

**MANAGEMENT OF  
FOOT HEALTH  
AT PRIMARY LEVEL**

**NOVEMBER 2011**

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### ACKNOWLEDGEMENTS

## 1. INTRODUCTION

With the number of older persons dramatically on the rise, the prevention and early treatment of foot problems are vital to ensure quality of life. What may be a common foot problem or minor trauma to the middle-aged adult becomes a debilitating and sometimes crippling disorder in the older person. Foot problems are frequently associated with immobility which eventually leads to the older person being institutionalised. Pain-free mobility is a major factor in the general well-being of older persons as it allows them to remain independent and actively involved in the community. Many of the older persons living in rural areas depend on their feet as a means of transport. It is thus essential that older persons are enabled to walk for as long as possible.

Early identification of foot problems in older persons are more than often overlooked and because of the following reasons:

- Older persons are reluctant to report foot problems believing them to be part of normal ageing and untreatable
- Non-availability of foot health services and these services not being regarded as a priority
- Most health care workers' training do not emphasise the importance of foot health

## 2. STRATEGIES TO PREVENT FOOT PATHOLOGY

The following strategies could prevent foot pathology:

- **Education** of patient, family and healthcare workers on general foot care principles
- Regular **screening and assessment** to identify the foot at risk
- Appropriate and timely **referral and management** of older persons at risk of foot pathology

## 2.1 Education

Many foot problems can be prevented by providing information and education from an early age on foot care. Awareness raising of foot health is very important and should include education on foot care as well as foot health care facilities available to the public.

Patients should be given the following information on foot care:

- General foot care principles for the prevention of foot pathology (see **Appendix A**)
- Specific foot care principles for patients with specific diseases or conditions, i.e. arthritis, diabetes, obesity and vascular diseases (see **Appendix B**). Information on access to health care facilities should also be given to these patients.
- Foot exercises that will improve the blood circulation to the feet and to prevent and manage foot problems (see **Appendix C**)

## 2.2 Screening and Assessment

Screening and assessment are important for the prevention and early detection of foot pathology. The Foot Pathology Screening Form (see **Appendix D**) will enable health care workers to identify persons who are at risk of foot pathology such as patients with chronic diseases. An appropriately trained health care worker should make a preliminary diagnosis and intervention plan according to the information obtained from this Foot Pathology Screening Form.

The following screening and assessment procedures and timeframes should be followed:

- All older persons' feet should be screened annually at primary care level to determine if they are 'at risk' of foot pathology. The health care worker can use the Foot Pathology Screening Form (see **Appendix D**) for this purpose. The patient's foot health status should also be recorded on the patient-carried card.
- All new patients and patients that are newly diagnosed with diabetes' feet should be examined during their first visit to the clinic.
- High-risk patients should be assessed at least once a year by a specially trained person if available, e.g. podiatrist.
- Patients with foot pathology already present should be assessed at least 4 times per year by a specially trained person if available, e.g. podiatrists.

### **2.3 Referral and Management**

High-risk patients and patients with identified foot pathology should be referred to the next level of care for specialist attention and assessment (see **Appendix E** for an Algorithm for the Management of Foot Pathology).

High-risk patients are patients with the following signs and symptoms:

- Loss of protective sensations - patient is unable to feel Filament-prick in one or more places on toes and feet (see **Appendix F** for the examination of the foot for protective sensation).
- Absent ankle and knee reflexes.
- Persons with diabetes and hypertension.
- Absent pedal pulses.
- Foot deformities or callus formation are present (these are usually areas of excessive pressure which may leads to ulcers).
- History of foot ulceration or amputation.
- Persons using anticoagulants

### **3. CONCLUSION**

Prevention, early detection and treatment of foot problems can prevent more severe foot pathology.

**GENERAL FOOT-CARE PRINCIPLES FOR THE PREVENTION OF FOOT PATHOLOGY**

- Wash the feet daily, use lukewarm water and soft soap. Test the water temperature with the hand and not the foot. Dry feet carefully, especially between the toes.
- Moisturising oils/creams can be applied daily to dry/cracked feet but not between the toes as this encourages sweating and creates a favourable environment for micro-organisms like fungi.
- Cut toenails straight across and not too short. Never cut the toenails down at the corners as this encourages in-growing toenails. Rather cut or file the square pointed edges, as they can cut into the sides of the toes.
- Sharp instruments must never be used to dig around toenails
- Do not test the temperature of bath water with your feet
- Proper comfortable footwear is very important
  - Try not to wear slippers all day
  - Never wear tight or ill-fitting shoes
  - Slip-ons are not recommended
  - New shoes should be comfortable straight-away; there should be no need to 'break them in'
  - If special insoles are needed, take them with when buying shoes
- Do not wear wet shoes
- Shoes should be aired every day
- Don't wear the same pair of shoes every day, alternate shoes if possible
- Control your weight
- Do simple foot exercises daily or every second day (See Appendix D)

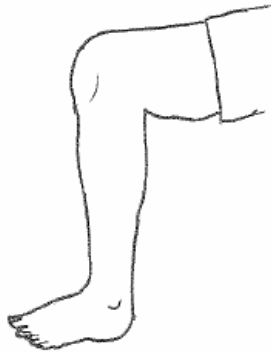



## APPENDIX B

### **SPECIFIC FOOT-CARE PRINCIPLES FOR PATIENTS WITH DIABETES, PERIPHERAL VASCULAR DISEASES AND OTHER CONTRIBUTORY CHRONIC DISEASES**





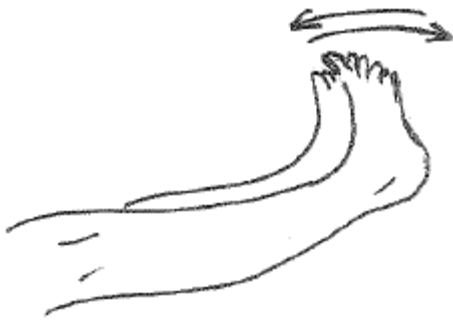

- Keep diabetes and hypertension under control
- Overweight and obese patients should control their weight
- Inspect or ask somebody to inspect the feet once a week, checking for redness, blisters, moist skin, cracks between the toes, cuts, scratches or damaged nails
- Never cut corns or calluses or use corn plasters or other home remedies as these preparations are acidic and often cause ulcers, rather consult a health care worker
- Do not walk barefoot
- Do not use hot water bottles and heaters near your feet.
- Do not soak your feet in standing water or foot spa's
- Do not wear shoes without socks and change your socks daily
- Avoid anything which restricts the blood flow to the feet, e.g. socks with tight elastic tops or shoes that fits too tight
- Stop smoking as this adversely affects circulation.
- Patients with neuropathy/ischemia/deformities need extra care with footwear.
- Refer to an orthotist for special footwear if patient has severe foot deformities
- Never manage own foot injuries, especially immuno compromised patients.
- Don't ignore foot pain – it is not normal
- Health care worker must do an annual foot screen on all patients with diabetes

**FOOT EXERCISES**

The following exercises will improve the blood circulation to the feet and help to manage and also prevent foot problems. Do the exercises at least twice a week.

<p style="text-align: center;"><b>STARTING POSITION</b></p> <ul style="list-style-type: none"> <li>▪ Take off your shoes and socks/ stockings</li> <li>▪ Sit upright on a firm chair so that your bare feet rest comfortably on the floor. Don't lean back</li> </ul> 	<p style="text-align: center;"><b>EXERCISE 1 (x10)</b></p> <ul style="list-style-type: none"> <li>▪ Bend the toes of both feet with the heels remaining on the floor and stretch them again</li> </ul> 
<p style="text-align: center;"><b>EXERCISE 2 (x10)</b></p> <ul style="list-style-type: none"> <li>▪ Lift the toes and the front part of the feet as far as possible with the heels remaining on the floor</li> <li>▪ Lift the heels with the toes remaining on the floor</li> </ul> 	<p style="text-align: center;"><b>EXERCISE 3 (x10 for each foot and then together)</b></p> <ul style="list-style-type: none"> <li>▪ The heels remain on the floor</li> <li>▪ Lift the toes and front part of the foot</li> <li>▪ Turn out and return to the middle</li> </ul> 



<p style="text-align: center;"><b>EXERCISE 4</b> <b>(x10 for each foot and then together)</b></p> <ul style="list-style-type: none"> <li>▪ The toes remain on the floor</li> <li>▪ Lift the heels</li> <li>▪ Turn heels out and return to the middle</li> </ul> 	<p style="text-align: center;"><b>EXERCISE 5</b> <b>(x10 per leg)</b></p> <ul style="list-style-type: none"> <li>▪ Lift the knee</li> <li>▪ Stretch the leg</li> <li>▪ Stretch the foot (toes pointing away)</li> </ul> 
<p style="text-align: center;"><b>EXERCISE 6 (x10 per leg)</b></p> <ul style="list-style-type: none"> <li>▪ Stretch the leg with the heel on the floor</li> <li>▪ Lift the extended leg</li> <li>▪ Bend the foot so that the toes point towards you</li> <li>▪ Return to starting position</li> </ul> 	<p style="text-align: center;"><b>EXERCISE 7 (x10)</b></p> <ul style="list-style-type: none"> <li>▪ The same as Exercise 6, but with both legs lifted at the same time</li> </ul> 
<p style="text-align: center;"><b>EXERCISE 8 (x10 per leg)</b></p>	<p style="text-align: center;"><b>EXERCISE 9 (x10 per leg)</b></p>
<ul style="list-style-type: none"> <li>▪ Stretch and bend the feet and ankles with both legs lifted and stretched</li> </ul> 	<ul style="list-style-type: none"> <li>▪ Lift and stretch out the leg</li> <li>▪ Make circles with your foot making your ankle twist around as much as possible</li> <li>▪ Draw numbers in the air with your foot</li> </ul> 

**EXERCISE 10 (once)**

- Put a page of newspaper on the floor and crumple it up with your feet, making it into a tight ball
- Now, again using only your feet, undo the ball and spread out the page once again
- Using the toes of both feet, tear up the newspaper into little pieces



**Source:** These exercises were developed by the World Health Organisation for their Type 2 Education Programme, and have been adapted for use in South Africa

**APPENDIX D**

**FOOT PATHOLOGY SCREENING FORM**

It is important that the patient remove their socks and shoes from both feet, even if the problem is in one foot. This is necessary for comparison during examination and for possible detection of other problems in the other foot too.

Name: \_\_\_\_\_ Patient no: \_\_\_\_\_

Address: \_\_\_\_\_

Clinic: \_\_\_\_\_ Phone number: \_\_\_\_\_

Date of assessment: \_\_\_\_\_

Age: \_\_\_\_\_ Date of birth: \_\_\_\_\_

Sex: \_\_\_\_\_ Height: \_\_\_\_\_ Weight: \_\_\_\_\_

Residential circumstances and situation (e.g. living alone, stairs, etc.): \_\_\_\_\_

\_\_\_\_\_

Current medication: \_\_\_\_\_

\_\_\_\_\_

**Medical history:**

Hypertension: \_\_\_\_\_ Diabetes: \_\_\_\_\_ Arthritis: \_\_\_\_\_

Circulation: \_\_\_\_\_ Overweight: \_\_\_\_\_ Eyesight: \_\_\_\_\_

Ambulatory/Bedridden: \_\_\_\_\_ Other: \_\_\_\_\_

**Surgical history:**

Major operations: \_\_\_\_\_ Foot surgery: \_\_\_\_\_

Amputation: Type: \_\_\_\_\_ Reason: \_\_\_\_\_

**Foot complaints:**

Swelling: \_\_\_\_\_ Pain: \_\_\_\_\_ Stiffness: \_\_\_\_\_

Corns: \_\_\_\_\_ Calluses: \_\_\_\_\_ Painful toenails: \_\_\_\_\_

Bunions: \_\_\_\_\_ Cold feet \_\_\_\_\_ Infections: \_\_\_\_\_

Discolouration: \_\_\_\_\_ Burning: \_\_\_\_\_ Tingling: \_\_\_\_\_

Other: \_\_\_\_\_

Hammer-toes: \_\_\_\_\_ Numbness: \_\_\_\_\_

Main complaints regarding the feet: knee, ankle, and toe joint mobility: \_\_\_\_\_

\_\_\_\_\_

Functional limitations: how far can the person walk: \_\_\_\_\_

**Dermatologic evaluation:**

Hyperkeratosis (calluses): \_\_\_\_\_ Corns: \_\_\_\_\_  
 Fissures: \_\_\_\_\_ Infection: \_\_\_\_\_  
 Ulceration: \_\_\_\_\_ History of ulceration: \_\_\_\_\_

**Nails:**

Thickened: \_\_\_\_\_ Discoloured: \_\_\_\_\_  
 Other: \_\_\_\_\_  
 Sores, new or recently healed: \_\_\_\_\_ Fungal infection: \_\_\_\_\_  
 Plantar Wart: \_\_\_\_\_ Blister: \_\_\_\_\_  
 Other: \_\_\_\_\_

**Foot shape/function evaluation:**

Limited joint range of motion: \_\_\_\_\_  
 Gait & ambulation aid: Cane/Walker/Wheelchair: \_\_\_\_\_  
 Posture: Symmetrical: \_\_\_\_\_ Asymmetrical: \_\_\_\_\_  
 Limb: Absent: \_\_\_\_\_ Present: \_\_\_\_\_  
 Flat feet: \_\_\_\_\_ High instep: \_\_\_\_\_  
 Bunion: \_\_\_\_\_ Hammer-toes: \_\_\_\_\_  
 Bony outgrowth: \_\_\_\_\_ General foot deformity: \_\_\_\_\_  
 Other: \_\_\_\_\_

**Signs of Peripheral Vascular Disease:**

Coldness: \_\_\_\_\_ Discolouration: \_\_\_\_\_ Pallor: \_\_\_\_\_  
 Blue toe syndrome: \_\_\_\_\_ Varicose veins: \_\_\_\_\_  
 Shiny appearance of skin: \_\_\_\_\_ Loss of hair on feet & toes: \_\_\_\_\_  
 Rest pain: \_\_\_\_\_ Oedema: \_\_\_\_\_  
 \*Intermittent claudication: \_\_\_\_\_ Other: \_\_\_\_\_  
 Pulses for both feet should be recorded:  
 (L) Dorsalis Pedis pulse: \_\_\_\_\_ (L) Posterior Tibal pulse: \_\_\_\_\_  
 (R) Dorsalis Pedis pulse: \_\_\_\_\_ (R) Posterior Tibal pulse: \_\_\_\_\_

**Neurological evaluation:**

\*Ankle jerk absent: \_\_\_\_\_ Vibration: \_\_\_\_\_  
 Monofilament sensation absent: \_\_\_\_\_ \*Paraesthesia: \_\_\_\_\_  
 \*Babinski's reflex: Positive: \_\_\_\_\_ Negative: \_\_\_\_\_

**General observations:**

History of foot treatment: \_\_\_\_\_  
 Able to reach feet: \_\_\_\_\_  
 Able to remove shoes and socks easily: \_\_\_\_\_  
 Level of hygiene satisfactory: \_\_\_\_\_  
 Types of stockings/socks Nylon: \_\_\_\_ Cotton: \_\_\_\_ None: \_\_\_\_ Other: \_\_\_\_  
 Footwear worn: Shoe: \_\_\_\_\_ Slipper: \_\_\_\_ None: \_\_\_\_ Other: \_\_\_\_  
 Shoe function: Adequate: \_\_\_\_\_ Inadequate: \_\_\_\_\_  
 Overall impression: \_\_\_\_\_

**Comments and recommendation:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Referral to:**

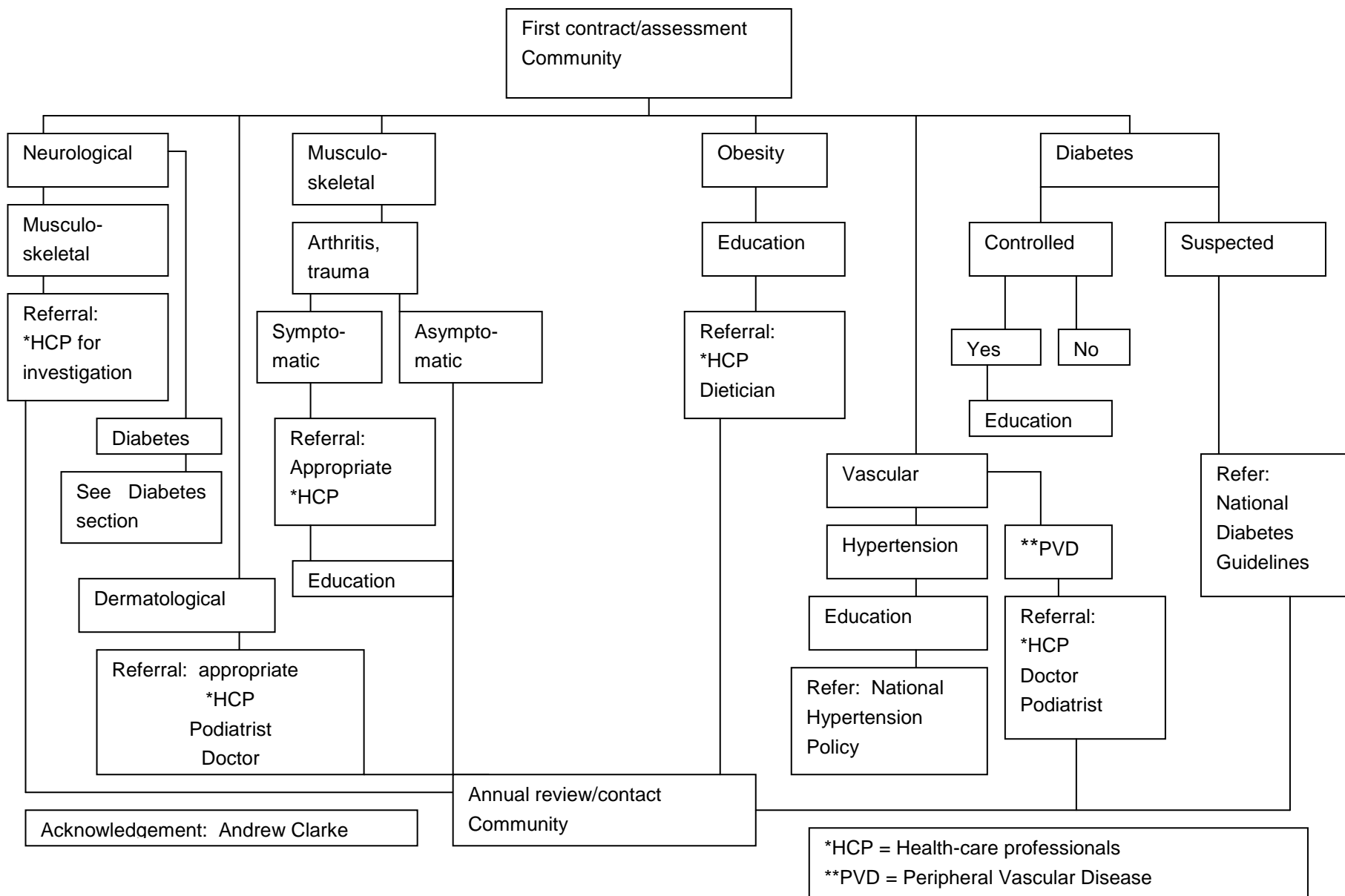
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**Signature of Assessor:****Date:**

\_\_\_\_\_

- \*Claudication: Lameness – Intermittent claudication. Limping, accompanied by cramping pain/tightness in the legs when walking that disappears when the person is resting. Occurs most frequently in the calf, especially common in persons over 60 years of age.
- \*Ankle jerk: Contraction of calf muscle on tapping the Achilles tendon.
- \*Paraesthesia: Disorder of sensation, e.g. a feeling of tingling of 'pins and needles'.
- \*Babinski's reflex: A test for organic disease of the spinal cord. On stroking the sole of the foot with a hard object, the big toe bends upwards instead of downwards.

ALGORITHM FOR THE MANAGEMENT OF FOOT PATHOLOGY

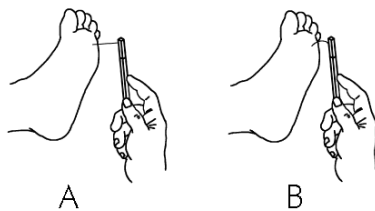


## EXAMINATION OF THE FOOT FOR PROTECTIVE SENSATION USING THE 10G (SEMMES-WEINSTEIN) MONOFILAMENT

- Apply the filament on the patient's hand so he/she knows what to expect.
- The patient must not be able to see if and where filament is applied.
- Three sites must be tested on each foot



- Apply monofilament perpendicular to the skin surface with sufficient force.
  - Do not allow the filament to slide across the skin
  - Do not probe repetitively at the test site.



- Ask the patient IF (yes/no) and WHERE (left/right) they feel the pressure.
  - Perform this twice at the same site.
  - Perform at least one "sham" application in which no filament is applied (total three questions/site).
- Protective sensation is absent with two out of three incorrect answers at any one site, and the patient is then considered to be at risk for ulceration.
- Additional information may be obtained by assessing:
  - vibration sense (128Hz tuning fork),
  - ankle reflexes,
  - pain sensation (Filament-prick), and
  - light-touch (control wool).

(Source: SEMDSA. *Diabetic Foot Care Guidelines for Primary Healthcare Professionals*. Available: <http://www.semdsa.org.za/guidelines.htm>)

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