

## Background/Purpose

The skin is the largest organ in our body. The skin functions as protection (first line defense to external environment), thermal regulation, sensation, and endocrine function. Injury to the skin can happen to any person.

Medical adhesive related skin injury (MARSI) is defined by Nichol, Lund, Rosen, & Gray as **“an occurrence in which erythema and/or other manifestation of cutaneous abnormality occurs within 30 minutes or more after removal of the adhesive”** (Nichol, Lund, Rosen & Gray, 2013).

MARSI can lead to:

- Unnecessary pain
- Skin integrity alteration
- Increase risk for infection
- Increase wound size
- Delay in healing



The goal of this project is to assess awareness of MARSI pre and post implementation of an educational intervention.

## Types of MARSI



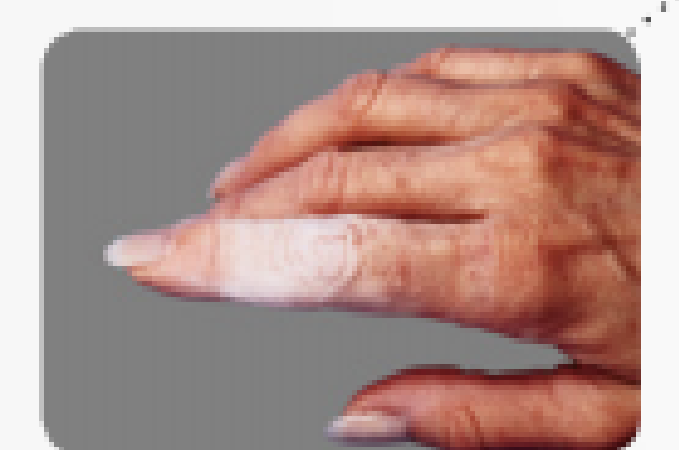
**SKIN TEAR:** Wound caused by shear, friction, and/or blunt force resulting in separation of skin; can be partial or full-thickness



**TENSION INJURY OR BLISTER:** Separation of the epidermis from the dermis as a result of distention of skin under an unyielding adhesive; blisters often develop at the edge of the adhesive



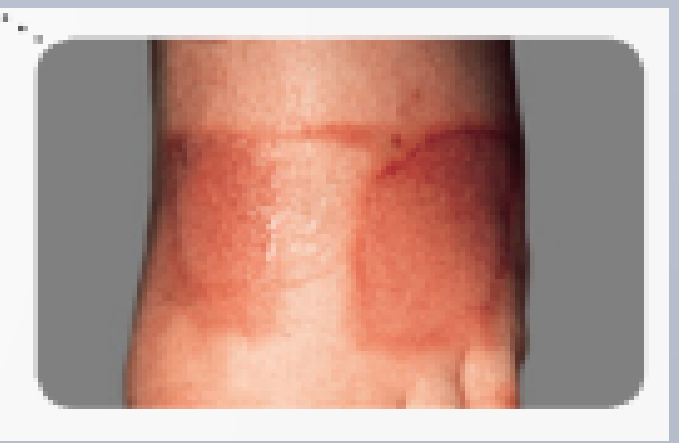
**SKIN STRIPPING:** Removal of one or more layers of stratum corneum following removal of medical adhesive; stripped skin may appear shiny



**MACERATION:** Softening and breaking down of skin resulting from prolonged exposure to moisture; increase susceptibility, skin appears wrinkled and white/gray in color



**ALLERGIC CONTACT DERMATITIS:** Rare, cell mediated immunologic response to adhesive or backing; typically appears as an area of erythematous, vesicular, pruritic dermatitis; persist for up to a week



**IRRITANT CONTACT DERMATITIS:** Reaction ranging from erythema and scaling to necrotic burns from non-immunologic damage caused by chemicals in contact with the skin; may appear reddened and swollen

## Factors Influencing Risk of Skin Injury

### Intrinsic Factors

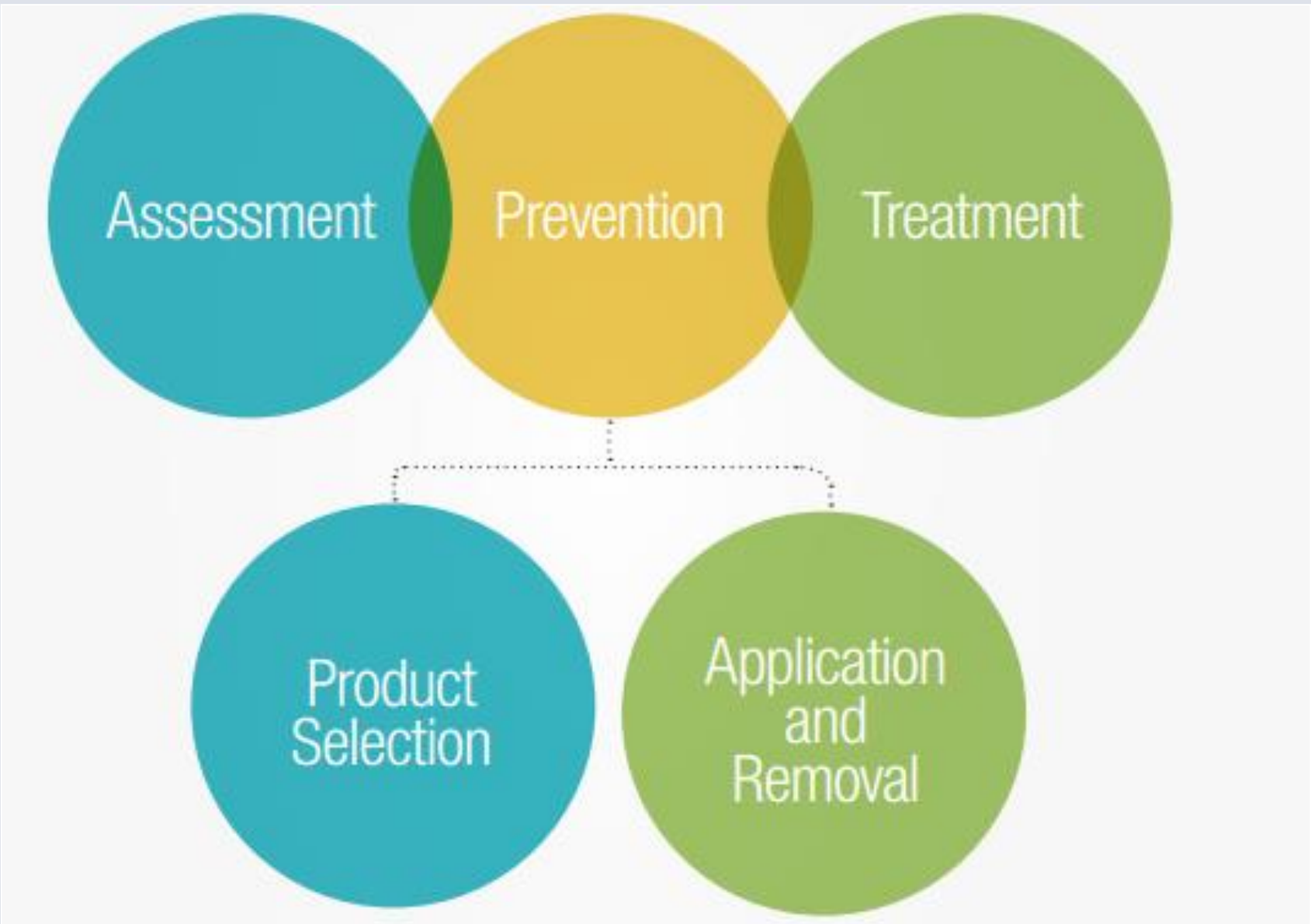
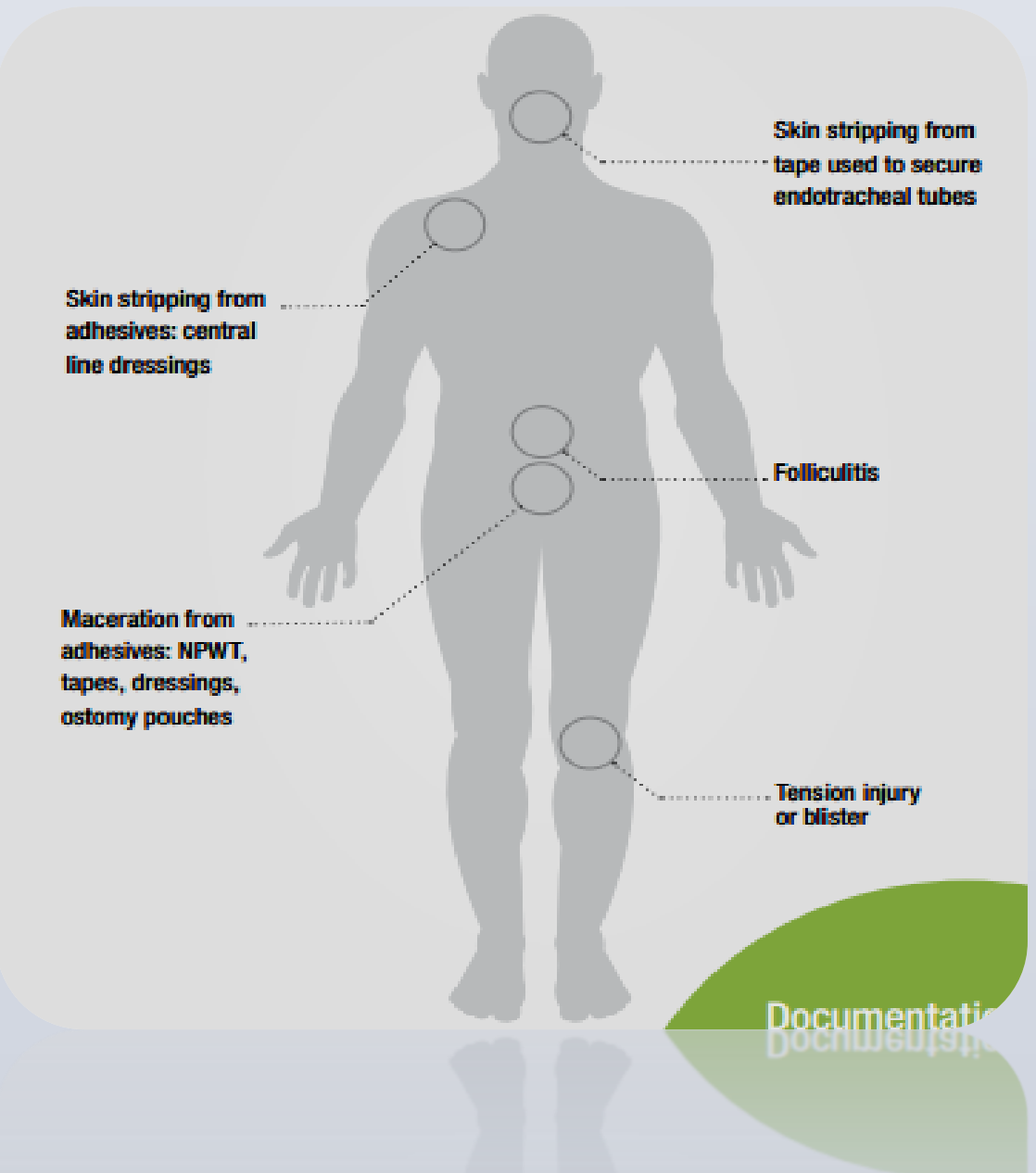
- **Extremes of Age**
- Race/Ethnicity
- Dermatological conditions
- Underlying medical conditions (comorbidities)
- Malnutrition
- Dehydration

### Extrinsic Factors

- Drying of the skin (harsh skin cleanser, excessive bathing, low humidity)
- Prolonged exposure to moisture
- Certain medication
- **Radiation therapy**
- Photodamage
- **Tape/dressing/device removal**
- Repeated taping

### RN Role

**Assessment:** MARSI can occur anywhere on the body that adhesives are used.



## Prevention

Consider the following when applying the adhesive

- Breathability (post-op, increase fluid overload, drainage)
- Stretch-ability (fluid volume shift, tamponade dressing)
- Conformability and flexibility (orthopedic applications)
- Adhesive gentleness (high risk patients, older adult)
- Activity of your patients (critical vs. acute care)
- Critical nature of device you are securing (ET tubes, lines, catheters, etc)

## Skin Barrier Film and Adhesive Remover



Use skin barrier film (Cavilon) and adhesive remover every time applying or removing adhesives.

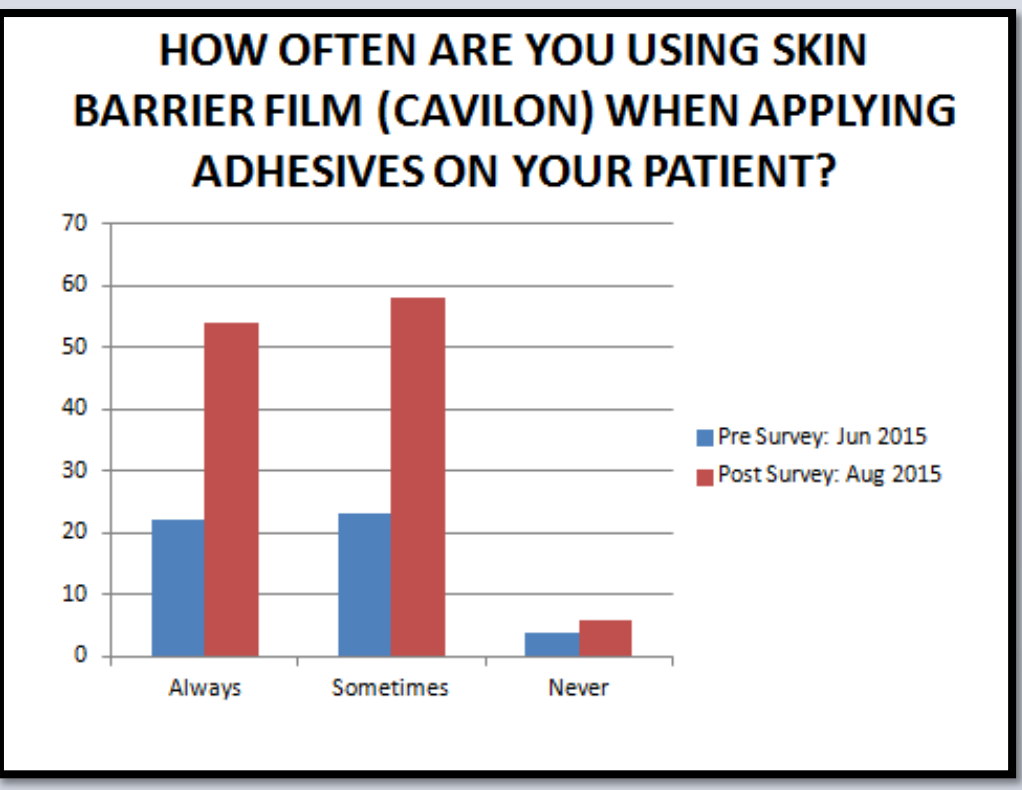
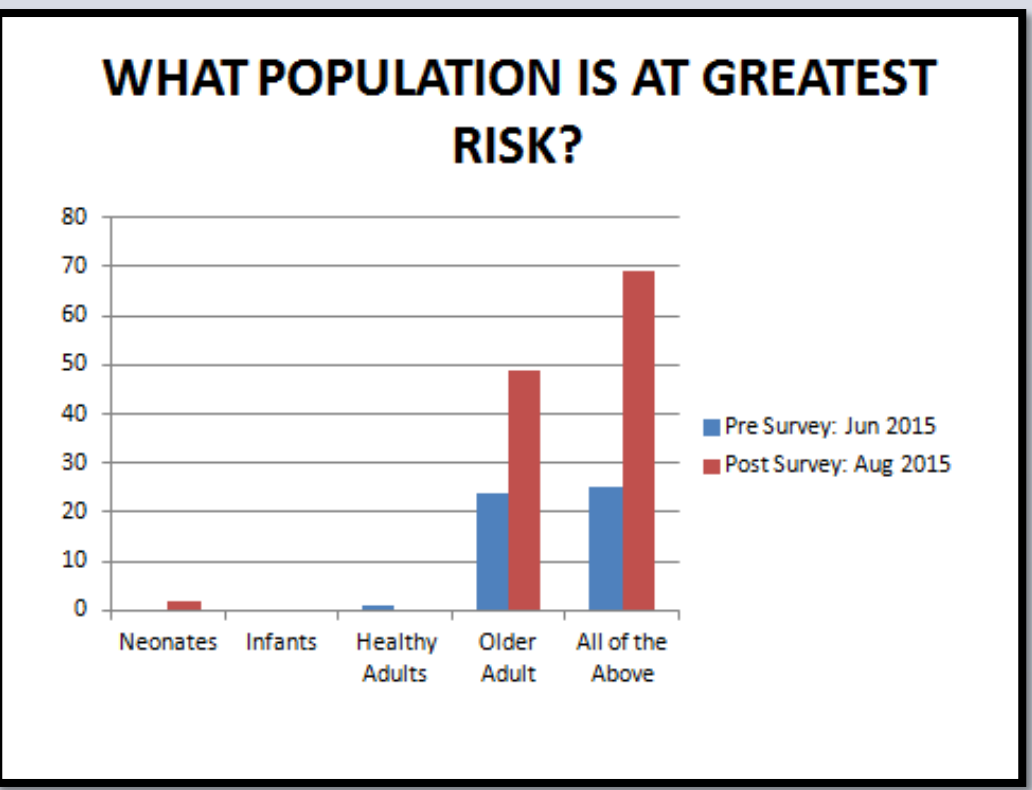
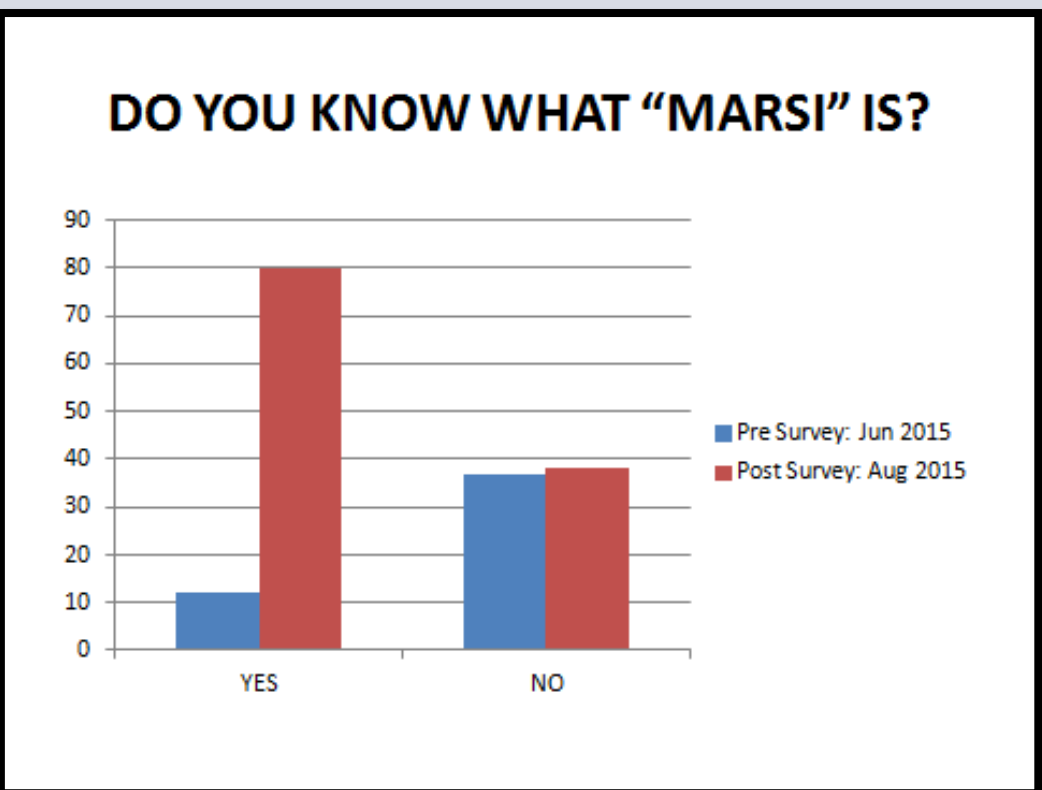
## Staff Awareness and Education

A baseline assessment of nurses' knowledge regarding MARSI, was given to all nurses at a tertiary hospital in Southern California via SurveyGizmo. The educational intervention used a simulation mannequin “Manny” to review the risks of MARSI, the use of skin barrier and adhesive remover, and knowledge of where to find skin barrier and adhesive remover. Simulation allows nurses to enhance their higher level of problem-solving and interactive abilities in the cognitive and effective domains, while providing a safe and non-threatening learning environment.



## Pre and Post Survey Results

Pre surveys using SurveyGizmo were completed (n=49), and demonstrated that 75.5% of nurses did not have correct knowledge of MARSI. A post survey to assess knowledge gained was delivered via SurveyGizmo one week after the intervention. Post surveys were completed (n=122) and demonstrated an increase in knowledge level of MARSI from 24.5% to 67.8%.



## Conclusion

Skin champions from the Pressure Injury Prevention Team continued to educate and encourage staff during huddles to use skin barrier and adhesive remover when applying or removing tape. With continuing education and awareness, the nurses promoted safer practices with application and removal of medical adhesives to prevent skin injury to all patient populations.

As a result of this project new tapes (3M Transpore White and 3M Kind Removal) were trialed and paper and plastic tapes were discontinued.

## References

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