TR-08 Native North American healing: ethnobotany, sweat lodge, ceremony and the data

HEALING after the FALL, research library, TR-08

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

How to read this report

This report follows the owner's ruling of 12 October 2026: each tradition first, in its own words and logic, with the evidence beside it, including where it is missing or negative. The plants are in PH-03, with its 19-plant record, ranked dose table and six protocols (THRIVING library, PH-03). I do not repeat them. This report covers the healers, the ceremonies as far as the public record allows, the sweat lodge, wounds, bones, birth, tobacco and the harms.

The publishing rule is SY-04's five categories (THRIVING library, SY-04). Three founding sources fall partly into its third category, published by outsiders without full consent: Mooney's Cherokee formulas, Hoffman's Midewiwin account and Densmore's Mide remedies. I describe what they show about practice and outcome, and do not reproduce formula texts, songs, chant content or society remedies. Where a restricted practice carries a danger, I give the warning without the content.

The three traditions, Cherokee, Diné (Navajo) and Anishinaabe (Ojibwe or Chippewa), plus the Lakota inipi, are examples from several hundred nations, not a sample.

Findings by section

1. The tradition's frame: imbalance, the calling and the ceremonial cure

Illness as imbalance. None of the three traditions sees illness mainly as a broken part. Each sees a disturbed relationship. The Cherokee speak of duyukdv, the right path, a balance between people, other beings and the land, which the Cherokee teacher Tom Belt describes as the base of Cherokee ethics. The Center for Native Health in Cherokee, North Carolina, builds its programme on gadugi (working together), duyukdv and tohi, health (Society of Ethnobiology undated, search summary). For the Diné the central idea is hózhó, beauty, balance or harmony, which a ceremony restores (Moulton 2011, abstract). Densmore's Anishinaabe informants said healing knowledge came from the manidoog (spirits) (Densmore 1928).

The origin of disease. In the Cherokee account recorded by James Mooney in 1887 and 1888, the animals met in council and invented diseases to punish people who hunted them without respect, and the plants each agreed to supply a remedy (Mooney 1891). The account is widely published. Its logic is medical: disease has a cause in a broken relationship, so the healer must find the cause before choosing the cure. The formulas name animal spirits, ghosts and witches as causes, and use the sacred numbers four and seven (Mooney 1891).

The calling. In all three traditions healing is a role a person is called to and trained in over years. A Diné hataałii (singer) usually learns only one or two of nearly one hundred chantways, over years of apprenticeship. A ndilniihii

(hand trembler), often a woman, finds the cause through prayer, and the family then sends for a singer who knows the right ceremony (Tony Hillerman Portal undated, secondary). Stargazers and listeners also diagnose. Anishinaabe healers who used plants were usually members of the Midewiwin, the Grand Medicine Society, taught plants at each degree and otherwise buying one or two remedies at a time from the old men. The djasakid healed without material remedies (Densmore 1928). Densmore quotes a Sioux healer: a medicine man treated the one disease given in his dream, which is why healers lost their power when many new diseases came with the whites (Densmore 1928). Cherokee medicine men had no society like the Midewiwin, and Frans Olbrechts recorded two notable medicine women besides the midwives (Mooney and Olbrechts 1932).

The ceremonial cure. A ceremony treats the person in their world of family, community, spirits and land. A Diné sing gathers relatives, needs food and payment, and lasts one to nine days and nights (Tony Hillerman Portal undated). Moulton describes it as recalibrating the patient's social and spiritual relationships and connection to place (Moulton 2011, abstract). This is the social cure. In modern terms it combines meaning, expectation, belonging and the mobilised household. FO-10 shows what such meaning responses can do: in irritable bowel syndrome adequate relief rose from 28 per cent with no treatment to 62 per cent with sham treatment given with warm care. They do not change objective disease (THRIVING library, FO-10). Healers knew some of this. Mooney wrote that the patient's faith was held to aid recovery (Mooney 1891), and Densmore found Mide healers in 1918 poised and confident in a way that would inspire confidence in the sick (Densmore 1928).

Strength and failure. The frame treats the patient as a member of a group, makes the family act and gives meaning to suffering, which medicine before the Fall did badly. It fails when a disease needs a physical treatment the frame does not supply, as smallpox showed (section 3). Densmore's Mide informants stopped a treatment if no improvement came "in a reasonable time", because the medicine would not "take hold". She read this as recognising self-limiting and incurable disease, and refusing false hope (Densmore 1928). The book should copy that stop rule.

2. Moerman's catalogue: use, not effect

Daniel Moerman's *Native American Ethnobotany* (1998) gathers 44,691 uses of 4,029 taxa from 291 societies, and 2,428 of 20,669 North American species (11.7 per cent) carry a medicinal use (THRIVING library, PH-03, from Moerman 1998 via BRIT). It is a monument to the people who gave the information. It records use, not effect.

Moerman tested whether the choice was random. Regressing medicinal species on species available per family, he found Native choice far more selective than chance, so the medicine is more than placebo (Moerman 1979, abstract). Moerman and Estabrook (2003) confirmed by simulation that some families are used far more than their size predicts, perhaps through shared defensive chemistry (abstract). Where uses show no cross-cultural agreement, Moerman suggested the effect may be the meaning response (Moerman 2007, abstract), his term for the placebo effect (Hutchinson and Moerman 2018, abstract).

So selection is real but weak evidence. Krochmal's list tested active 26.7 per cent of the time against 10.4 per cent for random plants (THRIVING library, TR-01). PH-03 found the leading Native use confirmed with benefit for about 1 in 10 of its plants, and a real drug action, good or bad, for about 1 in 4 (THRIVING library, PH-03). TR-01 gives a grade C remedy about 1 chance in 3 and a grade D remedy about 1 in 10 (THRIVING library, TR-01). Every entry from the Native record starts at grade D, unless several nations agree independently, and enters PH-03's dose table only after a test.

The earliest hit rates came from the ethnographers themselves. Mooney checked 20 Cherokee plants against the US Dispensatory: 5 (25 per cent) used correctly, 12 (60 per cent) worthless or used wrongly, 3 (15 per cent) uncertain, so at most 35 per cent (Mooney 1891). Olbrechts called even that "altogether too optimistic", since a Dispensatory listing does not confirm the Cherokee way of use, and Cherokee healers treated the mode of administration as unimportant (Mooney and Olbrechts 1932). Densmore's list was checked by W. W. Stockberger of the US Department of Agriculture: 69 Chippewa plants were regarded as medicinal by whites, and only a few were official in the Pharma-

copoeia (Densmore 1928). These agree with TR-01 and PH-03: the tradition picks the right plant more often than the right use.

Virgil Vogel's *American Indian Medicine* (Vogel 1970, not read) is often cited for about 170 Native drugs that entered the official US compendia. PH-03 found the figure only in a bookseller's description, and so did I (THRIVING library, PH-03) [VERIFY].

3. Cherokee: Swimmer, Mooney and Olbrechts

The people. A'yûn'inĭ, called Swimmer (about 1835 to 1899 [VERIFY dates]), was an Eastern Cherokee medicine man in North Carolina who wrote his formulas in the Sequoyah syllabary. James Mooney of the Bureau of American Ethnology collected about 600 formulas from him and others in 1887 and 1888 and published a selection (Mooney 1891). Frans Olbrechts edited Swimmer's manuscript after Mooney's death (Mooney and Olbrechts 1932). Paul Hamel and Mary Ulmer Chiltoskey compiled *Cherokee Plants and Their Uses: A 400 Year History* (1975), a main source in the BRIT database (THRIVING library, PH-03). I have not read it.

Consent. Swimmer at first refused to give his songs, which were secret and had a market value. He was told he would be replaced if he kept refusing, since he was paid to tell everything, and gave way after an appeal to preserve the knowledge (Mooney 1891). That is consent under economic pressure, which puts the formula texts in SY-04's third category. The manuscript holds 137 formulas, of which 96 were published. Olbrechts called Mooney's medical selection artificially uniform and arranged by Western categories, and love, hunting and other formulas were held back (Mooney and Olbrechts 1932).

Practice. What can be said without the texts:

- **Wounds.** Mooney credited Cherokee doctors with "considerable skill" in wounds (Mooney 1891). Olbrechts recorded a song, then an infusion of tsi'yu (tulip poplar) bark blown over the wound, and severe bleeding stopped with a pad of buzzard down (Mooney and Olbrechts 1932). Down works as a mechanical pad, like gauze. Blowing an infusion over a wound is neither tested nor clean.
- **Bones.** A broken collarbone was treated with the arm held at about 45 degrees, as in a sling, and "most cases heal successfully" (Mooney and Olbrechts 1932). That matches modern sling treatment of most collarbone fractures [VERIFY against WO-05].
- **Rubbing.** Massage was used for painful periods and sprains (Mooney and Olbrechts 1932).
- **Scratching and bleeding.** Blood was let with a cupping horn. Ball players were scratched before a game, sometimes with nearly 300 cuts, and erysipelas sometimes followed (Mooney 1891). That is a documented infection harm.
- **Going to water.** The patient dipped at daybreak in running water four or seven times (Mooney 1891). In summer this is harmless. In winter it is cold immersion for a sick person.
- **Birth.** Four women attended, at least one of them a midwife of reputation. If the child lay wrongly, the four swung and shook the mother. Delivery of the afterbirth was helped by rubbing the belly with a hand warmed over charcoal (Mooney and Olbrechts 1932). Rubbing the uterus after birth is fundal massage, which helps the uterus contract and limits bleeding. Shaking a woman with a malpresentation has no basis and could be dangerous [VERIFY: my inference].

The sweat bath and smallpox. The Cherokee âsĭ was a small earth-covered log house used as a sweat bath with a decoction of wild parsnip, followed by a plunge into cold water (Mooney 1891). In the smallpox epidemic after the Civil War, dated 1865 by Olbrechts, about 300 Eastern Cherokee died with the sweat bath and plunge as their treatment, and Mooney reported tribes elsewhere dying in great numbers the same way (Mooney 1891, Mooney and Olbrechts 1932). By 1932 the sweat bath had been given up (Mooney and Olbrechts 1932). This is the largest documented harm in this report: a practice suited to a well person, used on a new disease with fever and failing circulation. Heat and then cold shock add dehydration and collapse to the infection [VERIFY: inference, no study].

A death from displacement. Mooney recorded a woman with a consumption-like illness, treated by a white physician until a shaman took over. She died, and two of her children after her (Mooney 1891). One outsider's case proves little, but the risk is real: a healer who replaces a working treatment, rather than standing beside it, can lose the patient.

4. Diné: Wyman and Harris, the chantways and the sing

The record. Leland Wyman and Stuart Harris's *Navajo Indian Medical Ethnobotany* (1941) analysed 240 species collected between 1906 and 1931 by John and Louisa Wetherill, traders at Kayenta, within about 50 miles of the post, often from a single informant (Wyman and Harris 1941, eHRAF summary). That makes it grade D throughout: a list to take to living Diné herbalists, not a source to copy.

The chantways. Diné ceremonies are sings or chantways, lasting one to nine days and nights and chosen after diagnosis by a hand trembler, stargazer or listener (Tony Hillerman Portal undated). The chants, sandpaintings and prayers belong to the singers who learnt them, and many Diné object to their reproduction [VERIFY: no single Navajo Nation statement found]. They fall in SY-04's fourth category, and nothing of their content is given here.

What happens at a sing, in public terms. The family hosts, gathers relatives, feeds everyone and pays the singer, and the patient is the centre of days of attention. In the Navajo Healing Project, Thomas Csordas and colleagues followed 84 Diné patients through traditional ceremonies, Native American Church meetings and Navajo Christian faith healing [VERIFY dates]. Research psychiatric diagnoses, healers' diagnoses and patients' own accounts overlapped only partly (Csordas 2000, title only, Csordas, Storck and Strauss 2008, abstract). 37 per cent had a lifetime history of major depression, and Storck, Csordas and Strauss (2000) argued from three cases that religious and biomedical healing share an engagement with existential problems more than they differ (abstract). There was no control group.

Use alongside the clinic. Of 300 consecutive Diné patients at a rural IHS clinic, 62 per cent had used a native healer and 39 per cent did so regularly. Use did not vary with age, education or income, and was lower among Pentecostals. Healers were consulted for arthritis, depression, diabetes and bad luck. Conflict with clinic care was rare, and cost was the main barrier (Kim and Kwok 1998, abstract). Most patients use both.

The evidence. No controlled study of a Diné ceremony exists, and a trial would be neither ethical nor meaningful. A sing combines the strongest known non-drug influences on reported symptoms: a respected healer, ritual, family support and shared meaning (THRIVING library, FO-10). Grade C for wellbeing and distress, by analogy, and no grade for organic disease. A multi-night sing draws on a whole kin network's resources [VERIFY: no cost figure found].

5. Anishinaabe: Densmore and the Midewiwin

The record and the people. Frances Densmore, a Minnesota musicologist, recorded Chippewa songs and then the plants used with them, at White Earth, Red Lake, Cass Lake, Leech Lake and Mille Lacs in Minnesota, Lac Courte Oreilles in Wisconsin and Manitou Rapids in Ontario, continuing until 1925 (Densmore 1928). Catalogue summaries give nearly 200 or over 200 plants, and fieldwork from 1908 to 1920 (Goodminds undated, Friends of the Wildflower Garden undated, both search summaries), so the sources differ. Her principal informants on medicine at White Earth were Mrs. Brunett, Mrs. Gagewin and Mrs. Louisa Martin, with Gagewin, a Mide member, Wezawange and Main'gans also named (Densmore 1928). The book should credit them by name.

Restricted knowledge. Mide remedies were secrets. Medicine was not passed on even within the family without payment, and plants were shown fresh rather than named (Densmore 1928). Her informants were Mide members willing to tell so that a record would survive, people who had left the Mide, and people taught by Mide relatives (Densmore 1928). That is consent from individuals, not the society. The Midewiwin continues, with four to eight degrees by community, and its birch-bark scrolls (mide-wiigwaas) hold teachings as memory aids (University of Waterloo Archives undated, search summary). Museums now withhold descriptions of some scrolls as culturally sensitive (University of Toronto Great Lakes collection undated, search summary). Hoffman's 1891 account of the rites is

an outsider's publication (Hoffman 1891, not read). I treat Mide remedies, songs and degree teachings as SY-04 categories 3 and 4, including the wound remedy below.

Practice in the household. Every household kept herbs for common complaints and sent for a specialist if they failed (Densmore 1928). Densmore's account of method is the most quantitative in the early record:

- **Strength.** Commonly a "hand-hollow-ful" of pulverised root to about a quart (about 1 litre) of water, boiled five or ten minutes. One very strong root, calamus (*Acorus* species, sweet flag), was measured by the length of the patient's index finger, infant or adult, a crude dose-by-size rule (Densmore 1928).
- **Dose and interval.** A large swallow was the usual dose and a cupful occasional. A patient in severe pain took it about every half hour. Improvement was expected after three or four doses (Densmore 1928).
- **Combinations.** As many as 20 substances could be combined in one remedy (Densmore 1928).
- **Harvest.** Tobacco was put in a small hole by the plant, with words to it (Densmore 1928). The offering is widely practised and published.

Bleeding, surgery and fractures.

- **Bloodletting** from the forearm or ankle took about "half a basin". In one case related to Densmore the vein was severed and the man died (Densmore 1928).
- **Gashing.** Small cuts were made with flint or glass. Densmore saw a woman with 15 or 20 cuts about a quarter of an inch (6 mm) long on an elbow swollen to twice its size from a sprain (Densmore 1928).
- **Amputation.** Main'gans had both legs amputated below the knee with an ordinary knife, at his own request, after they were frozen beyond saving as a boy. The stumps were dressed with dry pounded black cherry bark (*Prunus serotina*), renewed about twice a day as it became damp, and healed perfectly (Densmore 1928).
- **Gangrene.** Wezawange treated a gangrenous wound by loosening the dead flesh with a knife and applying a Mide remedy of inner barks. He insisted that everything be very clean and that neither knife nor medicine touch rust (Densmore 1928). The hygiene rule is a sound one. The remedy is Mide knowledge and is not reproduced.
- **Splints.** Thick birch bark was heated, bent to shape and set "as rigid as plaster of Paris". Thin cedar was also used, tied with basswood twine. A fractured arm was washed, greased, covered with a warm poultice and bound in a cedar splint (Densmore 1928). WO-05's warning applies here: a tight splint over a swelling limb can cut off circulation (THRIVING library, WO-05).
- **Teeth.** A hollow tooth was cauterised with an awl heated nearly red-hot, and loose teeth were pulled with sinew (Densmore 1928).

A poisoning. A Mide member carried strong medicines and poisons in his bag. One winter night an old man took what he thought was a warming medicine, said he had taken the wrong one, and died within hours (Densmore 1928). Unlabelled packets that look alike are the main harm of a personal pharmacopoeia, and the reason for the labelling rule below.

6. The sweat lodge

The tradition. The Lakota sweat lodge is the inipi, the rite of purification, one of the seven rites in Black Elk's account recorded by Joseph Epes Brown in *The Sacred Pipe* (Brown 1953, not read). Raymond Bucko's ethnography at Pine Ridge, *The Lakota Ritual of the Sweat Lodge* (1998), shows the form little changed since the first written description in the late seventeenth century, and argues that ethnographers' descriptions helped fix an "orthodox" version. Participants named three outcomes: moral and spiritual strengthening, physical healing and renewed bonds, and the lodge was popular among Lakota recovering from alcohol (Bucko 1998, publisher description and reviews only).

In public outline, a low dome of bent saplings is covered and closed. Stones heated in a fire outside are carried into a central pit, and a leader with the standing to conduct the lodge pours water on them in the dark, with prayer and

song. The door opens between rounds, often four. This outline is widely published, including by Lakota authors, and fits SY-04's first and second categories. The prayers, songs and right to lead belong to their holders.

Sweat baths were continent-wide. Densmore recorded Chippewa sweat lodges, and steaming over hot stones sprinkled with a decoction for stiff joints (Densmore 1928). The sauna and banya are near relatives.

Leaders against imitation. On 10 June 1993, at Lakota Summit V, about 500 representatives of 40 Lakota, Dakota and Nakota bands unanimously passed a Declaration of War Against Exploiters of Lakota Spirituality, condemning the sale of ceremonies, including sweat lodges run for profit. Signatories included Wilmer Stampede Mesteth, Darrell Standing Elk and Phyllis Swift Hawk (Wikipedia Inipi, secondary). After Sedona, Arvol Looking Horse, Keeper of the Sacred White Buffalo Calf Pipe Bundle, said such lodges are not part of Lakota ceremonial life (indianz.com 2009).

Physiology. I found no study of core temperature inside a sweat lodge [VERIFY: absence after a targeted search]. By inference from physiology, a lodge differs from a sauna in three ways: humid air stops sweat evaporating, darkness and crowding hide a collapse, and the leader, not the bather, decides when the door opens [VERIFY: inference]. The sauna gives base rates. It is well tolerated by healthy adults and children and safe in uncomplicated pregnancy, with unstable angina, recent myocardial infarction and severe aortic stenosis as contraindications, and alcohol causing low blood pressure, arrhythmia and sudden death (Hannuksela and Ellahham 2001, abstract). In Finland from 1990 to 2002, with about 2 million saunas, sauna deaths ran under 2 per 100,000 people a year. 51 per cent were natural deaths, heat caused 25 per cent, and 50 per cent of the dead had been drinking. The advice was to drink less and never leave a drunk bather alone (Kenttämies and Karkola 2008, abstract). Among 2,315 Finnish men followed for about 20 years, four to seven saunas a week went with less sudden cardiac death than one a week (hazard ratio 0.37, 0.18 to 0.75), an observational and likely confounded association (Laukkanen et al. 2015, abstract).

Deaths in sweat ceremonies. Livingston found four deaths of white people in sweat-type ceremonies, used the sauna as the model, and named alcohol just before, ischaemic heart disease and sweating alone as risk factors (Livingston 2010, abstract). Byard and Riches described a 37-year-old man who died in outback Australia and named "sweat lodge syndrome": prolonged heat in an uncontrolled setting, too little fluid, unrecognised loss of consciousness, ineffective alternative treatment and delayed care. They advised excluding people with heart disease, on drugs that predispose to overheating, or after heavy drinking (Byard and Riches 2005, abstract). Lewis Mehl-Madrona, a physician of Lakota and Cherokee descent [VERIFY], wrote a companion piece (Mehl-Madrona 2010, title only).

Evidence for benefit.

- **Jail treatment.** Of 190 Diné men aged 18 to 64 in a jail alcohol programme at Window Rock from 1996 to 1999, 123 took part in sweat lodges and 91 were followed up. Drinks per session fell from 6.7 to 5.3, not significantly, and about 47 per cent were rearrested (Gossage et al. 2003, abstract). NIAAA's Native AIR registry rates it early stage, with no change (NIAAA undated).
- **Wellbeing.** Schiff and Moore's pilot found that spiritual and emotional wellbeing rose after a lodge. They noted that there was almost no research on efficacy (Schiff and Moore 2006, abstract) [VERIFY: sample size not obtained].
- **Substance use.** Chase-Begay and colleagues reviewed 10 studies of ceremonial practice for substance use, seven urban and three on reservations. Drumming appeared in nine, sweat lodges in seven and talking circles in six. All ten reported reduced use, but none allowed a meta-analysis (Chase-Begay et al. 2023, abstract).
- **Trauma.** Marsh and colleagues' Northern Ontario programme combined Seeking Safety with sweat lodges for intergenerational trauma and substance use. It enrolled 24, of whom 17 completed, with qualitative results (Marsh et al. 2018, abstract and secondary summary).

The pattern is consistent: high acceptability, reports of benefit, no controls, small samples. Grade C for wellbeing and for engagement in recovery. No grade for any physical disease.

7. Sedona, 8 October 2009: the harm case

What happened. James Arthur Ray, a self-help author, ran a five-day "Spiritual Warrior" retreat at the Angel Valley Retreat Center near Sedona, Arizona, at about $9,695 a head, with reports giving $9,000 to $10,000 (NBC News 2009, CBS News 2010). It ended in a sweat lodge of about 415 square feet, covered with plastic tarpaulins as well as blankets, holding 50 to 65 people by different reports, for about two hours (NBC News 2009, MPR News 2011, Indian Country Today 2011). Participants had just come from a vision quest without food or water [VERIFY: duration not confirmed]. Ray urged them to push past weakness and chided some who wanted to leave (MPR News 2011, Indian Country Today 2011). No building permit was on record (NBC News 2009).

The dead and injured. Kirby Brown, 38, and James Shore, 40, were carried out without pulse or breathing and died of heat stroke. Liz Neuman, 49, died on 17 October at Flagstaff Medical Center of multi-organ failure from hyperthermia after prolonged sweat lodge exposure (UPI 2010, CBS News 2010). Eighteen to 21 others, by different reports, went to hospital with burns, dehydration, respiratory arrest, kidney failure and loss of consciousness (NBC News 2009, KOLD 2009). Carbon monoxide was excluded, and the defence's theory of toxins from treated wood did not prevent conviction (UPI 2010, MPR News 2011).

The verdict. On 22 June 2011, at Camp Verde, after less than nine hours, a jury found Ray guilty of three counts of negligent homicide and acquitted him of manslaughter (MPR News 2011, Indian Country Today 2011). Facing probation to 11.25 years, he was sentenced to two years, concurrent, with $57,514.12 restitution (KNAU 2011), and paroled after serving 85 per cent (NBC News 2013). Civil suits reportedly settled for about $3 million [VERIFY]. I did not read the court record of *State of Arizona v. James Arthur Ray*.

The Native reading. Valerie Taliman (Diné) called Ray's lodge a "bastardized version" of the ceremony (Indian Country Today 2011), and Freddie Johnson of the Phoenix Indian Center said the same [VERIFY source]. The commercial copy reversed every safeguard of the practice in section 6:

Safeguard in the tradition	At Sedona
Leader with standing in the community, answerable to it	Paying customers of a seller, with no community
Door opens between rounds, and anyone may leave	Leaving discouraged and shamed
Lodge of breathable natural covers	Plastic sheeting
Participants fed and watered beforehand [VERIFY: varies by community]	After a fast without water
Small group in a known space	About 55 to 65 in 415 square feet
Purpose is prayer and relationship	Purpose was endurance, sold as a breakthrough

Byard and Riches's syndrome fits Sedona closely (Byard and Riches 2005). Sedona was not the tradition failing. It was the form copied without the rules, and the book must copy the rules.

8. Tobacco: sacred medicine and leading killer

The tradition. Tobacco is sacred across much of the continent. It is offered at harvest (Densmore 1928), carried in bundles, smoked in the pipe and given to a healer when asking for help. Native species include *Nicotiana rustica* L. (Solanaceae), grown across the East before contact, and *N. quadrivalvis* and *N. attenuata* in the West [VERIFY ranges]. Joseph Winter's *Tobacco Use by Native North Americans: Sacred Smoke and Silent Killer* (2000) traces wild and cultivated tobaccos, the belief that the spirits themselves crave tobacco, and the shift to cigarettes, and argues for limited sacramental use against commercial tobacco (Winter 2000, catalogue descriptions only).

Pharmacology. *N. rustica* leaf holds 4 to 9.5 per cent nicotine by PROTA and up to about 9 per cent by a second summary, against about 1 to 3 per cent for commercial *N. tabacum* (PROTA undated, Wikipedia Nicotiana rustica,

both search summaries). Bernhard Mayer traced the textbook lethal dose of 60 mg to doubtful nineteenth-century self-experiments and put the lower fatal oral limit at 0.5 to 1 g in an adult, 6.5 to 13 mg per kg (Mayer 2014, full text read). For a 10 kg child that is 65 to 130 mg, roughly 1 to 3 g of dried rustica leaf [VERIFY: my arithmetic, children may be more vulnerable, and vomiting and incomplete absorption often limit it]. A child who eats leaves from a ceremonial garden may be in danger. This is a warning about the plant, not a disclosure of its use (THRIVING library, SY-04).

Commercial tobacco. From 2010 to 2015, 37.3 per cent of American Indian and Alaska Native adults smoked cigarettes against 23.0 per cent of others, and 43.3 against 27.7 per cent used any tobacco (Odani et al. 2017). Prevalence runs from about 14 per cent in parts of the Southwest to 75 per cent in parts of the Northern Plains (Keep It Sacred undated, search summary). A 2026 study states that commercial smoking accounts for half of all American Indian and Alaska Native deaths (Bricker et al. 2026, abstract) [VERIFY: very high, primary source not found]. The safe statement is that it is a leading preventable cause of death [VERIFY].

Cessation that respects the plant. Programmes that separate sacred from commercial tobacco report quit rates like those of other programmes, mostly without controls:

- **All Nations Breath of Life** (Christine Daley and Won Choi, University of Kansas): among 312 urban American Indian adults at seven sites, 22.1 per cent abstinent at six months, with voluntary cotinine checks and those lost counted as smokers, in a single-arm study (Daley et al. 2018, abstract).
- **All Nations Snuff Out Smokeless**, the smokeless version, achieved 22.9 per cent in 48 people, counted the same way (Daley et al. 2021, abstract).
- **Pharmacotherapy.** When clinicians offered free medicines and a quitline to all unless they opted out, one-month abstinence among American Indian and Alaska Native participants was 22.0 per cent, against 10.2 per cent when they had to opt in (Shergina et al. 2024, abstract). Five randomised trials in 1,633 Indigenous adults found verified six-month abstinence of 6.9 to 22.6 per cent (Mahmoodianfard et al. 2026, abstract).

Hamel and Chiltoskey record that the Cherokee smoked lobelia to break the tobacco habit, but PH-03 grades lobelia X for respiratory paralysis (THRIVING library, PH-03).

9. Suppression, integration and the record

Suppression. In his report published in 1883, Interior Secretary Henry Teller asked for courts to end the old dances and the practices of medicine men, whom he called impostors (Teaching American History, Teller 1883). The Rules for Courts of Indian Offenses, approved on 10 April 1883 by Commissioner Hiram Price, punished the sun dance, scalp dance and war dance by withholding rations for up to 10 days, or up to 30 days in the agency prison for a repeat offence. A medicine man was confined for at least 10 days, or until the court was satisfied he would abandon the practice for ever (Wikipedia, The Code of Indian Offenses, citing the Rules). John Collier's circular of 1934 is usually given as the end of active suppression [VERIFY]. Secrecy is often the scar of suppression (THRIVING library, SY-04).

Law. The American Indian Religious Freedom Act (Pub. L. 95-341, 11 August 1978, 42 USC 1996) declared a federal policy of protecting Native religious practice (US Code 2010). It had no enforcement mechanism, as *Lyng* (1988) and *Employment Division v. Smith* (1990) showed (Wikipedia AIRFA, secondary). The 1994 amendments (Pub. L. 103-344 [VERIFY], 42 USC 1996a) protected ceremonial peyote use by tribal members (H.R. 4230, 1994). Peyote stays outside this book under SY-04's fifth category.

The Indian Health Service. Special General Memorandum 94-08 of 29 July 1994, signed by Michael Trujillo (Laguna Pueblo [VERIFY]), restated IHS policy from the AIRFA era. The IHS would foster "a climate of respect and acceptance", make every effort to honour a patient's request for a native practitioner, provide space and privacy for ceremonies in hospital, and allow contract health funds for healer consultations. Staff were to avoid uninvited probing into beliefs, and support was not to take control away from traditional practitioners (IHS 1994, read). It

respects without endorsing. At Chinle, Arizona, one of the first IHS sites with an Office of Native Medicine, three Diné practitioners advise clinicians, and hogans and sweat lodges are used regularly (IHS Chinle case study undated, search summary).

Patients use both. Of 150 patients at an urban Native health centre in Milwaukee, about a fifth Ojibwe and a fifth Oneida, 38 per cent had seen a traditional healer, and 86 per cent of the rest would consider it. Sweat lodges, spiritual healing and herbs were the commonest treatments. 61.4 per cent rated the healer's advice above the physician's, and only 14.8 per cent had told their physician (Marbella et al. 1998, abstract). After the Fall, as before, healer and medic will treat the same patients, often without knowing it. Asking openly, as the IHS memo does, is safer.

Research harm. Havasupai blood given in the early 1990s for Arizona State University diabetes research was used without consent for studies of schizophrenia, inbreeding and migration. The tribe sued in 2004, and in April 2010 the Arizona Board of Regents paid $700,000 to 41 members, returned about 200 samples and apologised (State Press 2010, Mello and Wolf 2010, both search summaries). It is Swimmer's case in modern form.

Culture as treatment. Michael Chandler and Christopher Lalonde studied British Columbia's 196 bands from 1987 to 1992, where youth suicide rates ranged up to 800 times the national average. Bands with all six markers of cultural continuity, such as self-government and control of education and health services, had no youth suicides, while bands with none had over 10 times the national rate (Chandler and Lalonde 1998, search summaries). The design is ecological, replicated for 1993 to 2000 [VERIFY]. Joseph Gone, of the Aaniiih (Gros Ventre) nation [VERIFY], and Calf Looking reported in 2011 that no empirical test of culture as treatment had appeared, and planned one for a Blackfeet cultural immersion camp (Gone and Calf Looking 2011, abstract). In 2013 Gone theorised its mechanisms through a residential school survivor's case in a Manitoba programme (Gone 2013, abstract). Nicole Redvers and Be'sha Blondin, both Dene [VERIFY], screened 4,277 records on traditional Indigenous medicine in North America, included 249, and found few outcome studies (Redvers and Blondin 2020, abstract).

Evidence grades

Grades as defined in TR-01 (THRIVING library, TR-01). Claim is the tradition's own claim, record is what was written down, inference is what modern evidence supports.

Practice	Tradition's claim	Record	Modern inference	Grade
Plant selection (Moerman)	Plants were given as remedies	44,691 uses, non-random	Right plant more often than right use	C for screening, D per use
Sing or chantway	Restores hózhó	Csordas 84 patients, Kim 62% use	Meaning and social response, no controls	C wellbeing, none for disease
Sweat lodge, healthy adult	Purifies, heals, renews bonds	Bucko, 10-study review	Acceptable, reported benefit, uncontrolled	C wellbeing and recovery
Sweat lodge, heart disease, alcohol, fasting	Not a traditional claim	Livingston, Byard, Sedona	Documented deaths	X
Sweat bath for fever or smallpox	Cures	About 300 Cherokee deaths, 1865	Harmful	X
Splint, sling, clean wound	Heals	Densmore, Olbrechts	Consistent with modern care	B by convergence

Practice	Tradition's claim	Record	Modern inference	Grade
Bloodletting, gashing, scratching	Removes bad blood	One death, erysipelas	No benefit, infection and bleeding	X
Fundal rubbing after birth	Helps afterbirth	Olbrechts	Uterine massage limits bleeding	B by convergence [VERIFY]
Shaking for malpresentation	Turns the child	Olbrechts	No basis, possible harm	X [VERIFY]
Culture-based cessation	Restores tobacco's place	ANBL 22.1% at 6 months	Single arm, plausible	C
Cultural continuity	Protects the young	Chandler and Lalonde	Ecological association	C

Means ledger

Item	Hands	Hearth	Garden and still	Village of 300	District of 3,000	Hospital before the Fall
Lodge with safety rules	Recognise heat illness	Hot stones, water, covers, cold water nearby	Willow, natural covers	Trained watcher per lodge	Written rules, trained leaders	Thermometers, IV fluids, ICU
Heat stroke rescue	Remove, cool, pour water	Tub or stream for immersion	None needed	Ice not needed, cold water is	Thermometer, IV saline	Full intensive care
Wound and fracture	Pressure, pad, sling	Boiled water, clean knife, bark splint	Resin salve (PH-03)	Splinting and dressing skills	Surgery, debridement	Antibiotics, X-ray, theatre
Social cure	Presence and attention	Food for the gathering	Ceremonial plants grown by holders	Gatherings for the sick	Healer and medic share patients	IHS-style policy
Tobacco cessation	Counselling	None needed	Do not grow rustica near children	Counsellor, group	Nicotine replacement if any	Varenicline, quitline
Plant remedies	See PH-03	See PH-03	See PH-03	Village book, tested entries	Assay, small trials	Full pharmacology

Harm test

Documented deaths. About 300 Eastern Cherokee in 1865, smallpox treated by sweat bath and plunge (Mooney 1891, Mooney and Olbrechts 1932). Three at Sedona, with about 18 hospitalised (UPI 2010, NBC News 2009). At least four in Livingston's review and one in Byard and Riches's (Livingston 2010, Byard and Riches 2005). One from a severed vein in bloodletting, and one from the wrong unlabelled packet (Densmore 1928). One woman and two children after a physician was displaced, by an outsider's account (Mooney 1891).

Injury and infection. Erysipelas after ball-play scratching (Mooney 1891). Burns at Sedona (NBC News 2009). Tight splints (THRIVING library, WO-05).

Indirect harms. Delay or replacement of effective care. Only 14.8 per cent of Milwaukee healer users told their physician (Marbella et al. 1998). Commercial tobacco, the largest killer in this report, arrived through the market, not the tradition (Odani et al. 2017).

Harms done to the tradition. Suppression by the 1883 Code (Wikipedia, Code of Indian Offenses). Extraction under pressure, as with Swimmer (Mooney 1891). Use of samples without consent, as with the Havasupai (State Press 2010). Commercial imitation, as at Sedona.

Who must never enter a lodge. From the sauna and sweat-death literature: unstable angina, recent heart attack or severe aortic stenosis (Hannuksela and Ellahham 2001). Heart disease, drugs that raise heat risk, or alcohol (Byard and Riches 2005, Livingston 2010, Kenttämies and Karkola 2008). Fasting without water, or dehydration from vomiting, diarrhoea or fever (Byard and Riches 2005, Sedona). Fever or infection (the Cherokee smallpox record). By my inference also infants, the frail elderly, people with epilepsy, anyone who cannot say clearly that they want to leave, and pregnancy except as the woman's own tradition and midwife advise [VERIFY: inference].

Red flags

- A lodge run for money by someone with no community that recognises them as a leader.
- Any pressure to stay in, or praise for pushing past weakness.
- Plastic or impermeable covers. More people than the space allows to sit with room to lie down.
- Participants who have fasted, drunk alcohol or taken drugs.
- Nobody outside the lodge, and no count of heads after each round.
- A person who is confused, has stopped sweating, is vomiting, or does not answer. That is heat stroke until proved otherwise (THRIVING library, HY-11).
- A healer who tells a patient to stop medicine that is working, or a medic who forbids a ceremony the patient wants.
- A written "Native remedy" with no nation, no person and no source named.
- Anyone offering to teach or sell ceremonies, chants, Mide remedies or peyote use.
- Ceremonial tobacco grown where children play.

The case against

Against the tradition as medicine. Olbrechts, who knew Swimmer's text best, judged even 25 to 35 per cent of useful Cherokee plants too optimistic (Mooney and Olbrechts 1932). Mooney recorded the smallpox and displacement deaths (Mooney 1891). The sweat lodge studies are small, uncontrolled and often by advocates (Chase-Begay et al. 2023, Schiff and Moore 2006), and the one with numbers found no significant change in drinking (Gossage et al. 2003). Gone and Calf Looking noted that culture as treatment had not been tested (Gone and Calf Looking 2011). On this reading the ceremonial cure helps people feel better and must not stand in for treatment.

Against the tradition-first frame. It can soften the record of harm. The smallpox deaths, bleeding deaths and unlabelled poisons happened inside the tradition, recorded by sympathetic observers. The frame is right about respect, but must not settle efficacy by default.

Against the evidence frame. The record was made by outsiders amid suppression, payment and pressure. Mooney's yardstick, the Dispensatory of 1891, itself listed many useless drugs [VERIFY: inference]. Ceremonies cannot be randomised without destroying them, so no trial means the trial is impossible, not that there is no effect. Plant choice is non-random (Moerman 1979). Ethnographers helped fix the orthodoxy they then described (Bucko 1998). The Midewiwin and the chantways kept knowledge on purpose, so what outsiders tested may be the least of it.

Against both. Chandler and Lalonde's figures suggest the largest health effect may come from a community that controls its own life, not from any single practice (Chandler and Lalonde 1998).

Latin binomials and lookalikes for this report's plants. PH-03 covers the plant list. Three plants here need care:

- *Nicotiana rustica* L. Its leaves look like those of other Solanaceae, and every *Nicotiana* species is toxic in quantity [VERIFY].
- Calamus. *Acorus americanus* (Raf.) Raf. is the North American native, and *A. calamus* L. the introduced triploid. The American FDA banned calamus as a food additive because of beta-asarone, a carcinogen in the European and Asian forms [VERIFY: 21 CFR 189.110]. The lookalike is blue flag iris (*Iris versicolor* L.), which is poisonous and grows in the same marshes [VERIFY].
- Wild parsnip. Mooney's name for the plant in the Cherokee sweat bath. *Pastinaca sativa* L. was introduced from Europe, so Mooney's plant may be a native relative such as cow parsnip (*Heracleum maximum* Bartram) [VERIFY]. Both cause blistering burns where sap touches skin in sunlight [VERIFY for Heracleum]. Water hemlock (*Cicuta maculata* L.), a deadly lookalike, shares its habitat (THRIVING library, PH-03 on water hemlock). Any white-flowered umbellifer dug for a root must be identified by someone who knows water hemlock.

Feasible today against after the Fall. Today the traditions are held by living nations, tribal health departments and communities that run their own lodges, and the book should send readers to them, not stand in for them. After the Fall the holders are neighbours, and the lodge, the gathering and the splint need nothing the Fall removes. But there is no ambulance for a Sedona, so a lodge without rules kills more surely.

10-line summary

1. Each tradition treats illness as a broken relationship, and the healer as someone called and trained over years.
2. Moerman's 44,691 uses record use, not effect. Plant choice is non-random, but the right use was confirmed only about 1 time in 10 (PH-03).
3. Mooney in 1891 found 25 to 35 per cent of 20 Cherokee plants useful. Olbrechts in 1932 thought even that too high.
4. Swimmer gave his formulas under threat of losing his pay. The texts are not reproduced here.
5. The sweat bath used for smallpox killed about 300 Eastern Cherokee in 1865.
6. The sweat lodge has grade C evidence for wellbeing and recovery, and no controlled trial.
7. Sedona 2009 killed three because the commercial copy dropped every safeguard of the tradition.
8. Never enter a lodge with heart disease, alcohol, fasting, fever or under pressure. Cool any collapse in water at once (HY-11).
9. Commercial tobacco, not the sacred plant, is the killer. Culture-respecting cessation reaches about 22 per cent at six months.
10. Keep the lodge with rules, the gathering for the sick, clean wounds and splints, and the credit to named people. Leave the ceremonies to their holders.

Open questions

1. What do Lakota, Diné and Anishinaabe leaders want the book to say, and not say? This report did not ask them, and SY-04's Protocol A requires it.
2. What is the core temperature inside a sweat lodge, by round and by position? No study was found.
3. What were Schiff and Moore's sample size and measures?
4. What does the court record of *State of Arizona v. James Arthur Ray* say about the temperature, the timings and the medical evidence?
5. Is the figure that smoking causes half of American Indian and Alaska Native deaths sound?
6. What does Hamel and Chiltoskey (1975) add to Mooney, and was it written with Cherokee consent and authorship?

7. What does the Navajo Nation's research and cultural policy say about publishing chantway content and sandpaintings?
8. Which 1934 instrument ended enforcement of the Code of Indian Offenses?

Sources to read in full

1. Mooney and Olbrechts 1932, read here in OCR text, for the wound, birth and fracture sections.
2. Densmore 1928, read in OCR text. Its dose tables should be checked against PH-03, with Anishinaabe holders' consent.
3. Bucko 1998, *The Lakota Ritual of the Sweat Lodge* (read only in descriptions and reviews).
4. Brown 1953, *The Sacred Pipe*, Black Elk's own account (not read).
5. Winter 2000, *Tobacco Use by Native North Americans* (not read).
6. Kelley and Francis 1994, *Navajo Sacred Places*. Harris Francis is Diné (not read, cited by the Hillerman portal).
7. Livingston 2010, Byard and Riches 2005, Gossage et al. 2003, Schiff and Moore 2006 in full (only abstracts read).
8. The trial record of *State of Arizona v. James Arthur Ray* (2011).

At the bedside after the Fall

Household. Ask the sick person and family what they believe the illness is and whom they want to see, make room for that person, and keep giving the treatment that works. Care for wounds and fractures as Protocol 6 says. Do not let blood or gash the skin. Label every packet with the plant, use and dose, in writing and with a mark a non-reader can recognise.

Village of 300. Hold gatherings for the very sick as a deliberate part of care (Protocol 4). Any lodge runs under Protocol 1 with a trained watcher, and no one with a fever enters. Keep a register of healers, what they treat and what they will not share, as Protocol 3 says.

District of 3,000. Agree a written understanding between medics and healers on the IHS model: patients may see both, neither stops the other's treatment without talking first, and the infirmary makes space for ceremony. Train lodge watchers in cold-water immersion. Run cessation that keeps ceremonial tobacco separate.

Protocols

Protocol 1. Running a sweat lodge safely

This protocol is about safety only. The ceremony itself belongs to those with the right to lead it.

1. **Leader.** Someone the community recognises, who is answerable to it. Never a paid stranger.
2. **Screen everyone.** Exclude anyone listed under Harm test, Who must never enter, and anyone with a heart attack in the last 6 months [VERIFY interval] or alcohol or drugs in the last 24 hours [VERIFY interval, inference]. Children only beside a parent, nearest the door [inference].
3. **Fluids.** Each person drinks about 500 ml of water in the hour before [VERIFY: inference]. Water is offered at every opening of the door.
4. **Structure.** Breathable natural covers only, never plastic. A door that opens from inside and out. Floor space so that every person could lie down. A count of the people inside, written down.
5. **Watcher outside.** One sober adult stays out, counts heads at every opening, and has cold water within 30 metres [inference].
6. **Rounds.** Open the door between rounds. I found no sourced time limit. As an inference, no round past about 15 minutes and no session past about an hour [VERIFY: inference, Sedona ran about two hours].
7. **Leaving.** Anyone may leave at any time without shame, and the leader says so before the first round.

8. **Stop rules.** Open the door and bring the person out at once for confusion, slurred speech, not answering, stopping sweating, vomiting, collapse or seizure. Treat as heat stroke (Protocol 2).
9. **After.** Rest, water and food. No one drives or works alone for an hour [inference].

Protocol 2. Collapse in or after a lodge

From HY-11 (THRIVING library, HY-11), which gives the evidence:

1. Take the person out, lay them flat, open the airway, and resuscitate if there is no breathing.
2. Assume heat stroke if they are confused or unconscious after heat. Do not wait for a thermometer.
3. Cool first, transport second. Immerse in cold water, 1 to 26 °C, from the neck down, within 30 minutes of collapse. Stir the water. If there is no tub, pour cold water continuously and fan.
4. Stop cooling at about 39 °C core, or when the person becomes lucid if there is no thermometer, to avoid overshoot.
5. Give water by mouth only when fully awake. Watch for dark or absent urine, which may mean kidney injury.
6. Cooling quickly is what lowers mortality (THRIVING library, HY-11).

Protocol 3. Receiving a remedy or practice from a holder

Building on SY-04 Protocols A and D (THRIVING library, SY-04):

1. Ask first, by name. Offer what the community expects. Tobacco is a common offering among many nations, and the holder will say what is right.
2. Write down the giver's name, nation and date, and what they agree may be written.
3. Ask: "Is any of this not to be written or shown?" If yes, write nothing of it, and record only that restricted knowledge exists and who holds it.
4. Read the entry back to the giver, and change it if they ask.
5. Test before the book's entry is promoted beyond grade D (THRIVING library, SY-04, Protocol B, and TR-01).
6. Never write songs, prayers, chants, Mide remedies or peyote use.
7. Give back by naming the giver in the book, and by any return the giver asks for.

Protocol 4. The gathering for the sick

1. Ask the patient and family whom they want present and what they want done.
2. Make time: a fixed hour each day for the very ill, with family, food and quiet presence.
3. If they want a healer or ceremony from their own tradition, help them reach it. Do not lead it unless you have the right.
4. Keep giving every treatment that works. The gathering stands beside medicine, never in place of it.
5. Expect better comfort, mood and sleep. Do not expect a cure of organic disease (THRIVING library, FO-10).
6. After a death, the gathering continues for the family.

Protocol 5. Tobacco

1. Keep ceremonial tobacco for ceremony. Do not smoke it daily or sell it.
2. Grow *N. rustica* fenced, away from children's areas and animals. Pick it with gloves when wet [VERIFY: green tobacco sickness by skin absorption].
3. Treat a child who has eaten leaves or cigarette butts as poisoned. Signs are vomiting, sweating, pallor and, at high doses, fits and slowed breathing [VERIFY]. Seek help at once.

4. For commercial smokers, give group counselling that respects sacred tobacco on the All Nations Breath of Life model (Daley et al. 2018), and offer any nicotine replacement to all unless they opt out (Shergina et al. 2024). Expect about 1 in 5 to quit for six months.

Protocol 6. Wound and fracture care from the record

1. Stop bleeding with direct pressure and a pad, such as clean cloth or down (Mooney and Olbrechts 1932).
2. Clean the wound, the knife and the hands. Keep everything off rust and dirt, as Wezawange insisted (Densmore 1928). Use boiled and cooled water.
3. Dress with a clean dry dressing or PH-03's resin salve, and change it when it is damp, about twice a day (Densmore 1928, THRIVING library, PH-03).
4. Splint fractures with padded bark or wood, tied firmly but not tight. Check the fingers or toes for colour, warmth and feeling after 1 hour, then every 4 hours for 2 days, and loosen at once if they are cold, pale or numb (THRIVING library, WO-05).
5. Treat a broken collarbone with a sling for about 3 to 6 weeks [VERIFY interval].
6. Never let blood or cut the skin to treat pain or swelling.

Numbers to carry

1. **44,691** Native plant uses, 4,029 taxa, 291 societies (Moerman via PH-03). Use, not effect.
2. **25 to 35 per cent** of 20 Cherokee plants useful, by Mooney's own 1891 count. Olbrechts called it too high.
3. **137** formulas in Swimmer's manuscript, **96** published, and their texts not reproduced here.
4. **About 300** Eastern Cherokee died of smallpox treated with sweat bath and plunge, 1865.
5. **62 per cent** of Diné clinic patients had used a healer (Kim and Kwok 1998). **14.8 per cent** of urban healer users told their doctor (Marbella et al. 1998).
6. **3 dead, about 18 hospitalised**, about 55 to 65 people in **415 square feet** for about **2 hours**, at Sedona, 2009.
7. **50 per cent** of Finnish sauna deaths involved alcohol (Kenttämies and Karkola 2008).
8. **Cool in water at 1 to 26 °C, stop at 39 °C, within 30 minutes** (HY-11). Heat-stroke mortality **10 per cent**, and **33 per cent** with low blood pressure.
9. **4 to 9.5 per cent** nicotine in *N. rustica*, against **1 to 3 per cent** in commercial tobacco. A fatal adult oral dose is **0.5 to 1 g** of nicotine (Mayer 2014).
10. **37.3 against 23.0 per cent** adult cigarette smoking, American Indian and Alaska Native against others, 2010 to 2015 (Odani et al. 2017).
11. **22 per cent** abstinent at six months with All Nations Breath of Life (Daley et al. 2018).

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