FO-02 The natural history of disease: what heals on its own and what does not

HEALING after the FALL, research library, FO-02

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

Purpose and method

Every remedy in this book has to beat one rival: doing nothing. This document sets out what happens to the sick and injured when nobody intervenes, or when the only care is a bed, water and nursing. It draws on three kinds of evidence: the clinical series of about 1850 to 1940 (Osler's first edition of 1892 was read in full text), the placebo and no-treatment arms of modern trials, and cohorts from settings without care.

Three warnings apply throughout. Nineteenth-century hospitals admitted the sicker and poorer, so their figures overstate death for a whole village. Diagnosis before about 1900 was often by bedside impression. And every untreated cohort is filtered by survival, because those who died before reaching a doctor are missing. My own arithmetic and inferences are marked [VERIFY], and the references say when only an abstract or secondary summary was read.

1. Findings by section

1.1 Lobar pneumonia in adults

What the record shows. William Osler, writing in 1892 at Johns Hopkins, put hospital mortality at "twenty to forty per cent" (Osler 1892). He gave named series: 1,012 cases at the Montreal General Hospital with 20.4 per cent mortality, and 3,969 cases at the Charity Hospital, New Orleans, with 28.01 per cent. He cited Townsend and Coolidge's analysis of 1,000 cases at the Massachusetts General Hospital, which found that once patients over fifty and those who were "delicate, intemperate" or had complications were removed, mortality was "but little over ten per cent" (Osler 1892). Age was the strongest single predictor. Hadden, McKenzie and Ord's 708 cases at St Thomas's Hospital, London, showed mortality of 3.7 per cent under twenty, 22 per cent in the third decade, 30.8 per cent in the fourth, 47 per cent in the fifth, 51 per cent in the sixth and 65 per cent in the seventh (quoted in Osler 1892).

Course. Osler described a high fever that held for five to nine days and then fell abruptly by "crisis", sometimes eight degrees Fahrenheit in five to twelve hours, as early as the third day or as late as the fourteenth (Osler 1892). In healthy young adults he judged the outlook good.

When the outcome is decided. Osler's crisis, at about a week, separated survivors from the dead. Robert Austrian and Jerome Gold's study of bacteraemic pneumococcal pneumonia at Kings County Hospital, Brooklyn, 1952 to 1962, found that penicillin had little or no effect on the outcome for patients who died within the first five days of illness (Austrian and Gold 1964, read in abstract and secondary summaries). Some deaths are fixed at onset.

What one cheap act changed. In March to June 1938 at Dudley Road Hospital, Birmingham, G. Mary Evans and Wilfrid Gaisford gave sulphapyridine (M&B 693) to 100 patients with pneumococcal pneumonia: 8 per cent

died, against 27 per cent of 100 concurrent controls on non-specific treatment (Evans and Gaisford 1938, read only in secondary summaries). Later series reported falls from the usual 25 to 30 per cent to 3 to 11 per cent (secondary summary of McDonald, 1939 or 1940 [VERIFY]). Roderick Heffron's 1939 monograph for the Commonwealth Fund, the standard compendium of pre-sulphonamide pneumonia, could not be read online and its tables are not quoted here.

Children. For children in low-income settings, a meta-analysis of nine community trials in India, Pakistan, Bangladesh, Tanzania, Nepal and the Philippines found that community case management of pneumonia (lay workers counting breaths and giving oral antibiotics) cut total mortality in children under five by 24 per cent and pneumonia mortality by 36 per cent (Sazawal and Black 2003, read in abstract and press summary). A later review for the Lives Saved Tool estimated a 70 per cent reduction in pneumonia mortality in children under five (Theodoratou et al. 2010, read in abstract). I found no reliable untreated figure for childhood pneumonia.

Grades. Nursing through the crisis: B as natural history, no evidence it changes mortality. Antibiotics: A in children, B in adults. Lay breath-counting plus antibiotics: A.

1.2 Typhoid fever

Record. Osler gave mortality of 10 to 30 per cent. Charles Murchison's large British series came to "nearly 19 per cent", and the Montreal General Hospital over twenty years 11.2 per cent (Osler 1892). Under Ernst Brand's cold-bath hydrotherapy some institutions reported "as low as 5 or 6 per cent" (Osler 1892), a claim from uncontrolled hospital practice. Modern reviews put pre-antibiotic case fatality at about 10 to 20 per cent, with untreated illness lasting about four weeks, relapse in up to 10 per cent, and chloramphenicol (1948) bringing deaths to 1 per cent or below (secondary summaries, see Cruz Espinoza et al. 2019 for the complications data).

When decided. Osler named haemorrhage and peritonitis among the gravest signs (Osler 1892). Intestinal haemorrhage and perforation arise in the terminal ileum at about two to three weeks. A 2019 systematic review of hospitalised patients found complications in 27 per cent overall, and in 36 per cent of those who arrived after ten or more days of illness against 16 per cent of earlier arrivals (Cruz Espinoza et al. 2019, read in abstract). The outcome is largely set by the third week.

One cheap act. Without antibiotics nothing is proven to change mortality. Clean water prevents it. Brand's baths: grade D.

1.3 Appendicitis

Record before surgery. Osler wrote in 1892 that "post-mortem observations show that very many instances get well, often without treatment", that over forty per cent of cases were recurrent, that "sixty-eight per cent of the fatal cases die during the first eight days", and that "extension to the general peritonaeum is almost always fatal" (Osler 1892). Reginald Fitz of Boston reviewed 257 cases of "perforating inflammation of the appendix" in 1886 and argued for early removal (Fitz 1886, read only in secondary summaries). A report of 1904 citing Fowler's statistics gave 17 per cent mortality for operation within 48 hours and 67 per cent for operation on the ninth or tenth day (secondary summary, original in The Hospital, 1904 [VERIFY]).

Modern natural history. No trial has compared surgery with nothing. Spontaneous resolution of imaging-confirmed appendicitis is reported in about 4 to 20 per cent (secondary review, Andersson 2006 as cited). In a retrospective sample of 219 patients in two New York hospitals, 1996 to 1998, rupture risk was 2 per cent or less in the first 36 hours of symptoms and about 5 per cent for each 12 hours thereafter (Bickell et al. 2006, read in abstract). Other series place the turning point between 24 and 48 hours.

Antibiotics alone. In the CODA trial, 1,552 adults in the United States were randomised. By 90 days, 29 per cent of the antibiotic group had needed an operation, 41 per cent of those with an appendicolith (a faecal stone) and 25 per

cent without. Complications were 8.1 against 3.5 per 100, the excess almost entirely in those with an appendicolith (CODA Collaborative 2020, read in secondary summaries). Modern mortality is under 0.3 per cent, rising to 1.7 per cent after perforation (secondary review).

Grades. Surgery within 36 to 48 hours: B. Antibiotics alone: A for uncomplicated cases. Watchful waiting without either: D, with a real if unknown share surviving through abscess or walled-off perforation, as Osler saw.

1.4 Cholera

Untreated. Osler gave epidemic mortality as ranging from roughly 30 to 80 per cent (the first figure is illegible in the scanned text) and noted that the faster the collapse, the worse the outlook (Osler 1892) [VERIFY]. David Sack and colleagues wrote that without adequate rehydration severe cholera kills about half of those affected (Sack et al. 2004, read in abstract). Death can come "within hours" (WHO 2024).

Treated. WHO states that case fatality in treatment centres "should remain below 1%" and that most patients can be treated with oral rehydration solution alone (WHO 2024). The oral route was established by David Nalin, Richard Cash and colleagues in Dhaka and published in 1968: oral glucose-salt solution cut intravenous fluid needs by up to 80 per cent (Nalin et al. 1968, read in secondary summaries).

Failure under pressure. In July 1994, about 12,000 Rwandan refugees died of cholera at Goma, Zaire. At Muganga camp the highest single-day case fatality was 48 per cent, attributed to slow rehydration, poor use of oral fluid, wrong intravenous fluids and inexperienced staff (Siddique et al. 1995, read in abstract). Rehydration works only when it is done fast and in volume.

Grade. Oral rehydration: A. The single largest gap between untreated and treated outcome in this whole document: about 50 per cent against under 1 per cent.

1.5 Diarrhoea in children (non-cholera)

Most acute diarrhoea stops by itself. In a hospital study in Kolkata 87.5 per cent of children recovered within 13 days. Diarrhoea that runs 14 days or more ("persistent") makes up about 3 to 20 per cent of episodes but up to half of diarrhoeal deaths, and one review linked episodes over 14 days to mortality of 14 per cent against 0.8 per cent for shorter ones (secondary review in Bulletin of the WHO [VERIFY]). A meta-analysis of 157 studies for the Lives Saved Tool concluded that oral rehydration solution "may prevent 93%" of diarrhoea deaths in children under five, and found too little evidence to quantify home fluids (Munos et al. 2010, read in abstract). Zinc shortens acute diarrhoea in children over six months by about half a day, and by about 27 hours in moderately malnourished children, and reduces the share still ill at day seven (RR 0.73) (Lazzerini and Ronfani 2012 and later update, read in abstract).

Grades. ORS: A. Zinc: A.

1.6 Dysentery

For epidemic Shigella dysenteriae type 1 I found no clean pre-antibiotic series. A field presentation put untreated mortality at 5 to 15 per cent [VERIFY]. In a 1994 epidemic in Rwanda hospital case fatality was 13.2 per cent, with severe dehydration and older age as risk factors (Legros et al. 1999, read in abstract). In Bangladesh in the 1990s hospital case fatality was 2.73 per cent in infants, 1.42 per cent at one to four years and 0.33 per cent over five (secondary summary). Its outcome depends on hydration, age and nutrition before drugs.

1.7 Measles

Record. Osler judged that "the mortality from the disease itself is not high, but the pulmonary complications render it one of the most serious of the diseases of children" (Osler 1892). In the Faroe Islands in 1846, after 65 years without measles, Peter Panum found about 6,100 of 7,800 people infected and about 170 dead, a case fatality of 2.8 per cent

(secondary summaries). In Fiji in 1875, after measles arrived with Ratu Cakobau's party returning from Sydney, about a fifth to a quarter of the population died, while the 140 Fijian police who accompanied him lost 6 per cent (Shanks 2016, read in summary). The gap points to social collapse and lack of nursing, not the virus alone.

Modern community figures. A review of 58 community studies in 29 countries, 1980 to 2008, found a median case fatality of 3.9 per cent, mean 3.3 per cent, range 0 to 40.1 per cent, and 5.2 per cent in outbreak investigations (Wolfson et al. 2009, read in abstract). A later model put community case fatality in low- and middle-income countries at 1.5 per cent and hospital at 2.9 per cent (Portnoy et al. 2019, read in abstract). For 2019 infants had the highest figure, 3.03 per cent (Sbarra et al. 2023, preprint).

One cheap act. Two doses of 200,000 IU vitamin A on consecutive days cut mortality in children under two with measles (RR 0.18, 95% CI 0.03 to 0.61), though the overall effect across all ages was not significant (Huiming et al. 2005, read in abstract). Grade A for under-twos in vitamin A deficient areas.

1.8 Whooping cough (pertussis)

Osler called whooping cough, with its complications, "a very fatal affection", most dangerous in the youngest infants and among "children of the poor" (Osler 1892). In England and Wales, 1901 to 1905, it killed 874 per million children under fifteen each year, second only to measles (Ministry of Health bulletin reprinted in a London Medical Officer of Health report, read in summary). In the PERCH study of severe pneumonia in seven African and Asian countries, infants aged one to five months with pertussis had a case fatality of 12.5 per cent (5 of 40) (Barger-Kamate et al. 2017, read in abstract). I found no reliable figure for untreated case fatality across all ages. There is no cheap cure. Infant survival rests on feeding and airway care [VERIFY].

1.9 Diphtheria

Before antitoxin. At the Hôpital des Enfants-Malades in Paris, 1890 to 1893, 2,029 of 3,971 children admitted died (51 per cent). In Zurich mortality was 43.8 per cent in 1874 to 1891. In the Metropolitan Asylums Board hospitals of London in 1894, 902 of 3,042 patients died (29.6 per cent) (contemporary reports, read in secondary summaries). Osler warned that hospital figures were inflated because "only the severer forms are admitted", but that country epidemics could "kill nearly all the children attacked" (Osler 1892).

With antitoxin. Zurich fell to 9.8 per cent (late 1894 to 1898), London to 12.5 per cent by 1901 (secondary summaries). One London hospital series gave mortality of 0 per cent for children treated on the first day of illness, 4.1 on the second, 11.9 on the third, 12.4 on the fourth and 16.6 on the fifth or later (London Medical Officer of Health report, read in summary) [VERIFY]. Antitoxin cannot be made at village level. The lesson is the clock: diphtheria is decided in two to three days.

1.10 Tetanus

Osler quoted two Hippocratic aphorisms: "The spasm supervening on a wound is fatal", and those seized with tetanus "die within four days, or if they pass these they recover". He gave mortality in traumatic tetanus as "not less than eighty per cent" (Conner) and under fifty per cent in cases without a known wound (Osler 1892). Neonatal tetanus untreated is described as close to 100 per cent fatal (case reports and reviews [VERIFY]). Even in modern African hospitals without ventilators, case fatality runs 32 to 57 per cent, for example 38 per cent of 171 patients at Jimma, Ethiopia, 1996 to 2009 (Jimma series, read in abstract). WHO counted about 7,700 newborn tetanus deaths in 2021, down 84 per cent since 2000, and names clean delivery and cord care as prevention (WHO 2024b).

One cheap act. Clean birth and a clean cord. Thorough wound cleaning. Grade B for prevention. For established tetanus there is no cheap treatment beyond a dark, quiet room and nursing, which Osler also advised.

1.11 Fractures

Closed fractures. Most heal if held still and in line. In a series of 1,000 closed tibial shaft fractures treated in below-knee functional braces, non-union was 1.1 per cent (Sarmiento et al. 1995 [VERIFY], read in abstract). In an earlier series of 780 tibial fractures, closed fractures healed in an average of 17.4 weeks and open ones in 21.7 weeks (Sarmiento et al. 1989, read in abstract).

Open (compound) fractures. Before antisepsis these killed. James Syme's conservative treatment of compound femoral fractures in Edinburgh carried 80 per cent mortality, compound tibial fractures 50 per cent (secondary historical review). William Keen, a Union surgeon, said after the American Civil War that compound fractures "killed two out of every three" (Keen, read in transcript). At Glasgow Royal Infirmary Joseph Lister reported 16 deaths in 35 amputations before his carbolic system and 6 in 40 after, about 46 against 15 per cent, while conceding the numbers were "too small for a satisfactory statistical comparison" (Lister 1870, read in James Lind Library commentary).

The Thomas splint. In the First World War, compound femoral fracture mortality is widely quoted as falling from about 80 per cent to about 20 per cent once the Thomas traction splint, promoted by Robert Jones, was applied near the front (National Archives blog). At Arras in April and May 1917, 1,009 compound femoral fractures treated with early traction had mortality of 15.6 per cent (Gray 1919, as cited). The Imperial War Museum gives about 7 per cent by the war's end. Harold Ellis put the earlier baseline at 50 to 60 per cent, not 80 (Ellis 2015). The direction is solid, the precise pair of numbers is a popular summary [VERIFY]. An early iron-and-leather splint is the cheapest life-saving act for a broken thigh.

1.12 Lacerations and wound infection

In a large modern emergency department cohort, 2.6 per cent of 2,663 sutured lacerations became infected (Quinn et al. 2014, read in abstract). A meta-analysis of four studies (3,724 patients) found weak, low-quality evidence that delayed closure raises infection risk, with one study showing a relative risk of 4.8 (Zehtabchi et al. 2012, read in abstract). Cleaning with drinkable tap water was associated in adults with fewer infections than saline in one version of the Cochrane review (RR 0.55), though the 2022 update grades all the evidence low or very low (Fernandez and Griffiths, Cochrane, versions 2012 and 2022, read in abstract).

When infection spreads, the record is grim. Osler called erysipelas "self-limited" in healthy adults but deadly in the newborn at the navel (Osler 1892). Civil War surgeons reported that pyaemia ("blood poisoning") killed about 90 per cent (secondary source [VERIFY]).

1.13 Burns

Survival depends on the area burned and the patient's age. In Birmingham in 1949, J. P. Bull's series gave the area at which half of patients died (LA50) as 51 per cent of body surface for children up to fourteen, 43 per cent at fifteen to forty-four, 23 per cent at forty-five to sixty-four and 9 per cent at sixty-five and over (Bull 1949, read in a 2018 secondary table) [VERIFY]. A systematic review of 42 studies from twelve sub-Saharan African countries found mean burn size of 17.3 per cent and overall mortality of 13.1 per cent, with poor-quality data (sub-Saharan burn care review 2019, read in abstract). A South African commentary held that most burns of up to 25 per cent can be managed without critical care (secondary).

One cheap act. In 2,495 children treated at a burns centre in Queensland, 2013 to 2016, twenty minutes of cool running water within three hours of injury was associated with lower odds of skin grafting (OR 0.6, 95% CI 0.4 to 0.8) (Griffin et al. 2020, read in abstract). Observational, so grade B.

1.14 Malaria

Falciparum. Severe falciparum malaria untreated is described by WHO staff as having mortality "approaching 100%", falling to 15 to 20 per cent with treatment (Olumese 2012, conference slides) [VERIFY]. In the AQUAMAT trial in African children, mortality was 10.9 per cent with quinine and 8.5 per cent with artesunate, a number needed to treat of 42 (Dondorp et al. 2010, read in secondary summaries). In Asian patients mortality fell from 23.1 to 14.2 per cent (SEAQUAMAT and meta-analysis, read in summary). A pooled analysis of African children found that delay of more than 24 hours raised the odds of any severe form (OR 1.33), and delay of more than seven days raised the odds of severe anaemia more than fivefold (Mousa et al. 2020, read in abstract). I could not find the share of untreated uncomplicated falciparum infections that become severe.

Vivax. A review using defined denominators estimated mortality of 0.01 per cent in all patients and 0.56 per cent in hospital (secondary). In United States surveillance, 1985 to 2011, 0.9 per cent of falciparum and 0.09 per cent of vivax cases died (secondary). Vivax relapses, in one Brazilian cohort in 39.6 per cent of cases at a median of 108 days.

Historically the remedy was the bark of Cinchona species, outside this document.

1.15 Tuberculosis

The best natural-history evidence in this document. Edine Tiemersma and colleagues pooled cohorts from the early twentieth century to the 1940s in Sweden, Britain, Denmark, Norway, Switzerland, the United States, Iceland, the Netherlands, Germany and Poland, and two later Indian surveys. For untreated smear-positive pulmonary tuberculosis in HIV-negative adults, ten-year case fatality was 53 to 86 per cent, weighted mean 70 per cent, and five-year about 55 to 58 per cent. For smear-negative, culture-positive disease, about 20 per cent. Average duration from onset to death or cure was about three years. In Berg's Gothenburg cohort 30.7 per cent died in the first year (Tiemersma et al. 2011, read in full). So about three in ten people with smear-positive TB recover without drugs.

Tuberculous meningitis was "invariably fatal" before streptomycin, usually within two to three weeks (Glasgow thesis, secondary). Untreated miliary tuberculosis approaches 100 per cent (secondary [VERIFY]). In children, most disease follows within six to twelve months of first infection (Marais et al. 2004, as cited).

1.16 Meningococcal meningitis

Osler cited Hirsch's figures of 20 to 75 per cent in different epidemics, (Osler 1892). A summary table of serum series records Simon Flexner's compilation of 1,294 serum-treated patients with 30.9 per cent mortality against 75 per cent in untreated comparisons, with untreated series ranging from about 49 to 85 per cent (secondary table). Untreated mortality of 70 to 90 per cent is widely repeated without a primary dataset [VERIFY].

1.17 Childbirth

Without trained attendants. Between 1975 and 1982 the Faith Assembly in Indiana, a church that refuses all medical care, had maternal mortality of 872 per 100,000 live births in Elkhart and Kosciusko counties, against 9 per 100,000 for other Indiana residents, and perinatal mortality of 48 per 1,000 against 18 (CDC 1984, read in full, Kaunitz et al. 1984). These were 344 births with few deaths, so the uncertainty is wide, but the excess was about a hundredfold.

The historical baseline. Sweden's first national figure, 1751, was almost 900 maternal deaths per 100,000 live births. By 1900 to 1904 it was 230, against 440 in England and Wales. Ulf Högberg attributes much of the fall to licensed parish midwives: a midwife at a home birth carried a relative risk of 0.2 for non-septic maternal death, and midwifery is estimated to have prevented 46 per cent of such deaths in 1861 to 1900. Puerperal sepsis caused 54 per cent of deaths in that period, and antiseptic technique prevented about half of them (Högberg 2004, read in full). An economic

study of the Swedish rollout found that doubling the number of trained midwives cut maternal mortality by 20 to 40 per cent (Pettersson-Lidbom 2015, working paper, read in summary).

Causes today. In 2020, haemorrhage caused about 27 per cent of maternal deaths worldwide and hypertensive disorders 16 per cent (WHO study 2025, read in news summaries).

1.18 The newborn

In Gadchiroli, India, 1995 to 1998, village health workers trained to give home neonatal care, including oral and injected antibiotics for sepsis, cut neonatal mortality by 62 per cent against control villages. Case fatality of neonatal sepsis fell from 16.6 per cent (163 cases) before treatment to 2.8 per cent (71 cases) after, a before-and-after comparison. Cost was US$5.30 per newborn, and one death was averted per 18 newborns cared for (Bang et al. 1999, read in abstract). A meta-analysis found possible severe bacterial infection in 7.6 per cent of newborns in low-income regions, with case fatality of 9.8 per cent, treatment status mixed (Seale et al. 2014, read in abstract).

1.19 The self-limiting illnesses

Respiratory infections in children. Matthew Thompson and colleagues pooled 23 trials and 25 observational studies from high-income primary care. In 90 per cent of children, earache had resolved by seven to eight days, sore throat by two to seven, croup by two, bronchiolitis by 21, acute cough by 25, the common cold by 15, and non-specific respiratory infection by 16 days (Thompson et al. 2013, read in abstract). Parents expect too short a course, which drives needless treatment.

Ear infection. In the placebo arms of the Cochrane review of acute otitis media, about 60 per cent of children were better within 24 hours and 82 per cent settled spontaneously. Antibiotics did not reduce pain at 24 hours, and about 20 children had to be treated to spare one pain at two to three days, while one in 14 suffered vomiting, diarrhoea or rash (Venekamp et al. 2023, read in abstract).

Sore throat. Antibiotics reduced sore throat at day three (RR 0.70, NNT under 6) and at one week (RR 0.50, NNT 18), and reduced acute rheumatic fever within two months (Peto OR 0.36), but most trials were from the 1950s when rheumatic fever was common, and none found rheumatic fever after 1975 (Spinks et al. 2021, read in abstract and AAFP summary). One commentary estimated 100 treatments to prevent one case of rheumatic fever at the time.

Low back pain. In 33 cohorts (11,166 people), acute low back pain scored 52 out of 100 at baseline, 23 at six weeks, 12 at 26 weeks and 6 at one year. Persistent pain improved far less, from 51 to 23 at one year (da C Menezes Costa et al. 2012, read in abstract).

Ankle sprain. Pain falls quickly in the first two weeks, yet 5 to 33 per cent still have pain at one year, full recovery within three years is reported by 36 to 85 per cent, and up to 34 per cent re-sprain (van Rijn et al. 2008, read in abstract).

Cystitis. In a Belgian trial, bacteriological cure by day three was 21 of 26 with nitrofurantoin and 5 of 25 with placebo, and by day seven 17 of 23 against 9 of 22 (Christiaens et al. 2002, read in abstract). A meta-analysis gave odds of clinical success 4.81 times higher with antibiotics (Falagas et al. 2009, read in abstract). So cystitis often settles, but more slowly and less often than with treatment.

Fever. A meta-analysis of eight randomised trials (1,507 patients) found antipyretic treatment did not change 28-day mortality in sepsis (RR 0.93, 95% CI 0.77 to 1.13) (Drewry et al. 2017, read in abstract). Philip Mackowiak's work on fever was found only as book reviews and is not quoted.

The placebo itself. Asbjørn Hróbjartsson and Peter Gøtzsche's Cochrane review found that placebo interventions have no important clinical effects in general, with a small effect on patient-reported pain (SMD -0.28) that is hard to

separate from biased reporting (Hróbjartsson and Gøtzsche 2010, read in abstract). Most improvement in placebo arms is the natural course.

1.20 The baseline table

The table the book's chapters will cite. "Solid" means several consistent series or trials. "Fair" means one good series or consistent secondary sources. "Weak" means extrapolated, secondary only, or contested.

Condition	Untreated or pre-specific case fatality	Usual course	Recovers fully	Left disabled	Outcome decided	Single cheap act and its effect	Strength
Lobar pneumonia, adult	20 to 40% in hospital, about 10% in healthy adults under 50, 65% in 60s	Crisis day 5 to 9	Most survivors	Few (empyema)	Day 5 to 10, some deaths fixed at onset	Sulphonamide 27% to 8%	Solid
Pneumonia, child under 5	Not established	Days	Most survivors	Few	First 1 to 3 days	Lay case management: pneumonia deaths down 36 to 70%	Solid for effect, weak for baseline
Typhoid	10 to 30%, often about 15%	About 4 weeks, relapse to 10%	Most survivors	Some carriers	Week 2 to 3	None proven without antibiotic, chloramphenicol to about 1%	Fair
Appendicitis	Unknown, generalised peritonitis "almost always fatal"	Rupture risk rises after 36 h	4 to 20% resolve	Few	24 to 48 h	Early surgery, or antibiotics (71% avoid surgery at 90 days)	Fair
Cholera, severe	About 50%, epidemic range 30 to 80%	Hours to days	Nearly all survivors	Rare	First 24 h	Rehydration: under 1%	Solid

Condition	Untreated or pre-specific case fatality	Usual course	Recovers fully	Left disabled	Outcome decided	Single cheap act and its effect	Strength
Acute diarrhoea, child	Low per episode, 14% if persistent over 14 days	87% end by 13 days	Most	Malnutrition	Dehydration in hours, persistence at 2 weeks	ORS: may prevent 93% of deaths	Solid
Dysentery, Shigella type 1	5 to 15% [VERIFY]	About a week [VERIFY]	Most	Malnutrition	First days	Rehydration and feeding	Weak
Measles	1 to 4% community, to 40% in collapse	About 2 weeks	Most	Blindness, malnutrition	Complications week 1 to 2	Vitamin A: deaths in under-twos RR 0.18	Solid
Pertussis, infant	12.5% in infants 1 to 5 months with pneumonia	Weeks	Most survivors	Some brain injury [VERIFY]	Early infancy	None cheap, nursing	Weak
Diphtheria	30 to 50% in hospital	1 to 2 weeks	Most survivors	Paralysis, heart	Day 1 to 3	Antitoxin (not makeable)	Solid
Tetanus	Traumatic 80%+, neonatal near 100%	Death in first 4 days or recovery	Most survivors	Few	First 4 days	Clean birth and cord, wound cleaning	Fair
Closed fracture	Low	12 to 20 weeks to union	About 99% unite if held	Deformity if not aligned	First days (alignment)	Splint and alignment	Solid
Open femoral fracture	50 to 80% pre-antiseptic	Weeks	Survivors often lame	Many	First 48 h (infection)	Early traction splint: to about 15%	Fair
Laceration	Very low	1 to 2 weeks	Nearly all	Scar	First day (contamination)	Washing with clean water	Fair
Burns	LA50 about 50% body surface in children, 9% over 65	Weeks	Depends on size	Contracture	First hours (fluid loss)	20 min cool water: grafting OR 0.6	Fair

Condition	Untreated or pre-specific case fatality	Usual course	Recovers fully	Left disabled	Outcome decided	Single cheap act and its effect	Strength
Falciparum, severe	Near 100% [VERIFY]	Hours to days	Most treated survivors	Some neurological	Hours	Artesunate: 10.9% to 8.5%	Fair
Vivax	0.01 to 0.56%	Recurring	Most	Anaemia	Rarely fatal	Treatment of relapse	Fair
Smear-positive TB	70% at 10 years	About 3 years	About 30% self-cure	Lung damage	Months to years	None cheap	Solid
Meningococcal meningitis	50 to 90%	Days	Survivors often scarred	Deafness	Hours	Serum then antibiotics (not makeable)	Fair
Childbirth, no attendant	872 per 100,000 (Indiana), about 900 (Sweden 1751)	Hours	Most	Fistula [VERIFY]	Labour and first hours after	Trained midwife: non-septic deaths RR 0.2	Solid
Neonatal sepsis	16.6% before village treatment	Days	Most survivors	Some	First days	Village antibiotics: 2.8%	Fair
Common cold	Nil	90% gone by 15 days	All	None	Not applicable	Wait	Solid
Ear infection, child	Nil in trials	60% better at 24 h	Nearly all	Rare	2 to 3 days	Wait and give pain relief	Solid
Acute back pain	Nil	Large gain by 6 weeks	Most	Some persistent	6 weeks	Wait	Solid
Ankle sprain	Nil	2 weeks to months	36 to 85%	5 to 33% pain at 1 year	Weeks	Wait, protect	Solid

2. Evidence grades

Practice	Grade	Tradition says	Record shows	Modern inference
Watchful waiting for colds, ear infection, sore throat, back pain, sprain	A	Rest heals	Placebo arms recover at the rates above	Natural course, regression to the mean
Oral rehydration solution	A	Salt and sugar drinks are old	Cholera 50% to under 1%	Glucose-coupled sodium uptake in gut

Practice	Grade	Tradition says	Record shows	Modern inference
Counting breaths and treating childhood pneumonia	A	Not traditional	36 to 70% fewer pneumonia deaths	Early antibiotics before decompensation
Vitamin A in measles under two	A	Liver for night blindness is old [VERIFY]	RR 0.18	Epithelial and immune repair
Zinc in childhood diarrhoea	A	None	About half a day shorter	Gut repair in deficient children
Antibiotics for uncomplicated appendicitis	A	None	71% avoid surgery at 90 days	Infection controlled before rupture
Trained midwife at home birth	B	Universal	Non-septic deaths RR 0.2, Sweden	Skilled hands manage haemorrhage and obstruction
Clean birth and cord	B	Varies, some traditions apply dung or ash to cord [VERIFY]	Neonatal tetanus fell 84% 2000 to 2021 with vaccination and clean births	Spores excluded
Traction splint for femoral fracture	B	Bone-setting is universal	50 to 80% to about 15%	Less bleeding, less tissue damage, less infection
Antisepsis for wounds and amputation	B	Wine, honey, vinegar	Lister 46% to 15%	Fewer bacteria
Washing wounds with clean tap water	A (low certainty)	Washing is universal	No more infection than saline	Dilution of contamination
Cooling burns 20 minutes	B	Cold water and many folk applications	Grafting OR 0.6	Stops heat injury, reduces depth
Early appendicectomy	B	None	Mortality 17% within 48 h against 67% at day 9 to 10 (1904)	Removal before rupture
Antitoxin in diphtheria	B	None	30 to 50% to about 10%	Neutralises toxin, only early
Cold baths in typhoid (Brand)	D	Hydrotherapy	Institutional claims of 5 to 6%	Uncontrolled, fever reduction does not change mortality in sepsis trials
Lowering fever to save life	X for mortality	Fever is the enemy	No mortality benefit in sepsis	Fever is a host defence
Antibiotics for colds	X	Not applicable	No benefit, harms	Viral and self-limiting

3. Means ledger

Rungs: hands and knowledge alone (H), hearth (He), garden and still (G), village dispensary of 300 (V), district infirmary of 3,000 (D), hospital before the Fall (R, the reference).

Knowing the natural course and waiting well. H: knowing that a cold lasts up to 15 days, earache a week and back pain six weeks avoids harm and saves stock. He: warmth, fluids, food. V: a written chart of expected durations and red flags, and a register to learn local patterns. D: a nurse reviews those who leave the expected curve. R: the same plus tests. Change: small for the illness, large for stock saved and red flags caught.

Rehydration. H: recognising dehydration (MSF Appendix 14). He: clean water, salt, sugar, a litre measure, a spoon. G: a scale to weigh salt and sugar, which removes the commonest error. V: salvaged ORS packets, zinc, nasogastric tubes. D: intravenous fluid for severe cases, which no lower rung can give. Change: cholera from about 50 per cent towards a few per cent at the hearth if started early and given in volume [VERIFY: my inference], and under 1 per cent with intravenous back-up.

Pneumonia care. H: counting breaths, judging chest indrawing. He: nursing, fluids, warmth, propping up. V: salvaged oral antibiotics given by a trained lay worker, as in the community trials. D: injectable antibiotics, oxygen if any. R: oxygen, cultures, ventilation. Change: nursing alone leaves Osler's baseline. Village antibiotics remove most of the excess in children.

Clean birth. H: hand-washing, a clean surface, a clean cut cord, knowing when labour is not progressing. He: boiled water, thread and blade, clean cloth, soap. G: ethanol for hands. V: a trained midwife, the strongest rung in the historical record. D: manual removal of placenta, perhaps caesarean section and transfusion. Change: from the Faith Assembly level of about 870 per 100,000 towards Sweden's 230 in 1900 with midwife and antisepsis, and lower with a district theatre.

Fractures and wounds. H: traction and splinting with sticks and cloth. He: clean water, boiled cloth. G: a forge for Thomas-type splints, ethanol. V: bracing and dressings. D: a sterile room to wash out open fractures, delayed closure, amputation. Change: open femoral fracture from 50 to 80 per cent towards the 15 per cent of early traction in 1917.

Burns. H: cool running water for 20 minutes, remove burning clothes and rings. V: dressings, oral fluid plans. D: intravenous fluid and grafting. Change: early cooling reduces depth and grafting. Survival of large burns depends on fluid only D can give.

Early surgery. H to G: only recognising the clock. V: salvaged antibiotics for uncomplicated appendicitis. D: appendicectomy if a surgeon exists. Change: from Osler's "almost always fatal" generalised peritonitis to under 2 per cent.

4. Harm test

Waiting. Waiting kills when the illness is one of the few that turns: appendicitis past 36 to 48 hours, fast breathing in a child, meningitis called "flu", the first two days of diphtheria. Never leave to wait: infants under two months with fever or fast breathing, a stiff neck or purple rash, a woman bleeding after birth, a child who cannot drink. Going wrong: the illness leaves the expected curve. Then act at once and move the patient up.

Home rehydration. Wrong recipes harm. A 1988 survey of African recommendations found sodium concentrations from 9 to 116 mmol per litre and glucose from 29 to 174 mmol per litre (survey abstract, read in secondary summary). Too much salt causes hypernatraemia and convulsions, especially in infants. Too little makes the drink useless. Overload shows as puffy eyelids (MSF Appendix 14). The severely malnourished child needs a special solution (ReSoMal), not standard ORS in volume. Unsafe water gives the next infection.

Needless antibiotics. In ear infection one treated child in 14 suffers vomiting, diarrhoea or rash (Venekamp et al. 2023). After the Fall every dose wasted on a self-limiting illness is missing for pneumonia or sepsis.

Lowering fever. Aggressive antipyretic treatment showed a trend to more deaths in one intensive-care trial (Young et al. 2011, as cited in secondary review).

Burn cooling. Over-cooling causes hypothermia, especially in children and large burns (Wood et al. 2016). Keep the rest of the child warm.

Splinting and traction. Too tight a splint cuts off blood supply. A cold, pale or numb limb beyond it means loosen at once. [VERIFY: standard first-aid teaching, not sourced here.]

Early wound closure. Closing a dirty wound traps infection. Low-quality evidence suggests delay raises risk (Zehtabchi et al. 2012). When in doubt, wash and leave open, and close later at D.

Vitamin A. Large doses are for measles and deficiency, not for daily use. Pregnant women should not receive the high doses used for children [VERIFY].

Historical harm. Osler warned that a practitioner attending a case of erysipelas "should not attend cases of confinement" (Osler 1892). Puerperal sepsis caused 54 per cent of Swedish maternal deaths in 1861 to 1900 (Högberg 2004). The attendant can be the vector.

5. Red flags

Signs of death or disability without what the village cannot give.

1. **Child breathing fast at rest:** 60 or more per minute under two months, 50 or more at two to eleven months, 40 or more at one to five years, or the lower chest pulling in (WHO IMCI, read in summary). Or any danger sign: cannot drink, vomits everything, convulsions, lethargy. Do anyway: feed, warm, salvaged antibiotics, move to D.
2. **Abdominal pain that settles in the right lower abdomen, with fever, for more than a day.** The rupture clock runs after about 36 hours. Do anyway: antibiotics if held, move to D. Without a surgeon some will form an abscess and survive, as Osler saw.
3. **Watery diarrhoea with sunken eyes, slow skin pinch, no urine or inability to drink.** Severe dehydration. Do anyway: ORS by spoon or tube without stopping, move to D.
4. **Stiff neck, purple rash that does not fade under pressure, or a child who will not wake.** Meningitis. Do anyway: antibiotics if held, quiet, fluids, comfort.
5. **A grey membrane in the throat with a "bull neck".** Diphtheria. Antitoxin works in the first two days only. Do anyway: isolate, keep the airway clear, comfort.
6. **Jaw stiffness after a wound or in a newborn.** Tetanus. Do anyway: dark quiet room, one attendant, feeding by spoon or tube, as Osler advised.
7. **Bleeding after birth that soaks cloths, or labour that does not progress.** Haemorrhage and obstruction kill within hours. Do anyway: the midwife's manoeuvres, move to D.
8. **Fever in a newborn, or a newborn who stops feeding.** Sepsis. Village antibiotics brought case fatality from 16.6 to 2.8 per cent in Gadchiroli.
9. **A burn larger than about a quarter of the body in an adult, or any large burn in the old.** Survival depends on intravenous fluid. Do anyway: cooling, clean cover, oral fluids, comfort. Over 65, half died with only 9 per cent burned in 1949.
10. **Fever with convulsions or coma in malarious country.** Severe malaria. Do anyway: whatever antimalarial is held, cool sponging, fluids.
11. **A broken thigh or a broken bone through the skin.** Do anyway: traction splint, wash with clean water, cover, move to D.

12. **Cough with blood and weight loss for months.** Tuberculosis. Seven in ten smear-positive cases die within ten years. Do anyway: nutrition, separation from children, honest talk.

Honest comfort. Where nothing can change the outcome, the natural-history data allow a truthful answer to "Will he live?" For pneumonia in a healthy young adult: "probably, and we will know within the week". For TB: "many live for years, and some recover". For severe meningitis or a large burn in the old, say the truth gently, keep the patient clean, warm, without thirst and as free of pain as stock allows, and keep the family near.

6. The case against

Against the historical figures. Osler himself named the main bias: hospitals admit "only the severer forms" (Osler 1892, on diphtheria). Townsend and Coolidge showed that excluding the old and the alcoholic halved pneumonia mortality. The pre-antibiotic record overstates death for a whole village and can make treatments look better than they are.

Against medicine's share in the decline. Thomas McKeown argued in The Modern Rise of Population (1976) that deaths from tuberculosis and other infections fell long before effective treatment, and credited nutrition (McKeown, read in secondary reviews). Simon Szreter (1988) credited public health measures such as clean water instead, and a clinician reviewer pointed to a steeper tuberculosis decline after chemotherapy arrived in 1948 (Milbank Memorial Fund Quarterly 1977, author not confirmed [VERIFY]). Both sides agree on what matters after the Fall: much of the fall in deaths came from things a village can do (water, food, separating the sick), not from drugs.

Against the famous before-and-after numbers. Lister's 46 to 15 per cent rests on 75 amputations. The Thomas splint's "80 to 20 per cent" has no primary source I could find, and Ellis put the baseline at 50 to 60. Gadchiroli's sepsis fall was before-and-after. Each is right in direction and soft in number.

Against the observational case for attendants. Per Pettersson-Lidbom notes that observational studies often show professionally attended births with higher death rates, because complicated cases seek help (Pettersson-Lidbom 2015). Selection runs both ways.

Against the modern placebo arms. The children in Thompson's review and the otitis trials were well fed, vaccinated and in rich countries. Wolfson's measles range of 0 to 40 per cent and the larger effect of zinc in malnourished children show how far the baseline rises with hunger. The self-limiting illnesses may be less self-limiting in a hungry village.

Against the romance of the herbal. For most conditions here the record shows no traditional remedy that beat the untreated course, and some, such as bleeding in pneumonia, which Osler still discussed in 1892, may have added deaths (Osler 1892).

Against the romance of the hospital. Penicillin did not save those destined to die in the first five days of pneumococcal bacteraemia, and Austrian and Gold's antibiotic-era series still lost about 17 per cent (Austrian and Gold 1964). Placebo has no important effect on hard outcomes, and much that was credited to doctors was natural recovery (Hróbjartsson and Gøtzsche 2010).

Today against after the Fall. Every treated figure here assumes a drug supply. After the Fall the feasible single acts are ORS, clean birth, a trained midwife, a traction splint, cool water, washing, and knowing when to wait. Antibiotics, antitoxin, artesunate and intravenous fluid are salvage or district goods, and will run out.

7. 10-line summary

1. Most minor illness heals on its own: 90 per cent of colds by 15 days, earache by 8, sore throat by 7, back pain largely by 6 weeks.

2. Severe cholera kills about half untreated and under 1 per cent with fast, full rehydration, the largest gap in this document.
3. Lobar pneumonia killed 20 to 40 per cent of hospital patients, rising steeply with age, and is decided by about day 7 to 10.
4. Sulphapyridine cut pneumonia deaths from 27 to 8 per cent in 1938, and lay case management cuts child pneumonia deaths by a third or more.
5. Typhoid killed 10 to 30 per cent, decided in weeks two to three.
6. Diphtheria and tetanus are decided in two to four days, which is why prevention matters more than cure.
7. Untreated smear-positive TB kills 70 per cent in ten years and three in ten recover by themselves.
8. Birth without any trained attendant carried about 870 maternal deaths per 100,000, and a trained midwife cut non-septic deaths fivefold in Sweden.
9. Open femoral fractures killed half or more before antisepsis and early traction splinting, which brought this to about 15 per cent.
10. Appendicitis rupture risk climbs after about 36 hours, and antibiotics alone spare about seven in ten from surgery at 90 days.

8. Open questions

- Untreated childhood pneumonia case fatality in a malnourished population: not found.
- Heffron's 1939 tables, Stuart and Pullen's 1946 typhoid series and Fitz's 1886 tables were not readable online.
- The share of uncomplicated falciparum malaria that becomes severe without treatment.
- Untreated mortality for Shigella type 1 dysentery, which rests on one secondary estimate.
- Whether placebo-arm recovery rates from well-fed populations hold in a hungry one.
- The true pre-Thomas-splint baseline for compound femoral fracture (50, 60 or 80 per cent).
- How much of the nineteenth-century fall in mortality was food, sanitation or medicine (McKeown against Szreter).
- Whether home sugar-salt solution mixed by spoon is reliably safe, given the range found in 1988.

9. Sources to read in full

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At the bedside after the Fall

The household. Minimum: know the expected course of the common illnesses (1.19), the red flags (Section 5) and how to make and give ORS. Needs: a litre measure, a teaspoon, salt, sugar, clean water and cloth, soap, a watch or one-minute sand-glass, a notebook. Skills: counting a child's breathing, judging dehydration, cooling a burn, splinting a limb, keeping a birth clean. First failure to expect: treating every cough as a cold, which misses the child with pneumonia.

The village of 300. Minimum: one trained lay healer and one trained midwife, a written chart of expected durations and red flags, a register of every illness with dates of onset and outcome. Needs: a gram scale, salvaged ORS, zinc and

oral antibiotics kept for pneumonia, newborn sepsis and dysentery, forged Thomas-type splints, dressings. Skills: the IMCI breath count and danger signs, home neonatal care as in Gadchiroli, the rehydration plans. Plants: none in this document is needed to beat the natural course. First failure to expect: the antibiotic store emptied in the first winter on colds and earaches.

The district of 3,000. Minimum: a nurse or doctor, intravenous fluid, a sterile room for washing out open fractures and for appendicectomy if a surgeon exists, a ten-bed ward. Needs: a way to make sterile saline or Ringer's solution, sterile instruments, a microscope for TB sputum and malaria films. Skills: surgery for the abdomen and birth, intravenous rehydration, burn fluid management. Records: case fatality per condition each year, compared with the table in 1.20. First failure to expect: delay. The patient arrives on day four of appendicitis or diphtheria, after the outcome is decided. The first job is to shorten the journey.

Protocols

Protocol 1. Wait or act: the first decision - [ ] Ask when it began. Write the date and hour. - [ ] Check for any red flag in Section 6. If one is present, act now and move the patient up. - [ ] If none, name the likely illness and its expected course (cold up to 15 days, earache up to 8, sore throat up to 7, acute cough up to 25, back pain most better by 6 weeks). - [ ] Tell the family the expected course and the signs to come back for. Give fluids, food, rest, pain relief. - [ ] No antibiotics for colds, most ear infections, most sore throats or back pain. - [ ] Review if the course runs long or a new sign appears.

Protocol 2. Counting a child's breathing - [ ] With the child calm and the chest bared, count breaths for one full minute by watch or sand-glass. - [ ] Fast breathing is 60 or more under 2 months, 50 or more at 2 to 11 months, 40 or more at 1 to 5 years. - [ ] Look for the lower chest pulling in on each breath. - [ ] Check danger signs: cannot drink or breastfeed, vomits everything, convulsions, very sleepy or unconscious. - [ ] Fast breathing or chest indrawing without danger signs: treat as pneumonia (antibiotic if held, by the village healer). - [ ] Any danger sign: severe, move to the district. - [ ] Recount after 2 days.

Protocol 3. Diarrhoea and rehydration (from MSF Appendix 14) - [ ] Judge dehydration by two or more signs: restless or lethargic, sunken eyes, slow skin pinch (slower than 1 second, very slow over 2 seconds), thirst or inability to drink, little or no urine. - [ ] No dehydration (Plan A): after each loose stool give ORS 50 ml under 5 kg, 100 ml at 5 to 10 kg, 200 ml at 10 to 20 kg, 300 ml over 20 kg. Under 2 years by teaspoon every 1 to 2 minutes. Keep breastfeeding and feeding. - [ ] Some dehydration (Plan B): give 75 ml per kg over 4 hours. Example: a 14 kg child takes about 1 litre, 250 ml per hour. Infants 5 ml every 5 minutes by spoon. - [ ] If the child vomits, wait 5 to 10 minutes, then give smaller amounts more slowly. - [ ] Reassess at 4 hours. If no signs remain, return to Plan A. - [ ] Puffy eyelids: stop ORS, keep breastfeeding. - [ ] Severe dehydration (Plan C): needs intravenous fluid at the district (30 ml per kg then 70 ml per kg, over 1 then 5 hours under 12 months, over 30 minutes then 2.5 hours over 12 months). Give ORS on the way if the child can drink. - [ ] Home salt-sugar solution only when no packet exists. The sources differ: WHO's older recipe is 1 litre water with 8 level teaspoons sugar and 1 level teaspoon salt (about 86 mmol sodium), and a WHO-based physicians' manual gives about 3 g salt and 18 g sugar per litre. Where a scale exists, weigh. Never add more salt than the recipe. [VERIFY: confirm the household recipe against current WHO guidance before printing.] - [ ] Severely malnourished child: not standard ORS in volume (see the malnutrition chapter).

Protocol 4. The abdominal clock - [ ] Note the hour the pain began. - [ ] Pain that starts around the navel and moves to the lower right, with fever, loss of appetite or vomiting, is appendicitis until shown otherwise. - [ ] Before 36 hours: rupture risk about 2 per cent or less. Begin the journey to the district now. - [ ] After 36 hours: risk about 5 per cent more each 12 hours. - [ ] If no surgeon is reachable, give salvaged antibiotics if held, rest, light fluids. Expect some to settle (Osler saw many recover) and some to form a tender lump (abscess). - [ ] Rigid, board-like belly with fever: generalised peritonitis. Comfort and fluids.

Protocol 5. Burns - [ ] Stop the burning. Remove clothes and rings unless stuck. - [ ] Cool running water on the

burn for 20 minutes, starting within 3 hours. Not ice. - [ ] Keep the rest of the body warm. Stop if the child shivers. - [ ] Estimate the area with the patient's palm as about 1 per cent of body surface [VERIFY]. - [ ] Over about 15 per cent in a child or 25 per cent in an adult, or any burn of face, hands, groin or encircling a limb: move to the district. - [ ] Cover with clean cloth. Give fluids by mouth.

Protocol 6. The clean birth and the cord - [ ] Wash hands with soap and water, then ethanol if held. - [ ] Clean surface and clean cloth. - [ ] Boil blade and two lengths of thread for 10 minutes [VERIFY]. - [ ] Tie the cord twice, cut between with the clean blade. - [ ] Put nothing on the cord. Keep it clean and dry. - [ ] Watch the mother for bleeding for at least 2 hours [VERIFY]. - [ ] A helper with erysipelas or an infected wound does not attend the birth (Osler 1892). - [ ] Newborn that stops feeding, is hot or cold, or breathes fast: sepsis, treat or move at once.

Protocol 7. A broken thigh - [ ] Pull gently and steadily along the line of the leg to straighten it. - [ ] Hold the pull with a traction splint (forge-made Thomas pattern) or a long padded board from armpit to beyond the foot. - [ ] If the bone is through the skin, wash with plenty of clean drinkable water and cover. Do not close the wound. - [ ] Check the foot every hour: warm, pink, can feel. If cold, pale or numb, loosen. - [ ] Move to the district within 48 hours.

Numbers to carry

1. **15 days:** 90 per cent of colds are gone (cough up to 25 days, earache 8).
2. **About 50 per cent against under 1 per cent:** severe cholera untreated against properly rehydrated.
3. **75 ml per kg over 4 hours:** ORS for some dehydration.
4. **60, 50, 40:** breaths per minute that mean fast breathing in a child under 2 months, 2 to 11 months, 1 to 5 years.
5. **36 hours:** after this, appendicitis ruptures at about 5 per cent per 12 hours.
6. **20 to 40 per cent:** pre-antibiotic hospital pneumonia mortality, decided by about day 7 to 10.
7. **First 2 to 4 days:** the window that decides diphtheria and tetanus.
8. **20 minutes:** cool running water on a burn.
9. **Relative risk 0.2:** non-septic maternal death with a trained midwife at a Swedish home birth.
10. **70 per cent:** ten-year mortality of untreated smear-positive TB, so three in ten recover.

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