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## Introduction

Short-term surgical volunteer trips require careful planning for experiences that prove of most benefit to the host institutions as well as for personal fulfillment of the surgeon participants [1]. Scheduling a mutually convenient visit with the host institution opens the process. Initial communications should include inquiries concerning:

- Most likely work opportunities (e.g., operations, clinic, and classroom) while keeping in mind that these could change before arrival or during visit
- The level of safe anesthesia and airway management capability [1]
- Accommodation arrangements including availability of prepared food or necessity of self-catering
- Climate and weather for guides to clothing and gear, including culturally acceptable items

Next comes investigation of requirements for visas, medical licensure, malpractice insurance, and recommended vaccinations. Travel arrangements involve air tickets, visa procurement (if needed), travel clinic visit, and emergency evacuation insurance. Equally vital is identifying the appropriate contact person from the host institution with whom one communicates the travel itinerary and verifies arrangements for airport pickup, ground transportation, and accommodation. Keeping host contact phone numbers and addresses with travel documents facilitates communication in the event of delays or other issues.

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Daily recording the cases performed, patients seen in clinic, lectures given, photos taken, and other activities, in a diary or log book is highly recommended. This journal can be a paper notebook, laptop, tablet, or smart phone. Increasingly, short-term physicians are requested (even required) to provide metrics to their institutions and sponsoring bodies to validate the experience. Consider adding comments about experiences, sights, interactions, even smells, that is, nonclinical sensations, observations, and events. What meals did you enjoy or not; were there interactions with your hosts outside the hospital, etc.? The cross-cultural experiences are often more valuable than the medical ones; journaling enables you to put down reflections acutely and helps jog your memory later on.

## Required Documents Checklist

Whether or not a visa is needed, many countries and custom officials require that a passport be good for more than 6 months after the planned exit from the country and the passport must contain several blank *passport* pages (not the blank end sheet) available for stamps or visa certificates. American citizens anticipating travel outside the USA can start investigating visa requirements on the government website “U.S. Passports & International Travel” (Table 9.1). Visas almost always have a fee and can be obtained directly from an embassy or consulate in person, by mail, sometimes online, or with the aid of a visa service. Even if someone has visited a country in the past without obtaining a visa, that country’s policy should still be researched as visa rules can literally change overnight. Some countries permit visas to be purchased in the airport on arrival, but many visas must be obtained before travel.

As soon as the destination is known, one must check with local hosts about medical licensure requirements if operations and medical practice are planned because—if

**Table 9.1** Useful websites

American College of Surgeon’s Operation Giving Back	Resource to find volunteer opportunities best suited to different expertise, interests, and level of experience	<a href="http://www.operationgivingback.facs.org/">http://www.operationgivingback.facs.org/</a>
CDC Travelers’ Health Information	Information on country-specific health issues including required vaccinations	<a href="http://wwwnc.cdc.gov/travel/destinations/list">http://wwwnc.cdc.gov/travel/destinations/list</a>
Global Health	Free educational resources	<a href="http://global-help.org/">http://global-help.org/</a>
Global Paediatric Surgery Network (GPSN)	Volunteer opportunities for pediatric surgery	<a href="http://globalpaediatricsurgery.org/">http://globalpaediatricsurgery.org/</a>
Global Partners in Anesthesia and Surgery (GPAS)	Projects, partnerships, and resources	<a href="http://www.globalsurgery.org/">http://www.globalsurgery.org/</a>
Health Volunteers Overseas (HVO)	Volunteer opportunities	<a href="https://hvousa.org/">https://hvousa.org/</a>
International Red Cross	Free educational resources	<a href="http://www.ifrc.org">www.ifrc.org</a>

**Table 9.1** (continued)

Médecins Sans Frontières (MSF)—Doctors without Borders	Volunteer opportunities—minimum 6 weeks for surgeons	<a href="http://www.msf.org/">http://www.msf.org/</a>
Pan-African Academy of Christian Surgeons (PAACS)	Volunteer opportunities with surgery training programs	<a href="http://www.paacs.net/">http://www.paacs.net/</a>
Pulse oximeters	Pocket-size portable models \$20–\$40	Available online from a variety of sellers
Pulse oximeters: Lifebox Foundation	\$250/ unit, including worldwide delivery	<a href="http://www.lifebox.org/safe-surgery">http://www.lifebox.org/safe-surgery</a>
TALC	Teaching Aids at Low Cost	<a href="http://www.talcuk.org/">http://www.talcuk.org/</a>
U.S. Passports & International Travel	Passport and visa requirements	<a href="http://travel.state.gov/content/travel/en.html">http://travel.state.gov/content/travel/en.html</a>
Vanderbilt Travel Clinic	Information about immunizations and health travel kits	<a href="http://www.vanderbilthealth.com/travelclinic/">http://www.vanderbilthealth.com/travelclinic/</a>
World Health Organization (WHO)	Information on health issues across the globe; produces the <i>International Certificate of Vaccination or Prophylaxis</i>	<a href="http://www.who.int/en/">http://www.who.int/en/</a>

needed—the application process may be time-consuming. Purely educational efforts such as teaching, providing CME, or skills sessions would likely be exempt. Whether or not medical malpractice insurance is required or recommended can be ascertained from the host or from legal advisors in the traveler’s home institution.

Copies of the passport pages and visa carried separately from the originals (including secure digital cloud-based copies as well as paper) are useful in the event documents are lost or stolen and must be replaced at an embassy or consulate. Consider a body pouch or other secure holder for passport and cash. Immigration officials have authority to inspect a traveler’s health card, known officially as the *International Certificate of Vaccination or Prophylaxis*, for required immunizations. See Checklist 9.1.

#### Checklist 9.1 Required Document’s Checklist

- Passport with multiple empty pages and valid beyond 6 months after return.
- Travel itinerary—Even with electronic ticketing, a copy of the electronic ticket is mandatory for each traveler in case computer systems fail or if travel interruptions occur
- Evacuation insurance
- Visa—if required
- International Certificate of Vaccination or Prophylaxis
- Medical license, local—if required
- Malpractice insurance—if required or recommended

## Health and Safety Checklist

Many institutions house a travelers' clinic providing advice and services concerning recommended health measures, preventive and prophylactic. The CDC Travelers' Health Information site offers facts and advice on country-specific health issues including vaccinations required for entry into each country (Table 9.1). Vaccinations and other preventative measures should be documented by the provider in the *International Certificate of Vaccination or Prophylaxis* issued by the World Health Organization (WHO) that may be obtained from the travelers' clinic or other health-care providers. If malaria is endemic, prophylaxis—if recommended—should be adhered to. Also one should limit skin exposure, especially outside nocturnally, with long pants, socks, etc., and use mosquito netting at night, if available. Sunscreen and hats reduce exposure to potentially harmful sunlight, especially if using doxycycline for malaria prophylaxis. Health measures should begin well ahead of the travel date because some treatments such as rabies vaccinations are done in series and yellow fever vaccine often requires advance scheduling due to short shelf life of the open multidose vial. The Vanderbilt Travel Clinic site warns “Immunizations require at least 14 days before travel to be effective.” This site also includes suggested items for a health travel kit [2]. Travelers should check with their own medical insurance company to learn about any coverage for health issues that occur outside the USA. Persons who think they might need medication for gastrointestinal problems, sleeping difficulties, or other issues should seek advice from their personal physicians.

*Emergency evacuation coverage is imperative.* Even relatively routine issues such as appendicitis or a fracture could become life-threatening in remote or poorly equipped situations. In most low- and middle-income countries (LMIC), the greatest danger to health is road travel, especially at night due to poor road conditions and lack of lighting, which means that objects in or near the road are invisible until struck. One should limit travel at night by vehicles and avoid riding on or operating a motorcycle any time. When in remote areas where evacuation could be slow and difficult, avoid excessive physical exertion or extreme sports which could lead to injury or illness.

Ask if water is safe for consumption. Water can be purified several ways: by boiling, by special filtering systems, or with chemicals. Fresh fruits and vegetables can be made safe to eat by soaking them in water to which a small amount of household bleach has been added (about a capful of bleach per quart of water). See Checklist 9.2.

### Checklist 9.2 Health and Safety Checklist

- Vaccinations required/recommended
- Medical insurance coverage
- Emergency evacuation insurance
- Protection for sun exposure
- Road safety strategies
- Water and food
- Contact information—Phone numbers for hosts, transportation, and accommodations

## Budget Checklist

Air tickets can be purchased through a travel agency or online from airlines or discount sites, and all these options should be investigated to ascertain the optimal price and schedule. Prices change constantly; therefore, when searching for bargains, it pays to access the various companies a number of times to get a feel for cost and availability. When traveling to places in the world with few flights each week or remote, less visited areas, dealing with a travel agency might be wise as the traveler then has a contact person if any plans go awry. Travel agencies may also offer visa information although visa services can be found online. Economy air ticket price estimates in 2016 range from \$1,000 to \$2,500 round-trip for many international destinations, but ticket prices fluctuate widely depending on country or city of departure as well as destination. Most volunteers pay most or all of their travel expenses. For long-haul flights, paying the surcharge for an economy seat with added leg room may be cost-effective. If a host institution is subsidizing expenses, the surgeon should be mindful of financial challenges faced by the host and consider choosing the most economical travel arrangements rather than business class. Arrange for sufficient layover time if plane changes are needed and be aware of time zone differences when in airports in order to reach the departure gates in time to board.

Visas, if required, average \$50 and \$100 and the visa service can add another \$100 more or less. Travel clinic visits and recommended vaccinations and other preventive measures can run as much as \$200–500 or more. Medical licensure costs vary but could be several hundred dollars. Emergency evacuation insurance is absolutely essential, and basic coverage runs about \$5–10/day or more depending on company and benefits. Coverage can be purchased for individual trips, and there are also policies that may cover multiple trips over a specified period of time. Some institutions offer emergency evacuation coverage to employees on business and may require the employee to register the trip before embarking. Malpractice rates should be researched.

On-ground expenses include airport pickups, transportation, accommodation, and food. Estimating costs across the globe is purely speculation, but using a US price for a service would offer a reasonable guess. If possible, make arrangements through the hosts or the hotel to be met at the airport and inquire about costs. This provides peace of mind as well as added safety. Some institutions offer housing for a low rate, while other situations require using hotels and guest houses priced as much as \$100/day or more.

Food options, prices, and availability vary widely throughout the world, and the visitor should inquire about the alternatives when planning the trip. Estimating costs across the globe is difficult, but food prices in many places would be similar to American prices with locally produced and fresh items often less expensive. Sometimes visitors live in guest houses that offer reasonably priced meals. If accommodations include access to an equipped kitchen, preparing simple meals can reduce expenses and even save time over restaurant visits. In addition to groceries, supermarkets in larger communities frequently offer ready-to-eat items more cheaply and quicker than restaurant dining. Transporting granola bars, peanut

butter, snacks, canned products such as tuna, or other nonperishables provides backup food in the event the location has limited grocery options, work schedules do not allow for meals, or the traveler prefers familiar items. Visitors are encouraged to sample local dishes for a more complete cultural experience as well as reducing outlay. Supermarkets may also offer household goods, small electronics, and other useful items.

While many US phones have global capabilities, global roaming plans can be much more expensive than service through a local company. The following example reflects costs in Kenya: an unlocked US phone (one allowing use of local SIM card) or locally available phone (basic model \$20–30) and a locally available computer modem or hot spot with SIM card (\$20–40) with local phone services for international calls and data plans costing about \$10–30/week depending on usage. To conserve data fees, all unnecessary apps should be disabled.

Most major credit cards have global coverage, but travelers are advised to check if their card is accepted in the country of destination. Travelers also need to notify their company when cards are to be used outside the US, both for coverage information and to forestall denials. Contact information to report lost or stolen credit cards should be in an accessible paper or digital location. Some cash in the form of new (dated less than 10 years old) US 100 dollar bills is highly recommended for those occasions when credit cards or traveler's checks are not accepted as well as for emergencies. Vital documents and cash can be carried in body pouches for added safety.

In resource-challenged environments, supplies and equipment may require supplementation if the visiting surgeon's time and expertise are maximized. Seeking donated materials reduces costs, but items essential to a specialty should be included in the estimated budget so that the surgeon can function optimally under the circumstances (see Medical Supplies and Equipment Checklist). The patient population frequently includes persons with very limited abilities to pay for surgical care. The short-term surgeon may be faced with the question concerning whether or not to subsidize costs for patients who will otherwise be unable to undergo a procedure. The visitor is advised to discuss this question with the host surgeons and decide whether or not to include this possible expense in the trip budget. Any direct requests from patients or families to pay for procedures or other expenses involved in surgical care should be referred to the host.

Recreational excursions as well as souvenirs can add substantially to trip costs. Global surgical trips provide opportunities to visit exciting and exotic environments, but tourism should neither interfere with the primary purpose of the surgical experience nor become a burden added to the duties of the host physicians. See Checklist 9.3. Plan any stopovers on the return leg of your trip to avoid added baggage fees due to weight allowance variability as well as added risk of customs queries about medical supplies and equipment.

**Checklist 9.3 Budget Checklist**

- Air ticket
- Visa
- Vaccinations and prophylaxis
- Emergency evacuation insurance
- Medical licensure
- Malpractice coverage
- On-ground transportation
- Accommodation/hotel
- Food
- Communication (phone and data usage)
- Supplies and equipment, if needed
- Surgical procedures subsidy
- Recreation/souvenirs

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**Personal Gear and Carry-On Checklist**

Essential personal medications must be transported in your carry-on luggage (never in checked bags which can be delayed or even lost) with a sufficient supply for your entire stay if at all possible. Never assume your medication or other personal needs can be obtained abroad—you can ask your hosts about availability but “no condition is permanent.”

Every professional owns a phone and computer or tablet, which, fortunately for the international traveler, are compatible with electrical systems across the globe, needing only a plug adapter that can be found online, in stores catering to travelers, or even purchased after arrival. A locally compatible multi-outlet power stick is highly recommended in case accommodations have too few outlets for charging all electronics simultaneously. A computer modem or hot spot as well as a phone that can use local SIM cards are both recommended for the frequent traveler and can be obtained locally as noted above.

Investigate the climate—some areas in Africa, South America, Asia, and Europe are very cool, even cold, especially at night; lightweight long underwear might be appropriate as well as jackets, hats, and even gloves. For example, most of South Africa is not tropical. If you cross the equator, seasons reverse. A lightweight waterproof jacket and folding umbrella are advised if rains are expected. Carry-on luggage should include 2–3 days of basic clothing in case bags get delayed or lost.

Sensible, sturdy footwear is a must, especially when in rural or remote areas without sidewalks or smooth roads and paths. Along with scrubs, closed OR shoes such as clogs are recommended. A flashlight or even a headlight is needed for walking at night or when electricity goes out.

Many places have cultural norms that dictate proper attire for each gender—ask your host about appropriate clothing choices. A separate chapter deals with cultural issues. See Checklist 9.4.

#### **Checklist 9.4 Personal Gear Checklist**

Medications and other personal necessities

- Electronics
- Clothing
- Flashlight
- Personal carry-on checklist
  - Travel itinerary (paper copy of ticket) with phone numbers and addresses of contacts in host country
  - Passport
  - Visa
  - *International Certificate of Vaccination or Prophylaxis*
  - Letter concerning donated medical supplies
  - Medications
  - Personal essentials (may differ by gender)
  - Computer, phone, camera
  - 2–3 days of basic clothing
  - US dollars in cash for emergencies

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## **Medical Supplies and Equipment Checklists**

Check to see if there is an organization in your town that collects supplies and equipment for humanitarian purposes that might donate items for your use on the trip. Ask your hospital OR staff to save sutures, gloves, etc., [3] that would otherwise be headed to the landfill when hospital policies deem them unusable. The website of the American College of Surgeon's Operation Giving Back lists organizations that donate medical materials [4] as well as links to the WHO guidelines on donated materials [5]. Volunteers should avoid transporting expired drugs or medical supplies [6] for a number of reasons including safety (some expired drugs degrade into unsafe or toxic products and sutures can degrade as well). Carry a letter on letterhead from someone in authority at the home institution or humanitarian organization stating that the medical supplies and equipment in accompanying baggage are donations and not for resale; produce the letter only if customs officials question the luggage contents. Once working in the institution, appreciate what is there and avoid criticism when certain items are not available. See Checklist 9.5.



### Checklist 9.5 Medical Supplies, Equipment, and Educational Resources

- Personal Use
  - Loupes
  - Portable headlight
  - Portable pulse oximeter for personal use (inexpensive models available online)
  - Caps
  - Masks
  - Gloves
  - Scrubs
- Procedures
  - Specific instruments required for your specialty procedures
  - Scissors
  - Pickups
  - Special suture
  - Pulse oximeter for OR/wards (see Table 9.2)

**Table 9.2** Suggested free and/or inexpensive educational resources

Ameh EA, Bickler SW, Lakhoo K, Nwomeh BC, Poenaru D. <i>Paediatric Surgery: A Comprehensive Text for Africa</i> . Vol. 1 Seattle: Global HELP Organization; 2010. <a href="http://www.global-help.org/publications/books/help_pedsurgeryafricavolume01.pdf">http://www.global-help.org/publications/books/help_pedsurgeryafricavolume01.pdf</a> (Free download)
Cotton M, et al., editors. <i>Primary Surgery Volume One: Non-Trauma</i> (Second Edition). Seattle: Global Help, 2016. <a href="http://global-help.org/products/primary-surgery/#download">http://global-help.org/products/primary-surgery/#download</a> (Free download)
Gionnou M, Baldan M. <i>War Surgery: Working with Limited Resources in Armed Conflict and Other Simulations of Violence, Volume 1</i> . Geneva: International Committee Red Cross, 2010 <a href="https://www.icrc.org/eng/assets/files/other/icrc_002_0973.pdf">https://www.icrc.org/eng/assets/files/other/icrc_002_0973.pdf</a> (Free download)
Gionnou M, Baldan M, Molde A. <i>War Surgery: Working with Limited Resources in Armed Conflict and Other Simulations of Violence, Volume 2</i> . Geneva: International Committee Red Cross, 2013 <a href="https://www.icrc.org/eng/assets/files/publications/icrc-002-4105.pdf">https://www.icrc.org/eng/assets/files/publications/icrc-002-4105.pdf</a> (Free download)
King M, et al., <i>Primary Anesthesia</i> . Oxford: Oxford University Press. 1986
King M, Bewes P, Cairns J, Thornton J, et al. <i>Primary Surgery Volume One: Non-Trauma</i> . Oxford: Oxford University Press, 1990 (See above Cotton, 2nd edition as free download)
King M, Bewes P, et al. <i>Primary Surgery Volume Two: Trauma</i> . Oxford: Oxford University Press; 1987
Meara J, McClain CD, Rogers SO, Mooney DP, editors. <i>Global Surgery and Anesthesia Handbook: Providing Care in Resource-Limited Settings</i> . (See especially Chap. 4 “Preparing for a trip: OR management” and Appendix “Safety, security, and survival considerations for health care providers in remote, hostile, and disaster areas”). Boca Raton: CRC Press; 2014. Available as a single volume paperback or an e-edition
<i>Principles of Reconstructive Surgery in Africa</i> . Carter, Jr. LL, Editor. Bristol, TN: Pan-African Academy of Christian Surgeons; 2013 <a href="http://paacs.net/wp-content/uploads/2012/09/PAACS-Principles-of-Reconstructive-Surgery-in-Africa-v.2-072413.pdf">http://paacs.net/wp-content/uploads/2012/09/PAACS-Principles-of-Reconstructive-Surgery-in-Africa-v.2-072413.pdf</a> ; <i>Principles of Reconstructive Surgery in Africa</i> . Carter, Jr. LL, Nthumba, P., Editors; 2016 Revised Edition <a href="http://www.paacs.net/wp-content/uploads/2012/09/PAACS-Reconstructive-Surgery-Text-v.-2-072516.pdf">http://www.paacs.net/wp-content/uploads/2012/09/PAACS-Reconstructive-Surgery-Text-v.-2-072516.pdf</a> (Free download)

## Self-Protection

1. Adopt “standard infection control practices,” the update to “universal precautions” which evolved in the 1980s [7]:
  - Hand hygiene: the single most important aspect of standard precautions. Where water is scarce, consider using disposable plastic “bread” or freezer bags on your hands to remove dressings, examine wounds, etc. to provide a barrier from possible contamination.
  - Personal protective equipment (PPE): gloves, gowns, mask/eye protection—seek to always double glove for operative procedures—consider it an “equity investment.” Gloves can be washed, assessed for leaks, be re-sterilized, and then reused, especially for the inner pair. Eye protection with face shields or goggles is mandatory to thwart splashes even if there is high temperature and humidity with consequent fogging.
  - Soiled patient-care equipment: gowns in many LMIC countries are permeable by fluids. Though hot, consider wearing a rubber or impenetrable apron under your scrub gown as a barrier, especially for trauma cases, C-sections, and any case with a projected significant blood loss.
  - Environmental control such as bleach cleansing of surfaces
  - Careful handling of soiled/contaminated linens and instruments for protection of all workers and OR personnel
  - Needles and other sharps: use a “safe home base” island such as a kidney basin for scalpel and needle transfers, thus avoiding “blind” handoffs to and from surgeon and scrub assistant. Insist on use of containers for sharps.
  - Prevent direct contact with mouth and oral secretions during patient resuscitation.
  - When possible isolate patients who might infect others or who are immunocompromised.
  - Respiratory concerns—e.g., when tuberculosis is a concern, utilize a N-95 type respirator mask, tightly fitted, to avoid inhalation of mycobacteria whether in the exam room or in the theater for bronchoscopy, decortication, or other thoracotomy [7].
2. The overall HIV prevalence rate for sub-Saharan Africa is 4.5% but with by-country variations from 2% to 25% compared to 0.5% for the Americas and a 0.8% prevalence worldwide [8]. Consider taking along tenofovir disoproxil/emtricitabine (trade name Truvada) for postexposure prophylaxis (PEP) should a concerning exposure occur with the potential for HIV transmission by a cut, bone fragment injury, needle stick, eye splash, or other mechanism. Truvada should be started within 2 h of exposure. Know where in-country HIV testing can be performed promptly and accurately, for example, a PEPFAR program clinic or other center. Preexposure prophylaxis (PrEP) for surgeons/OB-GYN physicians practicing in areas of high HIV prevalence and limited protective gear might even be considered for those tasked with frequent, routine high-risk trauma (war zones, vehicular trauma) or emergency obstetrical procedures.
3. Hepatitis: see Checklist 9.2. Follow the advice from your Traveler’s Clinic and/or the CDC website on international travel. *UpToDate* has a good section on

travel medicine as well. Hepatitis B immunization has been available since 1982 and is 95% effective in preventing infection, chronic disease, and liver cancer due to hepatitis B [9]. There is no vaccine yet for hepatitis C, but there are now very effective agents for cure. If an exposure occurred, then consider screening for hepatitis C periodically on return; if conversion occurs, commence therapy with one of the new drugs, e.g., ledipasvir/sofosbuvir (trade name Harvoni).

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## Educational Resources

Educational resources are highly recommended whether or not the primary purpose of the trip is training and teaching. Plan to take an atlas and a surgical text (print copy, e-text, or both), and, if a print copy, consider leaving it behind with your hosts. These resources will help you “refresh” on procedures you feel competent for but do not perform as frequently now as in earlier practice or residency. Do not feel obligated to attempt procedures you feel uncomfortable performing or for which the postoperative care and rescue interventions for any complications are not locally available. As Art Brooks of Vanderbilt noted: “There is no condition that can’t be made worse with an operation.”

- Take along any prepared talks just in case an opportunity to share arises. Internet connection challenges and intermittent power supply make online resource availability unpredictable. Groups such as the International Red Cross and Teaching Aids at Low Cost (TALC) provide free and/or inexpensive surgical education materials.

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## Summary

A successful short-term experience involves:

- Displaying a flexible and accepting attitude toward the surgical environment
- Developing warm, collegial relationships with the host physicians and the hospital teams
- Employing health and safety strategies that begin with adhering to travel clinic recommendations
- Being prudent about physical activities that have a potential for injury and avoiding road travel after dark as well as operating vehicles, especially motorcycles
- Being aware that the benefit to the participant may equal or exceed the benefit to the host institution

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