FO-06 The manuals that worked: Where There Is No Doctor, the Ship Captain's Medical Guide, military and mission handbooks

HEALING after the FALL, research library, FO-06

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How this document was made

This report treats manuals for treating the sick without a doctor as one genre with a track record. No study has measured whether readers of any of these books had patients who did better. The evidence therefore comes from three places: what the books say they assume and how their editions changed, the few audits and user surveys, and trials of nearby interventions (printed materials, lay health workers, algorithms, checklists, tourniquets). The reference list says which sources were read in full and which only as abstracts or summaries. Copyrighted wording is paraphrased. Buchan, who is in the public domain, is quoted.

1. Findings by section

1.1 The question every manual answers

Every manual in this genre has to say what the reader should do at the edge of the page. The record gives five answers.

1. **Send for the physician.** Buchan (1769) and Gunn (1830) assumed a doctor existed but was distant or too dear.
2. **Call the radio.** Ship's guides came to rely on telemedical advice from shore. Without it they are of limited use (Horneland 2011).
3. **Go to the health centre.** Where There Is No Doctor (WTND) lists 21 danger signs that mean skilled help is needed soon (Werner et al. 2024b). It also says the right action depends on how far away help is (Werner et al. 2024a).
4. **Evacuate.** Military doctrine before 2001 came from civilian trauma courses that assumed an ambulance within minutes (Butler and Blackbourne 2012).
5. **Assume there is no referral.** Primary Surgery (King et al. 2024) and the ICRC's War Surgery (Giannou and Baldan 2009) are written for a clinician who usually cannot send the patient on.

The Fall removes the first four. Only the fifth group, together with Werner's distance rule, speaks to the reader's real situation.

1.2 Domestic medicine: Buchan and Gunn

Buchan. Domestic Medicine appeared in Edinburgh in 1769. It ran to nineteen editions in Buchan's lifetime and is said to have sold about 80,000 copies (Wikipedia, William Buchan, and MIT OpenCourseWare 2005, both secondary) [VERIFY]. It was translated widely, and Spix and Martius reportedly found it in use in the Brazilian interior.

The 1791 twelfth edition, read here in full text (Buchan 1791), puts regimen and prevention before cure. It is written in plain English and ends with a dispensatory and a table of apothecaries' weights. In the advertisement, Buchan says later corrections went into notes, partly to warn readers in dangerous situations and prevent fatal mistakes. So a revision cycle with a safety purpose existed from the start. On smallpox inoculation he tells the reader to act even without skilled help: "where such cannot be had, the operation ought not upon that account to be neglected".

The book carries the heroic therapies of its day as standard advice:

- **Pleurisy.** "A man may lose twelve or fourteen ounces of blood as soon as it is certainly known that he is seized with a pleurisy", with more bleeding if the pain continues. That is about 340 to 400 ml [VERIFY: own conversion].
- **Inflamed eyes.** Bleeding "is always necessary", ten or twelve ounces from the jugular vein.
- **Worms.** A purge of 25 to 30 grains of jalap with 6 or 7 grains of calomel (mercurous chloride), once or twice a week for two or three weeks.

Some advice holds up. Frostbitten limbs are to be rubbed with snow or cold water, never warmed at the fire.

Gunn. Gunn's Domestic Medicine, or Poor Man's Friend first appeared in Knoxville in 1830 at 440 pages and later grew past 1,000. The 1876 edition was the 160th, and the 234th and last appeared in 1920 (Tennessee Encyclopedia). It favoured local herbs but also prescribed opium, mercury and vigorous bleeding, and treated risky medicine as fit for lay hands (Library Company of Philadelphia). Both of these sources were seen only as search summaries.

Lesson. No outcome data exist for either book. Popularity measured how useful readers found them, not whether their patients lived. Their errors were the medical consensus of the time. A manual written after the Fall will carry the consensus of 2026 into a world that cannot check it. So the durable content (prevention, observation, nursing, records) must be kept apart from the content that dates (drugs and doses), so the second can be replaced without rewriting the first.

1.3 The Ship Captain's Medical Guide and the WHO guide for ships

Harry Leach wrote the Ship Captain's Medical Guide in 1868 to go with the Merchant Shipping Act 1867. It cost a shilling, and every British ship had to carry it (Royal College of Surgeons of England 2018). The first edition was just over 90 pages. It put prevention first, then covered accidents, poisons, scurvy, fish poisoning, ague and drunkenness, and included birth and death forms (RCS 2018, plus search summaries). The Act also required lime or lemon juice at sea. Supply later shifted to West Indian limes, which are lower in vitamin C, and scurvy returned (search summary) [VERIFY in the scurvy document]. Manual and regulation were right in principle, but a substitution in the supply chain that the reader could not see defeated them. A 1869 tally of 1,460 seafarers dead of disease and 2,839 drowned is known only from a search summary (Nautilus International 2019) [VERIFY].

The 23rd edition (23 September 2019) was comprehensively rewritten for vessels without a medical professional and is required with Category A or B stores (Maritime and Coastguard Agency 2019). I did not read its text. The WHO International Medical Guide for Ships first appeared in 1967. The 1988 edition was in more than 30 languages. The 2007 third edition is aligned with the Essential Medicines List, with an addendum covering 55 medicines (WHO 2007, publisher descriptions). A fourth edition has been in drafting since 2021.

Evidence on use. These readers are the closest modern analogue to the reader after the Fall: literate adults with a short course, a fixed medicine chest and no doctor.

- **Froholdt and Grøn (2022).** 262 responses. 96% knew the chest was mandatory, 98% knew the guide and 86% used it. About 74% had no difficulty. The rest struggled to find chapters, found the language technical, or found the book too long. Users wanted a shorter book ordered by how common problems are, decision aids rather than discussion, pictures, checklists and pull-out pages. They reported that guide and chest often did not match, and some called the guide Eurocentric.

- **Horneland (2011).** Guides built like textbooks presume the reader can name the disease, and the index shows this. Without radio advice they may be of limited use. He calls for algorithms that go from what the officer sees to what to do, assuming no medical knowledge.
- **Oldenburg and colleagues (2014).** They tested 465 German officers. 28.6% had faced a serious emergency at sea, most often trauma (37.9%). The mean knowledge score was 70.7% (range 26.8 to 100%). Self-rated readiness did not track knowledge. They suggested refreshers every two years rather than five.

1.4 Where There Is No Doctor and its siblings

Origins and reach. David Werner, a biologist without medical training, made notes and pencil sketches for villagers in the Sierra Madre of western Mexico who read poorly (Hobson 2024). These became Donde No Hay Doctor in 1970, with the English edition in 1977. The village project, Piaxtla, was run by villagers from a centre at Ajoya and served more than 100 villages, some two days away by mule (True 1994). Its start date is given as anything from 1963 to 1966 [VERIFY]. Language counts differ by source: 80, 90 or more than 100. Wikipedia reports more than a million copies (Wikipedia, Where There Is No Doctor). Saloojee (1998) found much-used copies in remote district hospital libraries.

Design.

- *Limits measured by distance.* The worked example is a mother bleeding after birth. Half an hour from a centre, take her there. Far away and bleeding heavily, massage the womb or inject the medicine even without training, because when the danger of doing nothing is clearly greater, the worker should do what they are reasonably sure will help (Werner et al. 2024a). The rule is fixed and the threshold moves with distance. This is the most useful idea in the genre for HEALING.
- *Restraint with medicines.* Colds, coughs and most diarrhoea need no medicine. Overuse of chloramphenicol bred resistant typhoid. Unnecessary injections harm millions (Werner et al. 2024a).
- *Danger signs as the spine.* Chapter 4 asks for temperature, pulse and breathing four times a day, with fluids, urine and stools. It then lists 21 danger signs with page references for what to do until help comes. Examples are 12 hours without urine, a day unable to drink, fever above 39°C that will not come down or lasts 4 to 5 days, pain for more than 3 days, and blood pressure of 140/90 or more in pregnancy. It tells the reader to seek help at the first sign and to send a written report with the messenger (Werner et al. 2024b). After the Fall the list still works. The instruction that follows it does not.
- *A book on using the book.* Helping Health Workers Learn (first edition 1982, second 2026) draws on programmes in 35 countries and was field-tested for three years. It teaches use of WTND's index, charts and records, and warns that a manual used as a recipe book can do more harm than good (Werner and Bower 2026).
- *Field testing at scale.* The New WTND credits 34 field-test groups in 24 countries plus Jerusalem, and about 207 reviewers (Hesperian credits page). Hesperian also has partners review translations, and it field-tested adapted texts in Nepal (Hesperian 2015, search summary).

Siblings. Where There Is No Dentist (Dickson 1983) and Where Women Have No Doctor (Burns et al. 1997) followed. A Book for Midwives (Klein 1995) was revised in 2004 and updated in 2010, 2013 (malaria in pregnancy) and 2020 (all from catalogue summaries). Pregnancy drug advice needed replacing twice in ten years.

The only audit. Babu and Eisenberg (2010) report that early reviewers from WHO, UNICEF and the Christian Medical Commission called the book unrealistic and dangerous. A Hesperian survey had over 90% of readers rating it accurate. I could not reach that survey. Three physicians reviewed the Prevention chapter of the 2007 edition, and one reviewed First Aid. Together these were 43 pages.

- *Treatment.* Current in only 62% of Prevention sections and 88% of First Aid sections.
- *Diagnosis.* Likely correct in 18.5% (Prevention) and 81% (First Aid).

- *Prevention advice.* Correct in 96% and 100% of sections.
- *Errors found.*
  - Tetracycline for amoebic dysentery.
  - Piperazine for worms.
  - The claim that fever rules out amoebic dysentery.
  - Penicillin alone for infected wounds.
  - A 30-day sling after dislocation.
  - Children's doses by age, risky where about 28% of under-fives are stunted.
  - A pyrantel dose discrepancy [VERIFY].
  - Cardón cactus juice for nosebleed, species unnamed [VERIFY].
- *Traditional remedies.* Only honey on burns was supported.
- *Treatment failure.* Rarely addressed.

The 2009 reprint adopted 44 corrections fully or in part. The authors called the book a useful stop-gap and proposed a field trial. I found none.

Lesson. Prevention advice ages well. Drug advice ages fast. Dosing by age is dangerous. External audit worked: the publisher corrected the book within months.

1.5 A Barefoot Doctor's Manual (Hunan 1970)

The Hunan Institute of Traditional Chinese Medicine published the manual in 1970. The NIH's Fogarty Center translated it in 1974 (DHEW (NIH) 75-695) in a small print run (Fogarty International Center 1974). According to its preface, it covers about 197 diseases. It illustrates 338 herbs and briefly describes 184 more drugs, with prescriptions chosen for effectiveness, popular use, ease and cost. Diagnosis starts from signs and symptoms, and laboratory work and X-rays are largely left out. Traditional and Western disease names appear side by side, and Western drugs are used selectively. Herb quantities are daily doses split in two, the herbs are dried, and fresh herb is generally doubled. Critics (Dunning, Skeptoid episode 259, and Reason 1983, both search summaries) argue that it showed what the worst-equipped medics fell back on, not good Chinese medicine. I found no evaluation of outcomes. Its structure anticipates Horneland's call for symptom-first entry. Its weaknesses are choosing remedies by popularity and the doubling rule, which ignores how much the active content of plants varies.

1.6 Maurice King: Primary Surgery and Primary Anaesthesia

King's Medical Care in Developing Countries (Oxford University Press, Nairobi, 1966) grew from his stint at a remote Ugandan mission hospital and sold over 50,000 copies (Leeds obituary, search summary). Primary Anaesthesia (1986, 169 pages) was written for non-specialist doctors and medical assistants (Wellcome catalogue). I did not see its contents. Primary Surgery appeared in 1987 (trauma) and 1990 (non-trauma) [VERIFY]. A second edition of volume 1, with Cotton as chief editor, was published free in 2024 under a non-commercial licence, at 859 pages (King et al. 2024).

Its design is the most explicit in the genre for a reader with no backup.

- Section 1.6 is headed "Referral is mostly a myth" (King et al. 2024). It explains why: no petrol, impassable roads, fees, bribes, patients unwilling to travel. It warns that referral surgeons see only the patients who arrived. It tells the reader to weigh urgency against how feasible referral really is, and not to back out of life-saving surgery from modesty.
- The foreword notes how rare it is for a book to say what not to do and what to do when things go wrong. It says 15 essential procedures cover 80% of the surgery needed.
- The second edition grades operations by difficulty, corrects errors (including in Caesarean section), adds HIV, and favours ketamine.

- The text is written in the imperative. Conditions are graded on seven degrees of commonness. It separates what must be known from what can be looked up, tells readers to keep it in theatre and photocopy freely, and warns that the reader may be surgeon and anaesthetist at once.

I found no outcome study.

1.7 The ICRC's War Surgery (2009, 2013)

War Surgery descends from Surgery for Victims of War (1988 onwards). It is written for rural general surgeons for whom referral is impractical or impossible. It says military manuals assume helicopters and specialists, which makes their lessons inadequate or irrelevant there. It puts the limit of surgery in anaesthesia and post-operative nursing, not in the surgeon (Giannou and Baldan 2009).

- **Heroic surgery.** It never replaces good surgery. It is better to make a patient fit to travel than to attempt inadequate definitive care.
- **Delay.** Long delays change who arrives: the severely injured die and the survivors come in septic. Even the Lokichokio airlift (over 30,000 patients in 16 years) ran one to three weeks behind.
- **Historical mortality.** Mortality among wounded who reached hospital fell from 16.7% in the Crimea to 2.5% in Vietnam. ICRC hospitals reported 2.2% to 6.1%. These are case series of survivors who reached a surgeon.
- **Two operations.** Excise the wound, then close it later by delayed primary closure.
- **Annex 1.A.** Ten criteria for new technology: need, maintenance, repair, spares, cost, skill, continuity of skill, local availability, ethics and sustainability. This is a ready test for every instrument HEALING recommends.

1.8 Military manuals

The 1982 Special Forces handbook. In 2008 a retired colonel, Warner Anderson, called it a relic. He cited drinking kerosene, eating cigarettes and maggot debridement (Aftergood 2008). Sterile maggot therapy is in fact a current wound treatment [VERIFY in the wound document], so the critic's list is itself a warning about judging old practice. A 2008 USSOCOM handbook replaced it.

MEDCAP in Vietnam. Wilensky (2004), a surgeon who served there, describes superficial care without laboratories, X-rays, surgery or follow-up. He found no evidence that goodwill transferred to the South Vietnamese government (publisher description and reviews, via search summary). I found no MEDCAP manual. Care given once, with no records or follow-up, can look like medicine without working as medicine.

Tactical Combat Casualty Care (TCCC). This is the best documented case of a field doctrine that was wrong, was corrected, and then visibly saved lives.

- In 1970 Maughon found that 193 of 2,600 American dead in Vietnam (7.9%) died of bleeding from a limb, the leading preventable cause.
- In 2001 medics were still taught not to use tourniquets, to hold prolonged direct pressure, to give large volumes of crystalloid, and to inject morphine into muscle (Butler and Blackbourne 2012, Table 1).
- Kelly and colleagues reviewed 982 deaths. In 77 of 232 potentially preventable deaths, no tourniquet had been used. Bleeding from isolated limb wounds caused 7.8% of all combat deaths.
- From March 2005 every deploying soldier was issued a tourniquet. The 75th Ranger Regiment, which trained everyone in TCCC, had 3% preventable deaths among 419 casualties, against 15 to 28% elsewhere (Butler and Blackbourne 2012).
- Kragh and colleagues (2009) studied 2,838 casualties in Baghdad. 232 received tourniquets and 31 of them died. Survival was 90% when the tourniquet went on before shock and 10% after. Mortality was 11% with prehospital application and 24% when the first tourniquet went on in the emergency department. All 5 who needed a tourniquet and did not get one died. Transient nerve palsy occurred in 1.7%, and no limb was lost because of a tourniquet.

- TCCC guidance (Shackelford et al. 2015) is as follows. Two hours is generally safe. Reassess by 2 hours, and convert to a pressure dressing if the casualty is not in shock, the wound can be watched, and it is not an amputation. Risk rises after 3 to 4 hours. Irreversible damage is common after 6 hours, and a tourniquet should not then be removed without close monitoring and a laboratory. A change proposed in 2026 keeps the two-hour reassessment (Journal of Special Operations Medicine 2026, search summary).

Prolonged casualty care. Military doctrine now covers care when evacuation fails, with Army training for up to 90 hours (US Army, undated, search summary) [VERIFY]. It still assumes evacuation will come in the end.

Lesson. A wrong default can kill at scale for decades. A cheap, well-taught intervention with a timing rule can show up in mortality figures within a few years. Moving a protocol from a setting with backup into one without is dangerous.

1.9 Does a manual change outcomes? Adjacent evidence

No trial has tested any of these books. The nearest evidence:

- **Printed materials alone** change professional practice by a median of 2 percentage points (Cochrane 2012, range 0 to 11) or 4 points (2020 update, interquartile range 1 to 9). Few studies reported patient outcomes (Giguère et al., abstract only).
- **Lay health workers** with training and supplies probably increase immunisation (RR 1.22, 95% CI 1.10 to 1.37). They may reduce child deaths (RR 0.75, 0.55 to 1.03) (Lewin et al. 2010).
- **Symptom-based algorithms** (IMCI): pooled child mortality RR 0.85 (0.78 to 0.93), low certainty (Gera et al. 2016, abstract only).
- **Checklists.** A 19-item surgical checklist was followed by deaths falling from 1.5% to 0.8% in eight hospitals, in a before-and-after study (Haynes et al. 2009).
- **Pictures** closely linked to text improve attention, recall and comprehension, most of all for readers with low literacy (Houts et al. 2006, abstract only).

A book alone shifts practice a little. A book inside a system of trained people, algorithms, checklists, supplies and refreshers shifts outcomes. After the Fall the book has to help build that system.

1.10 What each manual assumed

Manual	Reader	Backup assumed	Supply assumed	Errors corrected	Outcome evidence
Buchan 1769	Literate household	Physician sometimes	Apothecary	In notes across 19 editions	None
Gunn 1830	Plain-reading household	Distant doctor	Herbs, opium, mercury	Not traced	None
Ship Captain's Guide 1868	Ship's master	None, later radio	Statutory chest	Rewritten to 23rd edition 2019	Users' knowledge tested
WHO ship's guide 1967	Officer with about 40 hours of training	Radio	Chest, often mismatched	3 editions	Use surveyed
WTND 1970	Village worker, low literacy	Health centre, by distance	Small kit	After 2010 audit	Audit, no outcomes
Barefoot Doctor 1970	Basic schooling	Commune clinic	Herbs plus some drugs	Not traced	None

Manual	Reader	Backup assumed	Supply assumed	Errors corrected	Outcome evidence
Primary Surgery 1987 to 2024	District clinician	Usually none	District stock	Caesarean and others	None
ICRC War Surgery 2009	Rural surgeon	Impractical	Basic theatre	Editions since 1988	Hospital series
TCCC 1996 onwards	Every soldier	Evacuation	Issued kit	No-tourniquet doctrine reversed	Strong observational

1.11 Design rules for a manual with no backup

1. **Enter by what the reader sees, not by disease name** (Horneland 2011, IMCI).
2. **Order by commonness and danger, and grade difficulty** (King et al. 2024, Froholdt and Grøn 2022).
3. **Replace "refer" with a decision by distance.** For each danger sign give three branches: help in time, help too late, no help, with honest comfort in the last [VERIFY: my inference from Werner and King].
4. **Say what not to do and what to do when treatment fails** (Babu and Eisenberg 2010, King et al. 2024).
5. **Dose by weight, with a maximum and the strength assumed.**
6. **Match book and stock**, and check them against each other.
7. **Keep durable content apart from content that dates.** Put drug pages on replaceable, dated sheets.
8. **Build in external audit and a correction cycle.**
9. **Field-test every page with its readers.**
10. **Pair a short action card with the long reference.**
11. **Teach the book, with refreshers every two years.**
12. **Use pictures tied to text, drawn with the audience.**
13. **Test every technology against the ICRC's ten criteria.**
14. **Refuse heroic therapy and defaults imported from settings with backup.**
15. **Keep records so the book can learn.**

2. Evidence grades

Grades follow the series scale. For each practice the table separates what the tradition claimed, what the record shows and what modern science infers.

Practice	What its proponents claimed	What the record shows	What modern science infers	Grade
Bloodletting for fevers and inflammations (Buchan, Gunn)	Relieves inflammation	Standard advice for a century, no outcome records in these books	Harmful in fever, dehydration and blood loss	X
Calomel and mercury purges (Buchan, Gunn)	Expels worms and corrupt humours	Repeated weekly dosing advised	Mercury is toxic. Modern anthelmintics replace it	X

Practice	What its proponents claimed	What the record shows	What modern science infers	Grade
Piperazine for worms, tetracycline for amoebae, penicillin alone for infected wounds (WTND 2007)	Effective	Corrected after the 2010 audit	Less effective or wrong drug (Babu and Eisenberg 2010)	X
Children's doses by age	Simple	Risk of overdose where stunting is common	Dose by weight	X (by inference)
Cardón cactus juice for nosebleed	Stops bleeding	No evidence found	Unknown	D
Honey on burns	Heals	Confirmed in the audit's literature check	Supported by trials [VERIFY in the burns document]	A or B [VERIFY]
Prevention-first content	Prevents illness	Correct in 96 to 100% of audited sections	Durable content	B (accuracy, not outcomes)
Printed materials alone	Changes practice	Median +2 to +4 percentage points	Small effect	A (low to moderate certainty)
Lay health workers with training and supplies	Improve health	Immunisation RR 1.22. Child mortality RR 0.75 (CI crosses 1)	Probable benefit	A (low certainty for mortality)
Symptom-based algorithms (IMCI)	Reduce deaths	Pooled RR 0.85	Probable small benefit	A (low certainty)
Surgical safety checklist	Prevents errors	Deaths 1.5% to 0.8%	Likely benefit, uncontrolled design	B
Pictures linked to text	Comprehension	Better attention, recall and comprehension	Robust for comprehension, mixed for adherence	B
Early limb tourniquet, before shock	Saves life	90% versus 10% survival	Strong association, not randomised	B
Prolonged direct pressure only, no tourniquet, for limb bleeding that will kill (2001 doctrine)	Safer	7.8% of combat deaths from limb bleeding	Wrong default	X
Tourniquet left on for more than 2 hours	Accepted risk	Fasciotomy 36% versus 28%, not significant (Kragh 2008). Damage above 6 hours	Time-dependent harm	B
Delayed primary closure of war wounds	Fewer infections	ICRC standard in large series	Supported	B

Practice	What its proponents claimed	What the record shows	What modern science infers	Grade
Distance-dependent action rule and "assume no referral"	Better decisions	Practice of Werner and King	Plausible, untested	C
Field testing drafts with users	Usable books	Convergent practice: Hesperian, Werner and Bower, maritime surveys	Plausible, untested on outcomes	C
Barefoot Doctor's herbal prescriptions	Effective, cheap	Chosen by popular use	Each plant must be tested separately	C to D
One-off civic medical aid without follow-up (MEDCAP)	Wins goodwill, treats the sick	Superficial care, no follow-up	No evidence of benefit	D
Refresher every 2 years	Keeps knowledge current	Knowledge mean 70.7%, self-rating uninformative	Expert suggestion	D

3. Means ledger

The ledger is given for three things: the manual itself, triage by danger signs, and control of limb bleeding. The other procedures named in this report belong to other documents in the series.

The manual itself

Rung	What can be done	What it changes
Hands and knowledge	A memorised short list: danger signs, the distance rule, weight-based dosing arithmetic, tourniquet timing	Recognising danger early. No book to check
Hearth	One printed copy kept dry in a tin or oilcloth. A pencil record of each case. A cloth tape and a steelyard or spring balance to weigh children	Doses by weight become possible. Records begin
Garden and still	Copies made by hand, with plant drawings checked against living plants. A pull-out action card per danger sign. A scale for weighing herbs	Plant identification improves. Herb doses become reproducible
Village dispensary (300 people)	The full book plus a reference shelf (Where There Is No Doctor, Primary Surgery, the ship's guide). A register of every patient, page used and result. Stock matched to the drug pages. Yearly review of pages against results	The book starts to learn. Stock and book agree

Rung	What can be done	What it changes
District infirmary (3,000 people)	A small editorial group that audits pages, issues dated correction slips, field-tests new pages with village healers and runs refreshers every two years	External audit and a correction cycle, as with the 2009 WTND reprint
Hospital before the Fall (reference)	Current guidelines updated continuously, telemedicine, specialist referral	The book is a stop-gap within a system

Triage by danger signs

Rung	What can be done	What it changes
Hands and knowledge	Recognise the danger signs. Count pulse and breathing. Check whether the person can be woken	Earlier action
Hearth	Thermometer if salvaged. Record temperature, pulse, breathing, fluids, urine and stools four times a day (Werner et al. 2024b). Oral fluids	Trends visible. Dehydration caught
Garden and still	Clean water, sugar and salt for oral rehydration (see the series' rehydration document)	Treats the commonest danger sign (cannot drink, heavy diarrhoea)
Village dispensary	Blood-pressure cuff if salvaged, microscope for malaria and stool, basic drugs	Pre-eclampsia and hypertension thresholds usable
District infirmary	Ten beds, a nurse or doctor, sterile room, laboratory bench	Some danger signs (obstructed labour, appendicitis) become operable
Hospital before the Fall	Full diagnosis and surgery	Most danger signs treatable

Control of limb bleeding

Rung	What can be done	What it changes
Hands and knowledge	Direct pressure. Limb raised. Recognise shock (weak or absent wrist pulse)	Buys minutes
Hearth	Cloth packing and a tight bandage. An improvised tourniquet of wide cloth and a windlass [VERIFY: improvised designs not assessed in the sources read]	Can stop limb bleeding that would kill
Garden and still	Commercial tourniquets if salvaged. Ethanol for cleaning. A time marker	Reliable occlusion. Timing recorded

Rung	What can be done	What it changes
Village dispensary	Conversion to a pressure dressing within 2 hours if not in shock and the wound can be watched	Fewer ischaemic limbs
District infirmary	Excision of the wound and delayed primary closure. Amputation if needed	Survival after the limb is lost
Hospital before the Fall	Vascular repair, transfusion, laboratory monitoring of tourniquet release after 6 hours	Limb salvage

Plants mentioned in this report. No plant is recommended here. The historical remedies named are lemon (*Citrus limon*, juice) and West Indian lime (*Citrus aurantiifolia*, juice) for scurvy, which differ in vitamin C. Buchan's purges used jalap (*Ipomoea purga*, root), rhubarb (*Rheum* species, root), senna (*Senna alexandrina*, leaf and pod) and aloes (*Aloe* species, leaf juice). Laudanum comes from the opium poppy (*Papaver somniferum*, latex). The cactus called cardón is possibly a *Pachycereus* species. All these binomials are [VERIFY]: they were not checked against two botanical sources. Dangerous lookalikes are left to the series' plant documents.

4. Harm test

The manual as an intervention.

- *How it kills or maims.* Through an out-of-date drug or dose (62% of treatment sections current in one WTND chapter in 2007), a dose by age for a small child, a heroic therapy written as standard care (Buchan's repeated bleeding, Gunn's mercury), or a default imported from a setting with backup (no tourniquets in 2001). It also harms through false reassurance from a missing failure branch, through overconfidence (officers' self-rated readiness did not track knowledge), through promotion of injections (which Werner himself names as a mass harm), and through mistranslation.
- *The error that harms.* A wrong number on a dose page, copied faithfully. The danger is greatest where the book is most trusted, as with the readers who called WTND accurate.
- *Who must never receive book-led treatment without extra checks.* Infants and small or stunted children (weight dosing), pregnant women (drug pages change fastest, as the midwives' book shows), the very old, and the dehydrated (Buchan's bleeding is the extreme case).
- *Misidentification and contamination.* Herb pages without tested drawings, and the "double it if fresh" rule. Salvaged drugs whose labels and strengths differ from the book's assumptions, as with the ship's chest mismatch.
- *Signs that it is going wrong.* Readers cannot find the right page within minutes. The same drug is given again after it failed. Deaths or complications cluster after one page's advice. Readers improvise because the page assumes a referral that does not exist.
- *What to do.* Record each case with the page used. Review the records at the district level. Issue dated correction slips. Withdraw and reprint a page rather than annotating it endlessly.
- *Historical harms.* Bleeding and mercury in Buchan (1769 to 1791 editions) and Gunn (1830 to 1920). Kerosene and cigarettes in the 1982 Special Forces handbook. Chloramphenicol overuse breeding resistant typhoid, which WTND itself warns about. The 2001 no-tourniquet doctrine, which coincided with 77 of 232 potentially preventable deaths.

The tourniquet.

- *How it harms.* Nerve palsy at the tourniquet (1.7% transient, Kragh 2009). Ischaemic muscle damage, compart-

ment syndrome and limb loss that grow after 3 to 4 hours, with irreversible damage common after 6 (Shackelford et al. 2015). Release after a long time can flood the body with potassium and acid and cause kidney failure. A loose tourniquet that stops venous return but not arterial flow makes bleeding worse.

- *Who.* The guidance does not exempt any group from a tourniquet when limb bleeding threatens life. Risk is greater in children's small limbs [VERIFY]. Never leave one on for bleeding that pressure would control.
- *Signs that it is going wrong.* Bleeding continues, or the distal pulse is still present (tighten or add a second tourniquet). Pain and swelling below it. Time past 2 hours without reassessment.
- *What to do.* Reassess by 2 hours and convert if the three conditions are met. After 6 hours, leave it and accept probable loss of the limb if there is no monitoring [VERIFY: inference for settings without a laboratory].

5. Red flags

These signs mean the patient will probably die or be disabled without what the village cannot give. The first group adapts Werner's 21 signs of dangerous illness (Werner et al. 2024b). Because the referral the book assumes is gone, each has an "anyway" line. The detailed treatment of each belongs to other documents in the series.

1. **Heavy bleeding from anywhere.** Anyway: pressure, a tourniquet for a limb, womb massage after birth (Werner et al. 2024a). Lay the person flat and keep them warm. Shock before control of bleeding carries a very poor outlook (10% survival in Kragh's series when the tourniquet went on after shock).
2. **Cannot be woken, fits repeatedly with fever, or stiff neck with an arched back.** Anyway: lay on the side, keep the airway clear, cool if feverish, and give fluids by mouth only if the person is awake enough to swallow. Tell the family honestly that this often ends in death or lasting damage.
3. **Hard breathing that does not settle with rest, new blueness of lips and nails, or coughing blood.** Anyway: sit them up and keep them warm. The outlook is poor without oxygen.
4. **Unable to drink for a day, no urine for 12 hours, or vomiting or diarrhoea for more than a day (a few hours in a baby).** Anyway: small frequent sips of rehydration fluid. This is the danger sign the village can most often reverse.
5. **Black tarry stools or vomited blood.** Anyway: rest and fluids. Bleeding from the gut that does not stop will kill without a hospital.
6. **Constant severe abdominal pain with vomiting and no bowel movement.** Anyway: nothing by mouth except sips. Obstruction or appendicitis needs an operation the district may or may not be able to give (Primary Surgery's procedures). Do not purge.
7. **Fever above 39°C that will not come down, or lasting more than 4 or 5 days.** Anyway: cooling, fluids, a malaria smear if there is a microscope, and the treatments in the infection documents.
8. **In pregnancy: any bleeding, blood pressure of 140/90 or more, long labour after the waters break, or heavy bleeding after birth.** Anyway: the obstetric documents. Distance decides whether to move the mother (Werner et al. 2024a).
9. **Slow-growing signs: weight loss, a lump that keeps growing, a sore that will not heal, blood in the urine, very high blood pressure.** These are rarely emergencies. They mean a disease the village probably cannot cure. The honest response is comfort, pain relief and planning with the family.
10. **Signs that the reader has gone past the book.** No page fits the case. The treatment has failed twice. The case needs an operation the reader has not seen done. Or a tourniquet has been on for more than 6 hours. Anyway: record everything, consult the most experienced person within reach, and keep the person clean, warm, fed, without pain where possible, and accompanied.

Honest comfort. Werner's books and King's both tell the reader to act when the danger of doing nothing is greater, and King warns against backing away from a life-saving step out of modesty. The same honesty applies when no step will help. Say so plainly to the family, keep the person company, and treat pain.

6. The case against

Against the genre.

- *The early international reviewers* (WHO, UNICEF and the Christian Medical Commission, as reported by Babu and Eisenberg 2010) judged lay treatment from a book unrealistic and dangerous. They later funded translations, but their worry was never answered with outcome data.
- *Babu and Eisenberg (2010)* showed that the most trusted lay manual had treatment advice out of date in more than a third of sections in one chapter, after 30 years without an independent check. They called it a stop-gap, and nobody has tested it in the field since.
- *Horneland (2011)* argues that guides built like textbooks are of limited use exactly when needed, with no radio, because readers cannot name the disease.
- *Froholdt and Grøn's respondents (2022)* call the WHO guide too long, too technical, mismatched to the chest and Eurocentric, even though they use it.
- *Oldenburg and colleagues (2014)* show that confidence does not predict competence, and that knowledge decays.
- *Giguère and colleagues (Cochrane 2012, 2020)* find that printed material alone changes practice by only 2 to 4 percentage points.
- *Warner Anderson (2008)* shows that a respected field manual can age into danger within 25 years.
- *Robert Wilensky (2004)* shows that medicine without follow-up can harm the system it claims to help.
- *Brian Dunning (Skeptoid)* and *Reason (1983)* argue that the most famous lay manual of the 1970s was partly propaganda, showing the worst-equipped workers' improvisation as a model.
- *Werner himself* (Werner and Bower 2026) warns that a manual used as a recipe book could do more harm than good.

Against HEALING after the FALL in particular.

- The best evidence in the genre concerns books inside systems: trained lay workers, algorithms, checklists, supplies and supervision. A book that circulates without those systems may change little.
- Every manual examined here was written for a world where its errors could be caught by a doctor, a radio or a returning evacuee. After the Fall an error may be copied for a generation, as Buchan's bleeding was.
- A book that teaches action in the absence of referral will also be read by people who could have reached help, and may delay them.

Avoiding both romances.

- *Against the romance of the herbal or the old book.* Buchan and Gunn were loved, reprinted 19 and 234 times, and wrong about their central therapies. The Barefoot Doctor's Manual chose remedies by popular use.
- *Against the romance of the hospital.* The no-tourniquet doctrine was civilian hospital wisdom moved into a place without hospitals, and it cost lives. Referral-first books such as WTND fail at their decisive instruction when the hospital is gone.

Feasible today versus after the Fall.

- *Today.* A reader can pair WTND with a phone call, a ship's officer with radio advice, a medic with evacuation.
- *After the Fall.* None of that backup exists, and only Primary Surgery, War Surgery and Werner's distance rule speak to the reader's real situation.

7. 10-line summary

1. No study has shown that any self-help medical manual changed patient outcomes. The evidence is audits, user surveys and adjacent trials.

2. The decisive design question is what the book tells the reader to do at the edge of the page. Most predecessors say "refer", which the Fall removes.
3. Werner's distance-dependent rule and King's "assume you cannot refer" are the right starting points for HEALING.
4. Prevention content lasts (96 to 100% correct in the WTND audit). Drug content dates fast (62% current in one chapter).
5. Dosing by age is dangerous where many children are stunted. Dose by weight.
6. Guides organised by disease name fail lay readers without radio. Symptom-first algorithms are what users and experts ask for.
7. Printed material alone shifts practice by about 2 to 4 points. Trained people with algorithms, checklists and supplies do more.
8. Heroic therapies and imported defaults (bleeding, mercury, no tourniquets) were each the consensus of their time and killed.
9. A tourniquet applied before shock was associated with 90% versus 10% survival. Reassess by 2 hours, and do not release after 6 hours without monitoring.
10. External audit, field testing with readers, dated replaceable drug pages and case records are what let a manual correct itself.

8. Open questions

- Did any community that used Where There Is No Doctor have measurably better health than one that did not? No such study was found. A retrospective comparison using Hesperian's distribution records might be possible [VERIFY].
- What did the Davis and Liut 2008 survey and the NYU Wagner capstones (NYU Wagner, undated) actually find on how readers use the book? These could not be read.
- How did the 23rd edition of the Ship Captain's Medical Guide restructure its content? Did it adopt symptom-first algorithms as Horneland urged? Not read.
- What did Primary Anaesthesia (1986) teach about ketamine and other methods for a lone operator? Not seen.
- Did the barefoot doctor programme's manual have measured effects on diagnosis or outcomes, apart from the wider programme's health gains? No evaluation found.
- How should a manual handle the tourniquet beyond 6 hours where no laboratory or monitored release will ever be available? The guidance assumes such a setting exists somewhere. This needs a decision in the trauma document.
- How quickly does lay knowledge from a manual decay without any refresher system? The ship data suggest within five years, but the measure was a short quiz.
- Is a three-branch danger-sign page (help in time, help too late, no help) understood and followed by lay readers? It could be tested now with field-test groups.

9. Sources to read in full

1. Babu E, Eisenberg DTA. What to do, "Where There Is No Doctor"? A systematic evaluation (manuscript with supplement, 2010). The only systematic audit of a lay manual.
2. King M et al., ed. Cotton M. Primary Surgery, volume 1, Non-Trauma, 2nd edition (2024), chapter 1 and the foreword. The clearest statement of writing for no referral.
3. Giannou C, Baldan M. War Surgery, volume 1 (ICRC 2009), chapters 1 to 5 and annex 1.A. Delay, case mix and technology criteria.
4. Werner D et al. Where There Is No Doctor (Hesperian 2024), front matter and chapter 4. The distance rule and the danger-sign list.
5. Werner D, Bower B. Helping Health Workers Learn (Hesperian 2026). How to teach the use of a manual.

6. Horneland AM. Infectious diseases and medical guides for seafarers (2011). The case for symptom-first algorithms.
7. Froholdt LL, Grøn S. The usefulness and practicality of the International Medical Guide for Ships (2022). The best user study in the genre.
8. Butler FK, Blackbourne LH. Battlefield trauma care then and now (2012). How a wrong default persisted and was corrected.
9. Buchan W. Domestic Medicine, 12th edition (1791). The original model and its errors.
10. Rosenberg CE. Medical text and social context: explaining William Buchan's Domestic Medicine (1983). Why lay manuals are trusted. Not read here.

10. At the bedside after the Fall

Household.

- *Minimum viable version.* One copy of the book kept dry. A memorised short list (the danger signs, the distance rule, weight dosing, tourniquet timing). A pencil record of each illness.
- *To start.*
  - Materials: the book, a waterproof tin, pencils and paper, a cloth tape, a spring balance or steelyard to weigh children, a thermometer if one can be salvaged, a wide strip of strong cloth and a stick for a tourniquet [VERIFY: improvised tourniquet], and clean cloth.
  - Skills: reading the index and the danger-sign page, counting pulse and breathing, weighing a child, applying pressure and a tourniquet, mixing rehydration fluid (from the series' rehydration document).
  - Records: date, person, weight, signs, page used, what was given, result.
- *First failure to expect.* Under stress the reader cannot find the right page, or finds a page that assumes a health centre and freezes. Practise finding pages before they are needed.

Village of 300.

- *Minimum viable version.* A trained lay healer with the full book, Where There Is No Doctor, and a register. Stock matched to the drug pages. A pull-out action card for each danger sign.
- *To start.*
  - Materials: two or three copies (one for the dispensary, one for teaching), weighing scales, a microscope if salvaged, a blood-pressure cuff if salvaged, a register book, and a tested set of plant drawings.
  - Skills: everything at household level, plus weight dosing, the decision by distance to help, and keeping records honestly.
  - Records: a patient register with the page used and the result, reviewed every month.
- *First failure to expect.* The book and the stock drift apart. The page says one drug or strength and the shelf holds another, as on ships. Check the stock against the pages every quarter and write the actual stock into the book.

District of 3,000.

- *Minimum viable version.* A nurse or doctor with Primary Surgery and War Surgery. A small editorial group that audits the village registers each year, issues dated correction slips, field-tests new pages with village healers, and runs refreshers every two years.
- *To start.*
  - Materials: the reference shelf, a means of copying pages by hand or press, a sterile room, and a checklist for each procedure.
  - Skills: the 15 essential procedures where possible, wound excision and delayed closure, ketamine anaesthesia if the drug can be had [VERIFY: supply], and audit.
  - Records: an outcomes ledger by page and procedure.

- *First failure to expect.* Nobody has time to audit, so errors go round unchecked, as WTND's did for 30 years. Name the auditor, set a date for each year's review, and make the correction slips part of the dispensary routine.

11. Protocols

Protocol A. Using the book in an emergency (household and village)

1. Check for heavy bleeding first. If a limb is bleeding heavily, go to Protocol C now.
2. Open the danger-sign page (keep it marked with a ribbon). Aim to have it open within 1 minute.
3. Tick every sign present. If none: treat from the symptom page and record. If one or more: go to step 4.
4. Estimate the time to the nearest more skilled help: under 30 minutes, 30 minutes to a day, or none.
5. Under 30 minutes: give the first aid the page says and send or take the patient with a written report (name, age, weight, signs, times, what was given) (Werner et al. 2024b).
6. Over 30 minutes or none: follow the page's "until help comes" steps. Where the danger of doing nothing is clearly greater, do what the book describes and you are reasonably sure will help (Werner et al. 2024a).
7. Record temperature, pulse, breathing, fluids in, urine and stools 4 times a day (every 6 hours) (Werner et al. 2024b).
8. If there is no improvement after the time the page states, or the patient gets worse, turn to the "if treatment fails" branch. If there is none, record the failure and get the most experienced person you can reach.
9. Write the outcome in the register within 24 hours.

Protocol B. Giving a medicine by weight (village dispensary)

1. Weigh the patient. For a child, weigh the carer with and without the child and subtract. Record in kilograms to the nearest 0.5 kg.
2. Read the dose per kilogram and the maximum single dose from the drug page. Never use an age table alone.
3. Multiply the dose by the weight. If the result is over the maximum, give the maximum.
4. Check the strength on the actual container against the strength the page assumes. If they differ, recalculate and write the actual strength in the margin.
5. Have a second person repeat the calculation without seeing yours. Proceed only if the answers agree within 10% [VERIFY: own tolerance].
6. Record the drug, strength, dose, time and weight.
7. Example of why this matters: the 2007 WTND gave pyrantel at 10 mg/kg where the audit gave 11 mg/kg, and gave children's doses by age (Babu and Eisenberg 2010). Take actual doses only from the current drug pages, checked against a second source [VERIFY].

Protocol C. Limb tourniquet (household upwards. Adapted from Shackelford et al. 2015 and Kragh 2009)

1. Use for bleeding from an arm or leg that pressure cannot stop, or for a traumatic amputation. Apply before signs of shock if possible. Survival was 90% before shock against 10% after (Kragh 2009).
2. Place the tourniquet on bare skin 5 to 8 cm (2 to 3 inches) above the wound, never over a joint [VERIFY: joint rule not stated in the sources read]. If the wound cannot be seen, place it high on the limb.
3. Tighten until the bleeding stops and the pulse below the tourniquet can no longer be felt. If bleeding or a pulse continues, add a second tourniquet side by side above the first.
4. Write the time of application on the skin or the tourniquet in ink or charcoal.
5. Treat for shock: lay the person flat, keep them warm, and give fluids by mouth if they are awake and there is no belly wound [VERIFY: belly-wound rule not in the sources read].
6. By 2 hours at the latest, reassess. Convert to a firm pressure dressing if all three conditions hold: no shock, the wound can be watched continuously, and it is not an amputation. Loosen slowly and watch for 30 minutes [VERIFY: observation period]. If bleeding restarts, retighten and do not try again.

7. Between 2 and 6 hours, conversion carries rising risk. Attempt it only if earlier conversion was impossible and conditions are now better.
8. After 6 hours, do not remove the tourniquet unless there is close monitoring with a laboratory. After the Fall that means leaving it and planning for loss of the limb at the district level [VERIFY: inference].
9. Record the times of application, reassessment and conversion, and the outcome.

Protocol D. Writing or revising a page (district editorial group)

1. Start from what a lay person would see or be told, not from a disease name.
2. Write in the imperative. Each step gives one action, with a quantity and a time.
3. Give three branches for any sign of danger: help in time, help too late, no help, with honest comfort in the last.
4. Add a section on what not to do and one on what to do if the treatment fails.
5. Give doses per kilogram, with a maximum, and state the strength assumed.
6. Draw one picture for each action, tied to its step number and drawn with readers.
7. Test it with at least 5 readers of the intended literacy [VERIFY: own number]. Each reads the page and acts out the steps on a volunteer. Count the steps done correctly. Revise until at least 4 of the 5 readers complete every critical step [VERIFY: own tolerance].
8. Check the page against two independent sources for every dose and time. State any difference on the page.
9. Run the technology through the ICRC's ten criteria (Giannou and Baldan 2009).
10. Date the page, give it a version number and record it in the page register.

Protocol E. Yearly audit (district)

1. Collect the village registers.
2. For each page used, count the cases, the deaths, the complications and the "treatment failed" entries.
3. Flag any page with deaths or failures above the previous year's, or any page readers marked as hard to find.
4. Review the flagged pages against the best available sources and the record.
5. Issue a dated correction slip for each change. Withdraw the old page physically.
6. Hold the refresher for village healers within 2 years of their last one (Oldenburg et al. 2014), using real cases from the registers.

12. Numbers to carry

1. **2 and 6 hours.** Reassess a limb tourniquet by 2 hours. Do not remove one after 6 hours without monitoring (Shackelford et al. 2015).
2. **90% versus 10%.** Survival when the tourniquet went on before shock rather than after (Kragh 2009).
3. **7.9%.** Share of American soldiers killed in Vietnam who died of bleeding from a limb, the leading preventable cause, still unaddressed 30 years later (Butler and Blackbourne 2012).
4. **62% and 96%.** In the audited WTND prevention chapter, 62% of treatment sections were current while 96% of prevention advice was correct. Drug pages date first (Babu and Eisenberg 2010).
5. **28%.** Rough share of under-fives stunted in poor countries, the reason to dose by weight (Babu and Eisenberg 2010).
6. **12 hours, 1 day, 39°C, 3 days.** No urine for 12 hours, unable to drink for a day, fever above 39°C that will not fall, or pain lasting more than 3 days are danger signs (Werner et al. 2024b).
7. **15 procedures, 80%.** The share of necessary surgery covered by 15 essential procedures (King et al. 2024).
8. **2 to 4 points.** What printed material alone changes in practice (Giguère et al. 2012, 2020).
9. **2 years.** Refresher interval for lay healers. Knowledge averaged 70.7% after up to 5 years and confidence did not predict it (Oldenburg et al. 2014).
10. **1.5% to 0.8%.** Surgical deaths before and after a 19-item checklist (Haynes et al. 2009).

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