (de Boer 2023, via MI-05)	MI-05 leaves the rule to the owner [OWNER]. Floor: never prone, never chained, never alone
Chlorhexidine on the cord	Nothing on the cord (MA-01, TR-14)	7.1% for 7 days where newborn deaths are high (MA-05)	Chlorhexidine is the one named exception
Lidocaine with adrenaline	3 mg/kg (WO-11, ICRC)	6 mg/kg (WO-07, ICRC) or 7 mg/kg (WO-03, ME-09)	No adrenaline-raised ceiling below the district
Lidocaine ceiling	Lesser of 3 mg/kg and 200 mg, even with adrenaline (WO-11, CH-07)	7 mg/kg, maximum 500 mg with adrenaline (ME-09). King's 10 ml of 2% (WO-05)	3 mg/kg and 200 mg. ME-09 should be corrected before print [VERIFY]

Topic	One position	The other	How the register handles it
ORS salt	WHO "one level teaspoon" of 3 g	UNICEF, IFRC, Hesperian: half a level teaspoon	A level 5 ml teaspoon holds about 5.9 g, so WHO's wording fits only a 2.5 ml spoon (HY-03). Half a level 5 ml teaspoon, or one village scoop
Salicylate age	No aspirin or willow under 12 (ME-02)	No aspirin under 16, no willow or meadowsweet under 18 (IN-02, ME-06, WO-11)	The stricter
Tourniquets	The book must refuse to teach them (SY-01)	Teach the windlass tourniquet with conversion by 2 h (WO-01)	WO-01. The 90% against 10% survival gap outweighs the harm [OWNER]
Injection below the district	Never (SY-01)	IM magnesium by the birth attendant (MA-04), IM adrenaline by anyone trained (CH-13)	Two named exceptions, both IM, both from sealed ampoules
Boiling time	10 min (WO-03, FO-11)	20 min (WO-12)	20 min for instruments, 1 min at a rolling boil suffices for drinking water [VERIFY]
Newborn resuscitation stop	10 min (the brief)	20 min, 15 if never a heart rate (MA-05, ILCOR 2020)	MA-05
Ergometrine	No longer recommended for prevention (WHO 2025, via ME-07)	Second line for treatment (MA-02, MA-09)	Second line, cold-kept, clear ampoule, never with high blood pressure
Kava water drink	D (TR-15)	C (TR-10)	[OWNER]
Sweat bath in early pregnancy	Excluded (MI-10)	Left to the tradition (TR-08)	[OWNER]
Splint checks	Hourly for 24 h (FO-09)	48 h, on rising pain (WO-05)	Hourly for 48 h

5. The safety architecture

5.1 The never list. These are things the book tells every reader never to do, at any rung. Each traces to a row. The list is short on purpose (see 5.6).

1. Never put anything on a newborn's cord, chlorhexidine excepted (H5).
2. Never give honey under 12 months, or anything but the breast or a correct feed under 6 months (H13).
3. Never make anyone vomit, and never give salt water (H17).
4. Never close a bite or a dirty wound (H7).
5. Never use one needle or blade on two people (H4).
6. Never give opium or morphine to a baby under 1 year, a drowsy or drunk person, a head injury or a child with diarrhoea (H6).

7. Never give anything to make labour faster, and never press on the belly (H18).
8. Never give anything by mouth to a person who cannot swallow (H6, H26, ME-10).
9. Never burn charcoal in a closed room (H8).
10. Never hold anyone face down (H19).
11. Never eat a wild root of the carrot family, and never use foxglove, monkshood, autumn crocus, yew, oleander or thorn apple as medicine (H9, H44, H26).
12. Never store lye, bleach or oils in drink bottles (H12, H20).

5.2 The one-person-only list. Held by one named, trained person with a logbook, with a second person checking every dose (ME-02, OR-06, MI-12).

Intervention	Holder	Rung
Opium, morphine, codeine (H6)	Village healer	Village
Magnesium sulphate, misoprostol, oxytocin, ergometrine (H18, H34)	Birth attendant	Village
Lidocaine injection (H23)	Village healer	Village
Phenobarbital and diazepam (H28)	Village healer	Village
Quinine (H35)	Village healer	Village
Insulin (H37)	Healer with the patient	Village
Foxglove, if allowed (H43)	One named healer [OWNER]	Village or district [OWNER]
Ephedra with a cuff (H50)	Healer [OWNER]	Village
Ketamine and ether (H40)	Anaesthetist with a second person	District
Restraint, if allowed (H19)	Lead of a team [OWNER]	Village
The poison and controlled store (H10, H25)	One keeper, spare key sealed with the council	Village

Adrenaline is deliberately left off: its harm is mostly delay (CH-13, ME-10), so every household with an allergic member should be able to give it into the thigh.

5.3 Dose tables with tolerances. The limits the book prints, from the cited reports.

Item	Dose	Ceiling	Tolerance	Measure	Stop when
ORS (HY-03)	1 l water, half level 5 ml tsp salt (3 g), 6 level tsp sugar	Never under 1 l of water	Salt 1.75 to 5.5 g/l safe, 7 g or more dangerous	Village scoop, marked litre	Thirst out of proportion, puffy eyelids
Paracetamol (IN-02)	15 mg/kg every 4 to 6 h	60 mg/kg/day, 4 g adult	10%, never round up	Syringe	Any jaundice
Oral morphine (ME-05)	5 mg every 4 h adult, 2.5 mg frail, child over 1 year 0.15 mg/kg, maximum 5 mg	Rise no more than 50% a day	One solution strength only	1 mg/ml solution, oral syringe	Breathing under the line, unrousable
Lidocaine 1% (WO-11)	As needed	0.3 ml/kg, maximum 20 ml (3 mg/kg, 200 mg)	None upward	Syringe, mg written	Tingling lips, ringing ears

Item	Dose	Ceiling	Tolerance	Measure	Stop when
Adrenaline 1 mg/ml IM (CH-13)	0.5 ml adult, 0.01 ml/kg child	Repeat every 5 min	0.1 ml	1 ml syringe	Pounding headache, chest pain
Magnesium sulphate (MA-04)	4 g IV over 5 min plus 10 g IM, then 5 g IM every 4 h	5 g per maintenance dose	None upward	Labelled 50% ampoules	Breathing under 16, knee jerk lost, urine under 30 ml/h
Activated charcoal (ME-14)	1 g/kg within 1 h	50 g	Not applicable	Scale	Drowsy, caustic, iron, alcohol
Sugar for low sugar (TR-15, ME-10)	15 to 20 g by mouth, or 2.5 g under the tongue in a child under 15 kg	No upper limit that harms	Too much does no harm	Level teaspoon	Awake and eating
Ethanol for methanol (ME-14, ME-03)	0.6 g/kg load, about 1.9 to 2 ml/kg of 40% spirit	Hold if unresponsive	Narrow, see ME-03	Measured cup	Coma, low sugar
Atropine for organophos-phates (ME-14)	1 to 3 mg IV, doubled every 5 min	To heart rate over 80, systolic over 80, dry chest	A fast pulse is not a reason to stop	Salvaged ampoules	Delirium, fever
Quinine (IN-09)	10 mg/kg three times a day, 7 days	1.8 to 2 g a day	Narrow	Scale	Deafness, blurred vision, dark urine
Foxglove leaf (ME-07) [OWNER]	65 mg (1 grain) twice daily, half in the frail [VERIFY]	3 grains twice daily	Therapeutic index about 2	Scale	Nausea, yellow vision, pulse under 60

5.4 The lookalike plates. One page per pair, both drawn at the same stage, with the separating field marks and the sign of poisoning (PH-01, PH-10, TR-15, ME-07).

1. Hemlock and water hemlock (*Conium maculatum*, *Cicuta* spp.) against wild carrot, parsnip and celery.
2. Autumn crocus (*Colchicum autumnale*) against wild garlic (*Allium ursinum*), smelt leaf by leaf.
3. Foxglove (*Digitalis purpurea*) rosette against comfrey (*Symphytum officinale*) and borage.
4. Yew (*Taxus baccata*) against pine and spruce.
5. Death cap (*Amanita phalloides*) against field mushrooms and puffballs.
6. Monkshood (*Aconitum napellus*) root against horseradish.
7. False hellebore (*Veratrum album*) against yellow gentian (*Gentiana lutea*): alternate against opposite leaves.
8. Thorn apple (*Datura stramonium*) seed in grain and beans.
9. Pennyroyal (*Mentha pulegium*) sold as mint.
10. *Aristolochia* spp. sold as *Stephania* or *Akebia*.

5.5 The self-test before giving anything. Protocol 1 below, run aloud every time. It folds together SY-01's ten rules, TR-15 Protocol 1, ME-02's measuring rules and ME-09's two-reader rule.

5.6 The economy of warnings. Warnings everywhere are read nowhere. Computerised drug alerts are overridden in 49 to 96% of cases, but high-level overdose alerts in only 27% (van der Sijs 2006). Few and specific warnings are heeded. The register uses three weights.

- **A black box**, at most one per chapter, for the tier 1 rows only.
- **A "never" line** at the head of each protocol, naming the patients in the "Never" column.
- **A checklist step** inside the protocol for everything else.

What fails the harm test at every rung is left out, not printed with a warning, unless readers already do it (salt-water emesis, dung on the cord, raw ergot). Then it is named once, plainly, as a "never".

5.7 Boldness. The register must not make the book timid. People die of too little as well: the tourniquet after shock (H27), adrenaline too late (H36), newborn resuscitation stopped at 10 minutes instead of 20 (MA-05), magnesium withheld (Kano deaths fell from 20.9% to 2.3% with it, MA-04), morphine withheld from the dying (NU-06). After the Fall the alternative is not a hospital but no care (SY-01). Each design rule is the least restriction that removes the error.

Evidence grades

Grades for the safety measures, not the interventions, which are graded in their own reports.

Safety measure	Grade	Basis
Restricting access to lethal means (central store, removing pesticides)	A for bans, X for household locks	Sri Lanka bans cut suicide about 70%. Household locks RR 0.93 in a trial of about 224,000 people (MI-08)
Unit-dose and child-resistant packaging	B	US child iron deaths 29 to 1 (OR-06)
Checklists before procedures	B, contested	Surgical deaths 1.5% to 0.8% across eight hospitals (Haynes 2009). No significant change in Ontario's 101 hospitals, 0.71% to 0.65% (Urbach 2014). Checklists work where behaviour is the bottleneck (SY-01)
Oral syringe instead of spoons	B	Syringes measured correctly in 92%, teaspoons hold 2.5 to 7.3 ml (ME-02)
Short training for lay practitioners	B	Gangrene amputations 25 to 7 after one-day bonesetter courses (SY-01, WO-05)
Fixed scoop and marked litre for ORS	B	BRAC pilot: 87% of solutions safe and effective (HY-03)
Second-person read-back of doses	C	Standard nursing practice, no village trial [VERIFY]
Pictograms on labels	X as sole means	Understood by 16.5% (OR-09)
Lookalike plates and the rule of three	D	No study measures their error rate (PH-10)

Safety measure	Grade	Basis
Warning boxes in print	D	No study of printed warnings in lay health books was found [VERIFY]. Alert-fatigue data from computers suggest that fewer, specific warnings work better (van der Sijs 2006)
Monthly death and harm review	C	MI-12, OR-05. No trial at village scale

Means ledger

Rung	What it can do against harm	What the error costs here
Hands and knowledge	The never list, red flags, side position, breathing for someone, stopping the remedy, keeping the specimen	Highest. No antidote, no measure
Hearth	ORS scoop and marked litre, sugar, boiled water, a locked box	Measuring errors (H2) begin here
Garden and still	A scale, a pressure cooker, a locked shelf, the fenced plot (OR-02)	Plant confusions (H9) and concentrates (H20) begin here
Village dispensary (300)	One trained healer, the one-person list, logbook, dose tables, oral syringes, salvaged naloxone, adrenaline, magnesium	Most tier 1 and 2 errors are caught or made here
District infirmary (3,000)	Ketamine with a second person, steam sterilisation, injected quinine, the death review	Batch and contamination errors harm many
Hospital reference	Antidotes, dialysis, Fab fragments, ventilators, transfusion	Its case fatalities are the floor of what a village will see

Harm test

The register itself can do harm in five ways.

1. **By false precision.** The F and S scores look like measurements. They are judgements [VERIFY]. A row ranked low may be common in a given district.
2. **By making the book timid.** A healer who has learnt every warning may withhold adrenaline, magnesium, a tourniquet or morphine, and the patient dies of the omission. Section 5.7 is the guard.
3. **By omission.** A harm not in the register will not be checked, and the library has blind spots.
4. **By drift.** The book will be copied by hand. A copied "0.5 ml" becomes "5 ml". Every dose should be printed in words as well as figures [VERIFY: my proposal].
5. **By the disagreements left open.** Where two reports give two numbers, a reader may take the wrong one. The owner must resolve section 4 before print. A register that counts the wrong thing also misleads: Earle found asylums counting discharges as cures, one woman "recovered" 22 times (MI-05).

Red flags

Signs that a treatment has gone wrong. The book's full list is SY-07, forthcoming.

1. **Breathing slower than the line, or unrousable, after opium, a sedative or magnesium.** Breathe for them, 10 breaths a minute for an adult, 20 to 30 for a child, in hour-long relays with a written rota (ME-14). Naloxone if held. Calcium gluconate for magnesium. Honest comfort: many survive with breathing alone.
2. **Tingling lips, ringing ears and twitching during a local anaesthetic.** Stop. Side position. Most fits after lidocaine end on their own.
3. **A slow or chaotic pulse after a tea or root.** A heart poison. Lie flat, keep still, no potassium, no calcium. The village can only wait. Keep the plant.
4. **A child vomiting, then drowsy or fitting, after a medicine, fruit or tonic.** Sugar under the tongue every 10 to 20 minutes, on their side (TR-15).
5. **Rising pain and a pale, cold limb under a splint, cast or tourniquet.** Cut it open now.
6. **Fever, spreading redness and crackling under the skin after a wound was closed.** Open it.
7. **A newborn who stops feeding after something was put on the cord.** Tetanus. Dark, quiet, milk by cup. The next baby is the one that can be saved.
8. **Jaundice weeks after a herb, or after an overdose of paracetamol.** Stop everything. The liver may fail, and without a transplant it often kills. Tell the family plainly.
9. **Silence after a struggle during restraint.** Release at once, turn on the side, open the airway.
10. **Several people ill in one room.** Carbon monoxide until proved otherwise. Everyone out.

The case against

The case against having a register at all. Rolf Teschke argued over kava that regulators counted cases that failed causality assessment and banned a plant for an extract's harm (Teschke 2008, via TR-15). Case reports show that a harm can happen, not how often. The answer is to grade use, preparation and dose, and to say where no denominator exists.

The case against checklists. Urbach and colleagues found that mandatory surgical checklists across Ontario's 101 hospitals made no significant difference to deaths, and Lucian Leape's editorial asked whether they were really used (Urbach 2014). A checklist ticked and not done gives false comfort. The answer is short checklists read aloud with a second person and audited by the death review (MI-12).

The case against warnings. van der Sijs and colleagues showed that clinicians override most drug alerts, and blamed the design: low specificity and needless interruption (van der Sijs 2006). A book full of warning boxes is the printed version. The answer is the three weights in section 5.6.

The case against the hospital's numbers. Hesperian, King and the humanitarian manuals assume a referral route. After the Fall the error rate may rise or fall. Only the village's own register will tell (SY-01, OR-05).

The case against timidity. SY-01 holds that the counterfactual is no care. Chyka on charcoal and Höjer and Benson on lavage show that "doing something" after poisoning often harms (ME-14), yet too little magnesium, adrenaline or morphine also kills. The register requires that every "never" be matched by something the reader can do instead. Today pharmacists and poison centres catch most of these harms. After the Fall only structure will: one recipe, one strength, one keeper, one register [VERIFY: inference].

10-line summary

1. The deadliest error is delay: a reasonable remedy kept past the time it should have handed over (H1).
2. Next come measuring errors: salty ORS, decimal and strength mix-ups, kitchen spoons (H2, H3).
3. Shared needles, things on the cord, sewn dirty wounds and opium in the wrong patient complete tier 1 (H4 to H7).
4. Indoor fire, foraging confusion, lye in soap-making homes and the healer's own poisons as a means of suicide kill in every generation (H8 to H12).

5. Seven families cover all 58 rows: delay, the measure, the wrong patient, the wrong plant, the closed space, contamination, the remedy that is the poison.
6. The library disagrees on the opioid breath line (12, 10 or 8), magnesium (16 or 12), foxglove, ephedra (fivefold), lidocaine, ORS salt, tourniquets and restraint. The owner must decide before print.
7. The book needs a 12-item never list, an 11-item one-person list, one dose table with ceilings, ten lookalike plates and a spoken self-test.
8. Means restriction and unit packaging have the best evidence. Household locks failed. Checklists are contested.
9. Warnings must be few and specific: black boxes for tier 1 only.
10. Tourniquets, adrenaline, magnesium and morphine kill by omission too: the register must not make the book timid.

Open questions

1. Which opioid breath line will the book print: 12, 10 or 8? [OWNER]
2. Will the village keep a foxglove bed, an opium poppy bed or ephedra? [OWNER] (ME-07, OR-02)
3. What restraint, if any, is allowed, by whom and for how long? [OWNER] (MI-05)
4. Does the book teach the windlass tourniquet against SY-01's refusal? [OWNER]
5. Which injections may be given below the district beyond IM magnesium and IM adrenaline? [OWNER]
6. Does a printed warning box change lay behaviour, and what error rate does the rule of three have? No study was found for either [VERIFY] (PH-10).
7. How should the book handle initiation and genital cutting where a community keeps them? [OWNER]
8. Who keeps the register and the death review, and who may change the book from it? [OWNER] (SY-01 rule 10, MI-12)

Sources to read in full

1. Library reports ME-14 (poison protocols), ME-02 (dosing arithmetic), TR-15 (traditional-remedy harms), PH-10 (never-gather list), ME-07 (poison plants), SY-01 (the ten rules), MI-05 and MI-08 (restraint, means restriction).
2. van der Sijs and others 2006, on why alerts are overridden.
3. Urbach and others 2014 with Haynes and others 2009, on what checklists do and do not do. The NEJM full texts were not read here.
4. FEASTING VERIFICATIONS.md, the pattern for tracing claims.

At the bedside after the Fall

A household. The never list on the wall, the ORS scoop and marked litre, a locked box, an oral syringe, the side position, rescue breathing, and the habit of keeping a sample of what was eaten. First failure to expect: a salty ORS, or adult medicine spooned into a child.

A village of 300. One trained healer, one birth attendant, the one-person list, a logbook, the dose table, the lookalike plates, a two-key store, and a monthly meeting where every harm is told. Salvaged adrenaline, magnesium, naloxone, misoprostol and lidocaine if they exist. First failure to expect: a second carer dosing without knowing the first had, or a remedy kept a day too long.

A district of 3,000. Steam at 121 °C, an anaesthetist with a second person, the death review, the master register and the authority to change the book. It holds the foxglove and stramonium decisions [OWNER]. First failure to expect: a contaminated batch of fluid, catgut or grain that harms many before anyone connects the cases.

Protocols

Protocol 1. The self-test before giving anything

Said aloud by the healer, with the second person listening.

1. **Who.** Name, age, weight in kg (weighed). Pregnant, breastfeeding, under 1, over 65, liver or kidney disease, allergies?
2. **Never.** Read the row's "Never" column. If the patient is on it, stop.
3. **What else.** Everything taken today, teas and salvaged drugs included. Never two products with the same drug or two salicylates (SY-01 rule 5). No St John's wort with listed drugs (TR-15).
4. **What exactly.** Read the label aloud: name, strength per ml or tablet, expiry, colour. Brown, cloudy or particles: do not give (CH-13). "VETERINARY": stop and recalculate (ME-09).
5. **How much.** Both people work the dose by weight separately and write it in mg and ml. If they differ by more than 10%, start again.
6. **How measured.** Oral syringe or scale. Never a kitchen spoon, never drops of a strong drug.
7. **Why.** The sign that justifies it. No written sign, no antibiotic (SY-01).
8. **Watch and stop.** Name the stop sign, the time limit and the next rung.
9. **Write it.** Name, dose, time, giver, checker, before the next patient.

Protocol 2. When something goes wrong after a dose or procedure

1. Stop the drug, remedy or procedure. Do not give the next dose.
2. Airway: lay the patient on their side if drowsy or vomiting.
3. Breathing: count for a full minute. Below the line, breathe for them: adult 10 a minute, child 20 to 30, chest just visibly rising, a new breather every hour by written rota, never one exhausted person alone (ME-14, PH-10). Organophosphate and botulism patients may need days or weeks (ME-14, IN-16).
4. Nothing by mouth if drowsy, fitting or vomiting.
5. No vomiting induced, ever.
6. Charcoal 1 g/kg, maximum 50 g, only within 1 h and only if they can drink it unaided, and not for iron, alcohols, caustics or hydrocarbons (ME-14).
7. Sugar under the tongue if a child is drowsy or fitting and low sugar is possible.
8. Release anything tight: splint, bandage, hold.
9. Keep the bottle, plant or food. Label it with time and name.
10. Write down the times of the dose and of each sign.
11. Send for the next rung if any red flag is present, and do not wait for it to arrive before steps 1 to 8.

Protocol 3. The locked store

1. One keeper and one deputy. A sealed spare key with the council (OR-06).
2. Inside: opioids, sedatives, iron, quinine, concentrates, pesticides, essential oils, lye, veterinary drugs.
3. Every item labelled with name, strength in words and figures, date and use.
4. Every issue written: date, item, quantity, patient, giver.
5. Count the controlled drugs weekly, with a second person.
6. Discard multi-dose vials 28 days after first puncture (ME-09).
7. Nothing in a drink bottle, ever.
8. Pesticides held centrally, not in houses (MI-08).

Protocol 4. Adding a row to the register

1. After every harm or death, write what was given, by whom, how measured, and what happened.

2. At the monthly review, name its family of error (section 3).
3. If no row covers it, add one with all nine columns.
4. Send the row to the district, which changes the book.
5. Counts go out, names stay in (OR-05).

Numbers to carry

1. **Half a level teaspoon of salt, six level teaspoons of sugar, one litre.** ORS. In doubt, add water.
2. **15 mg/kg, four times a day, 60 mg/kg a day, 4 g adult.** Paracetamol.
3. **25 times.** How much stronger opium tincture is than paregoric. The confusion has killed.
4. **3 mg/kg, 200 mg, 20 ml of 1%.** The lidocaine ceiling.
5. **0.5 ml into the thigh, 0.01 ml/kg for a child, every 5 minutes.** Adrenaline 1 mg/ml.
6. **16 and 30.** Magnesium: breaths a minute and urine ml an hour below which the next dose is held.
7. **10 a minute, hour-long relays.** Breathing for an adult.
8. **1 g/kg, 50 g, 1 hour.** Charcoal, and only if they can drink it themselves.
9. **48 hours.** How long to check the fingers and toes under a splint.
10. **Tenfold.** The commonest fatal dosing slip is a moved decimal (ME-02). Work every dose twice, with two people.

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