Fuji **Triage**

from GC.

Simple **and serious**
protection for teeth **at need.**

Seals, protects and fortifies teeth.

New name – From Fuji VII to Fuji Triage

Fuji VII – why so popular amongst dentists

- **Nice handling, good flow**
- **Moisture tolerant**
- **Good clinical results**
- Especially used in the fissure protection indication where bonding or etching is not needed when using Fuji VII

However, more and more requests

- For a white version
- For powder to liquid packaging...

Fuji Triage means more choice

Choice of

- Pink or white shade
- Mixing technique: hand mixed or encapsulated
- Curing technique: light cure or chemical set - no difference in physical properties

Choice of

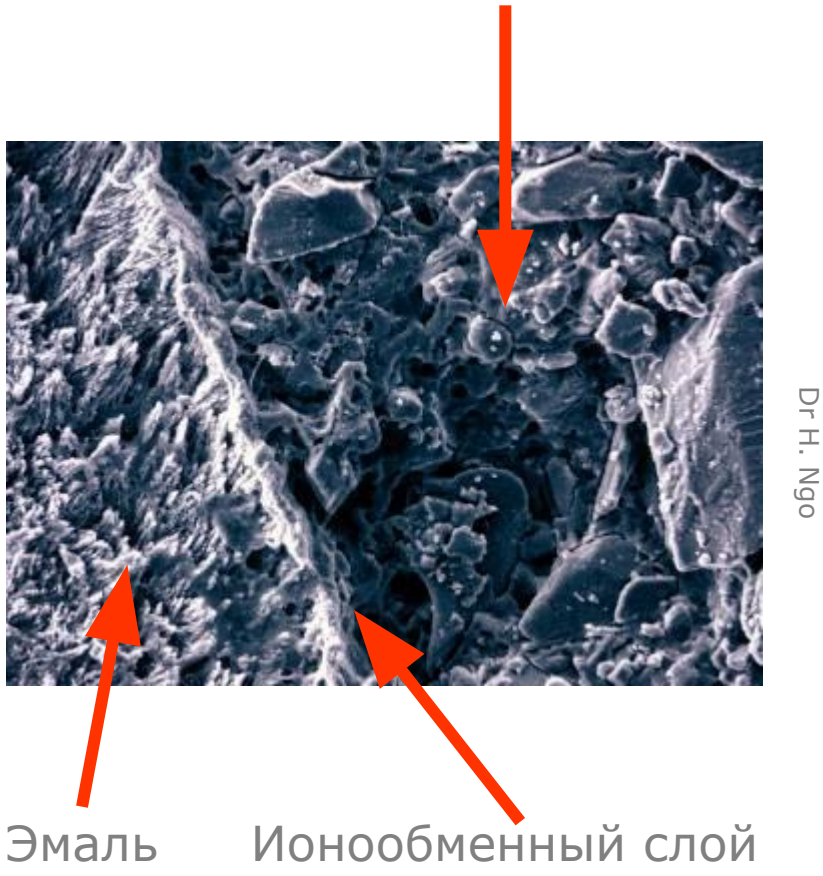
- Specific clinical applications
- Non invasive techniques

A true Minimum Intervention product

Fuji Triage - Seals, protects and fortifies teeth

What is surface protection?

- Application of a thin layer of glass ionomer to tooth surfaces at increased risk
- To create a hardened tooth surface
- To form a more acid-resistant ion exchange layer which acts as additional protection for the tooth



Fuji Triage - Seals, protects and fortifies teeth

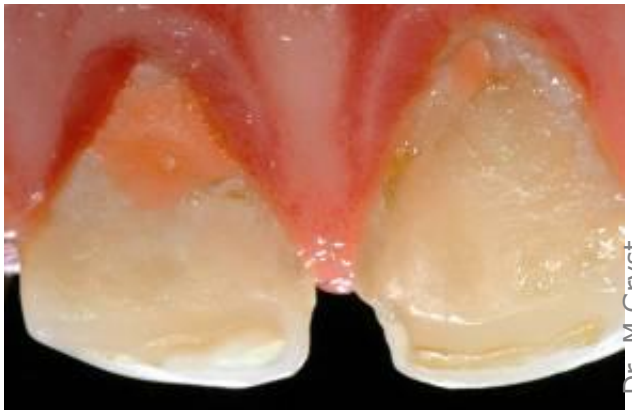
The perfect GIC for tooth surface protection

- Flowable
- Moisture tolerant
- High Fluoride release

Dr. J Lucas

Acts as a protective coating once set

- Prevents acid contact with tooth
- Difficult for plaque to adhere to Fuji Triage



Dr. M Gryst

1. Composition
2. Characteristics
3. Indications
4. Procedure
5. Packaging and pricing
6. Physical properties
7. Sales arguments

Fuji **Tria**
from GC

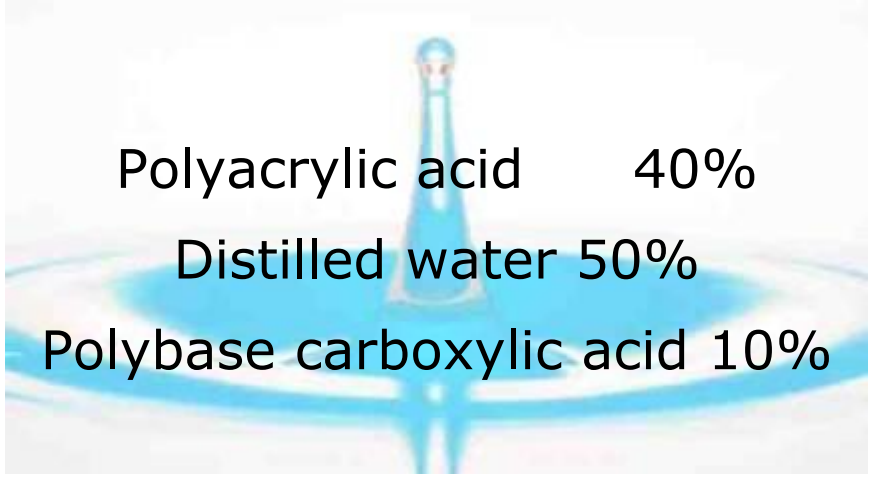
Fuji **Triage**
from GC.

1. Composition

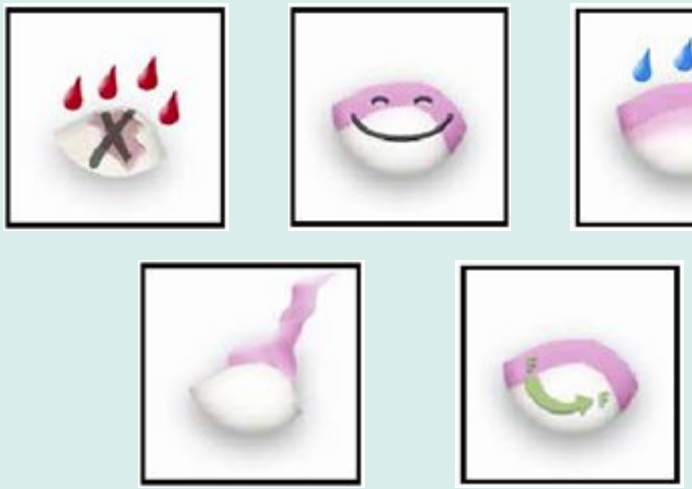
Fuji Triage – Composition

Conventional GIC in composition

- Two components
- H_2O containing
- No resin reinforcement



Fuji **Triage**
from GC.



2. Characteristics

Fuji Triage – Characteristics

General features

- Self curing conventional GIC
  - Easy to apply
  - No etching, no bonding
  - Chemical adhesion to tooth structure
  - No addition of resins
- Moisture tolerant
  - Stable adhesion also when saliva control is not possible
- Low viscosity
  - Easy to apply
- Very high level of fluoride release
  - Protection

Fuji Triage – Characteristics

Fluoride release

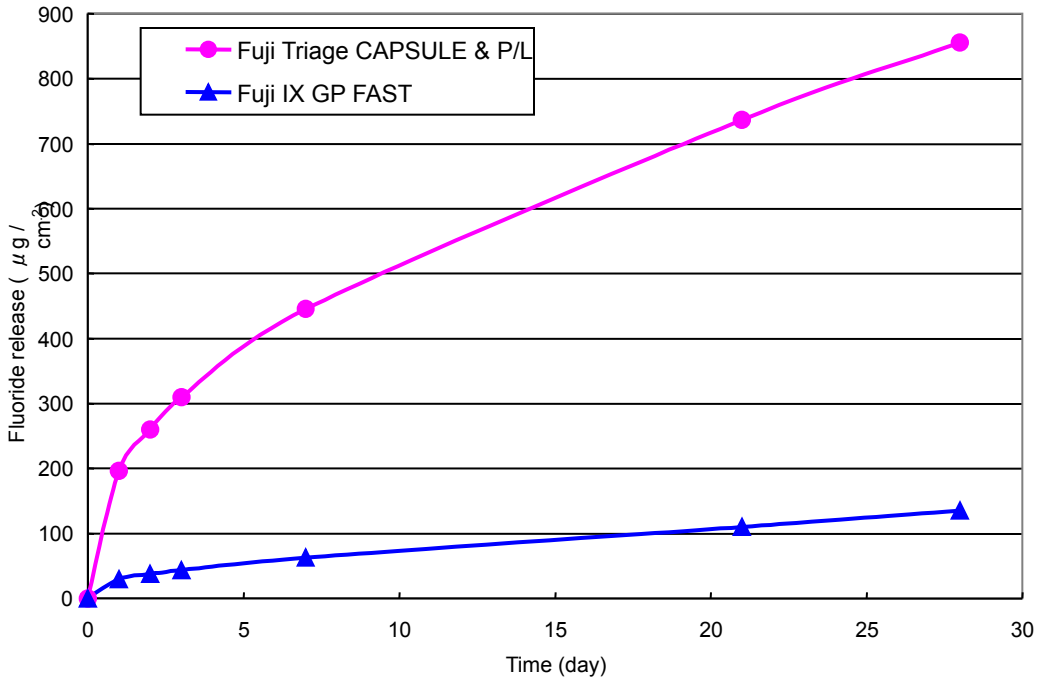
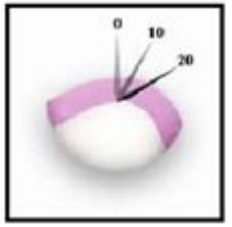


Fig. Fluoride release of Fuji Triage CAPSULE and Fuji IX GP FAST

Six times higher Fluoride release than packable GIC's

Fuji Triage - Characteristics

Translucent pink shade



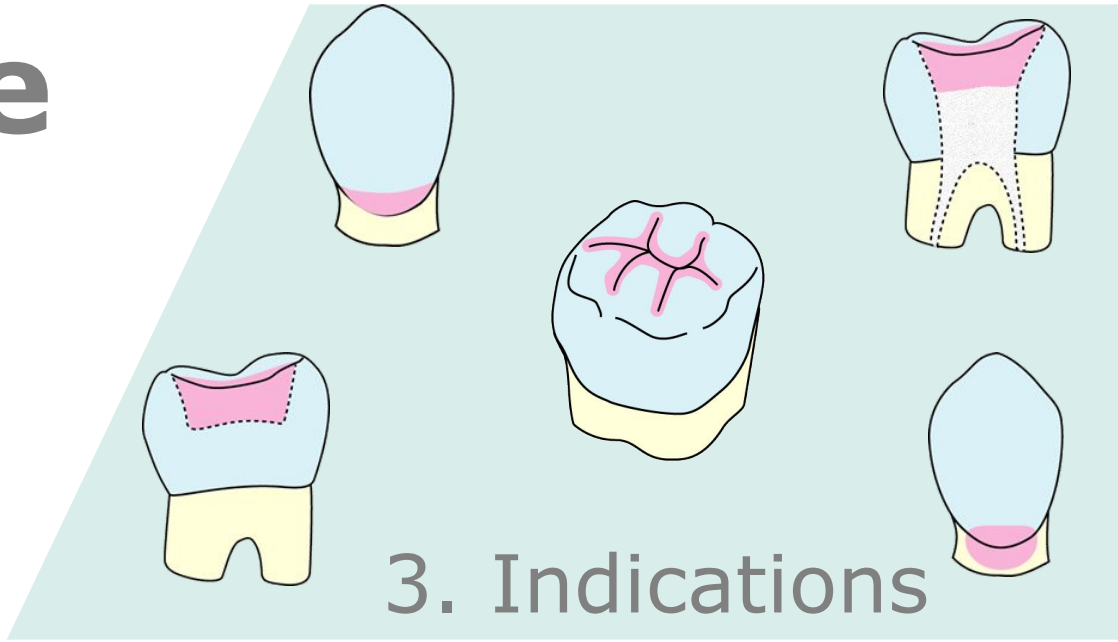
- Optional Command set with VLC unit
- For early protection against de-hydration
- Visible control during recalls: diagnostic marker
- Communication tool

White shade

- For aesthetic demand / anterior protection

Dr G Milicich

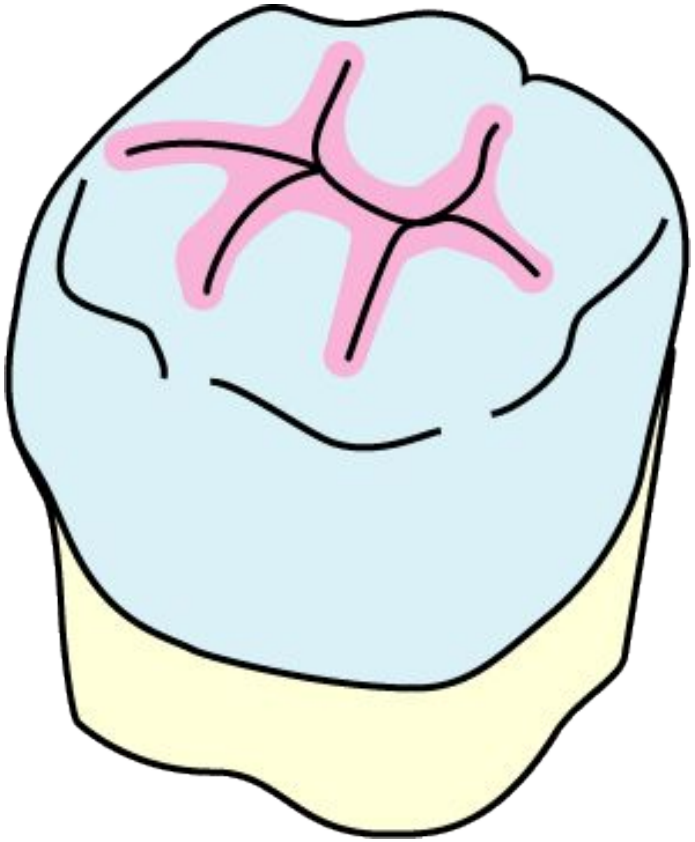
Fuji **Triage**
from GC.



3. Indications

Fuji Triage - Indications

Main indication

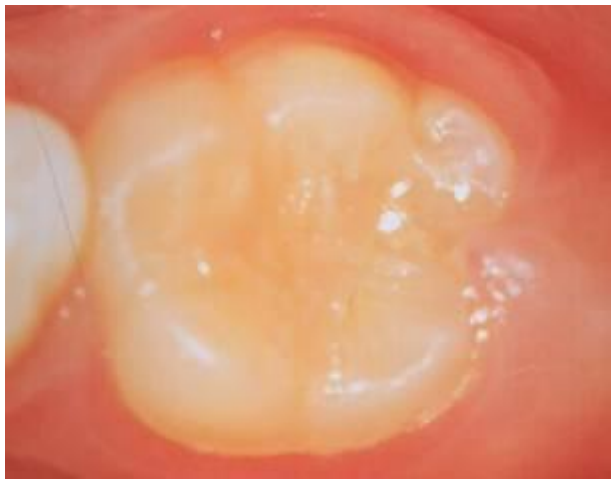


Fissures of newly erupted molars

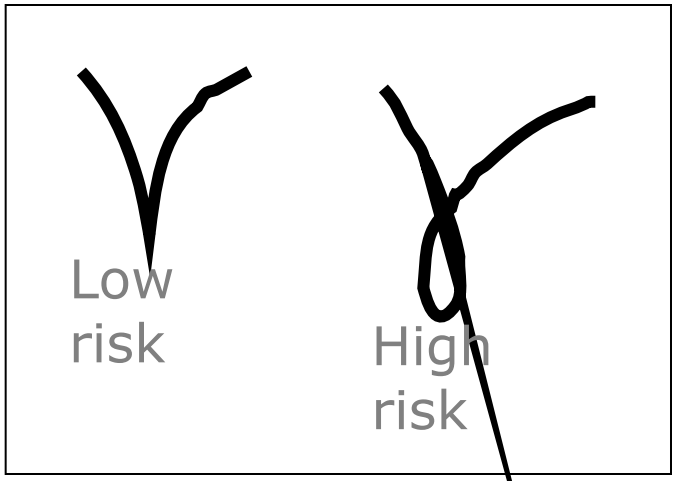
Fuji Triage - Indications

Fissures of newly erupted molars

- Two major intra-oral key factors for occurrence of cariogenic micro organisms
  - Stage of eruption / functional usage of teeth
  - Tooth specific anatomy



Newly erupted molar

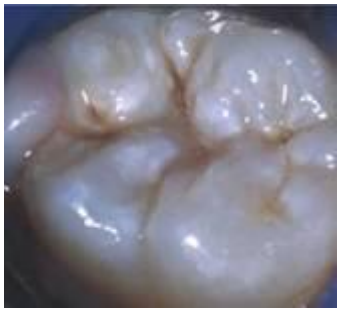


Fissure anatomy

Fuji Triage - Indications

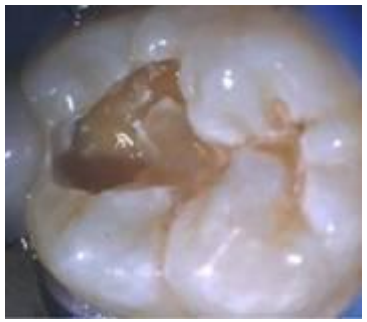
Fissures of newly erupted molars

- Erupting molars are more likely to develop caries due to very unfavourable intra oral conditions
  - No functional usage over a long period of time / no natural removal of plaque
  - Newly erupted molars have immature outer enamel and are consequently more vulnerable to acid attack
  - Difficulties to keep clean by brushing
- This uncertain situation can last for molars between 1 to 1.5 years!



Newly erupted molar

Caries formation

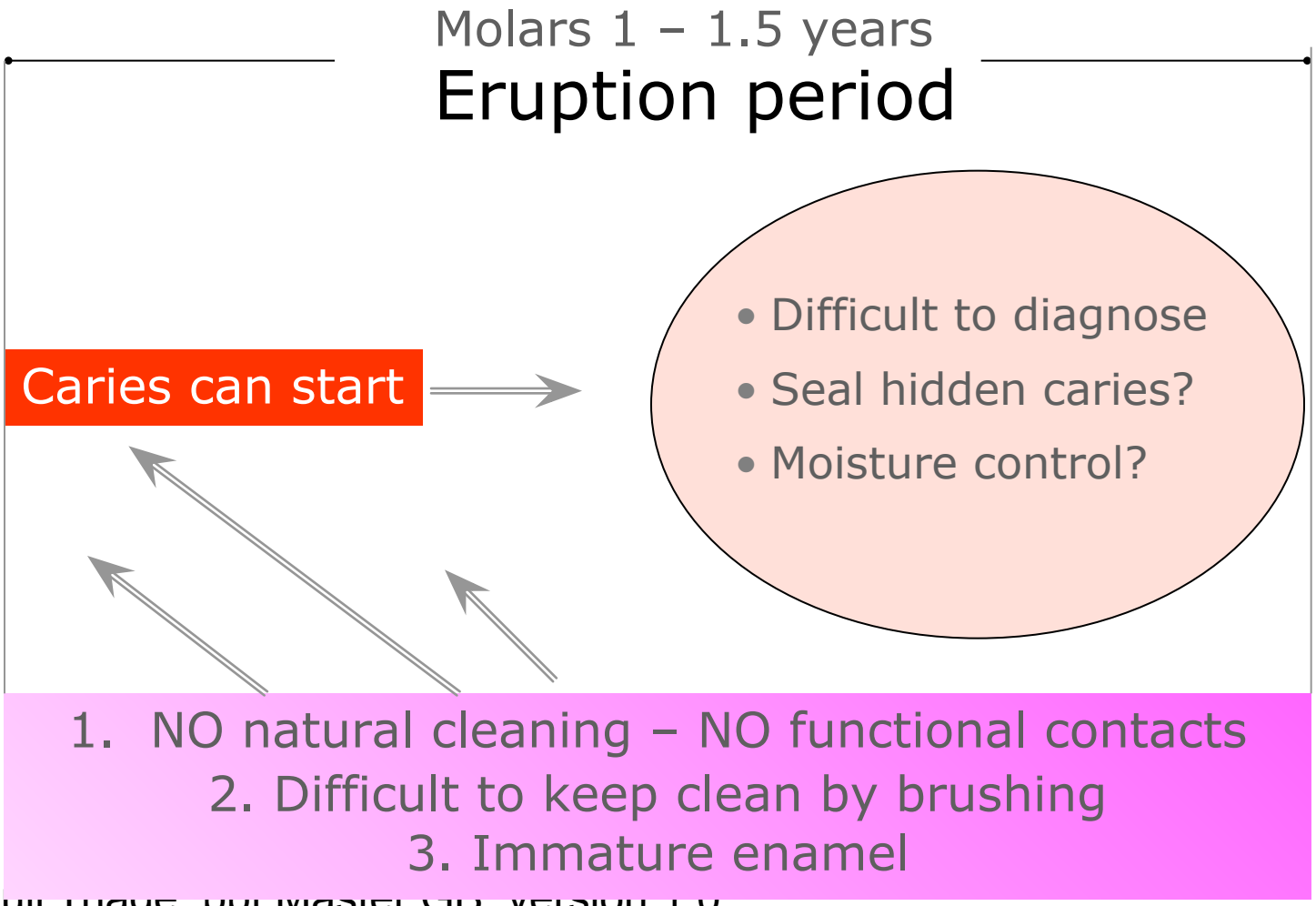


Caries in newly erupted molar

Protection is needed!

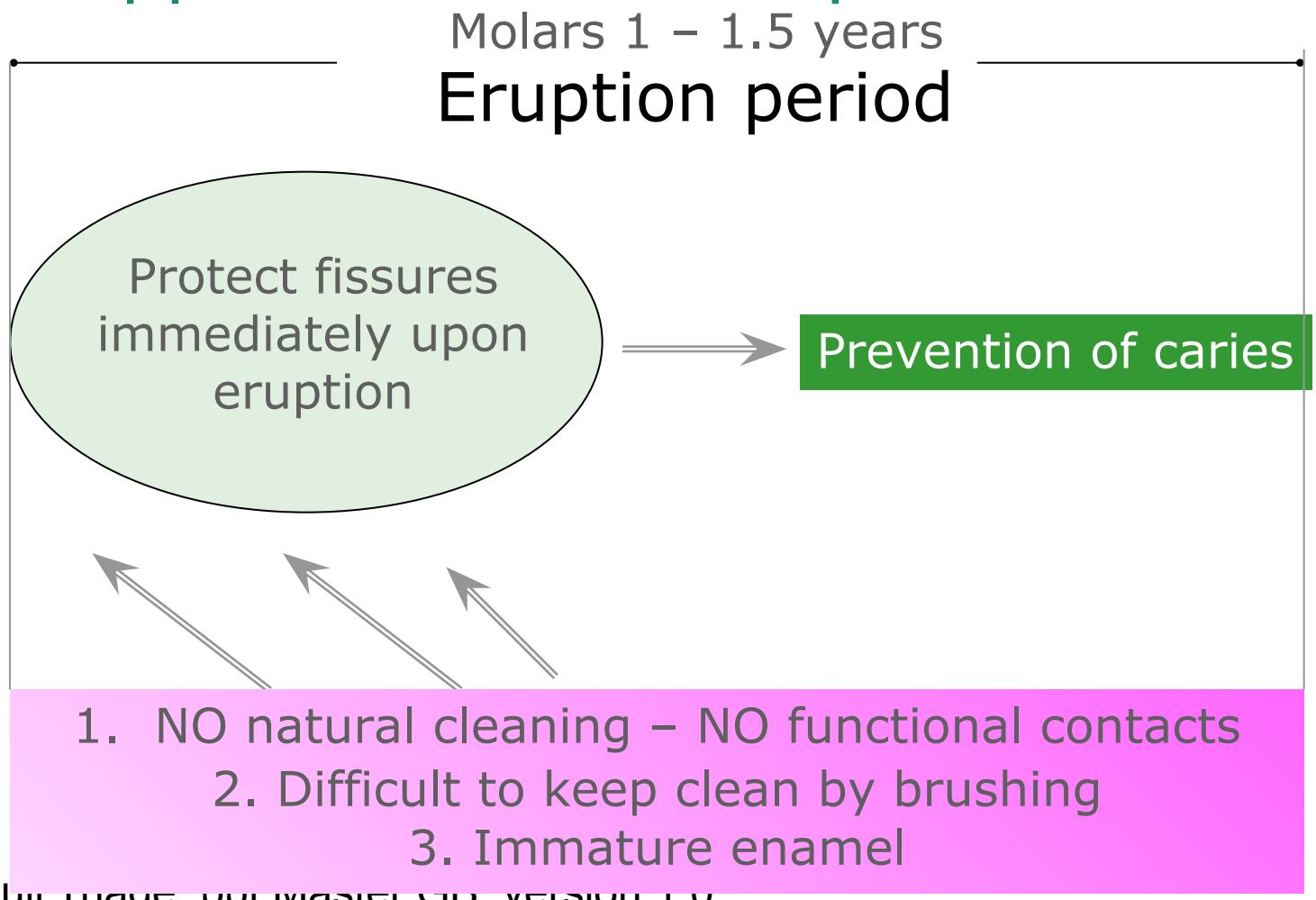
Fuji Triage - Indications

Possible reasons for failure of sealants



Fuji Triage - Indications

A new approach for fissure protection



Fuji Triage - Indications

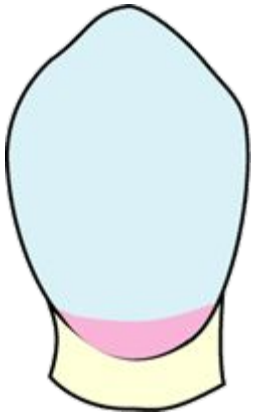
Fissure protection

Molar at risk

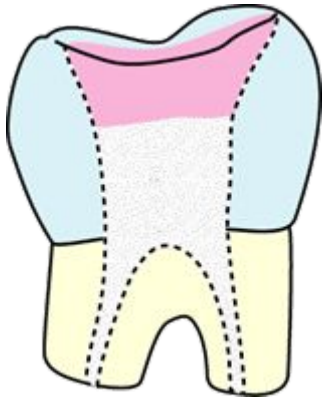
End result

Fuji Triage - Indications

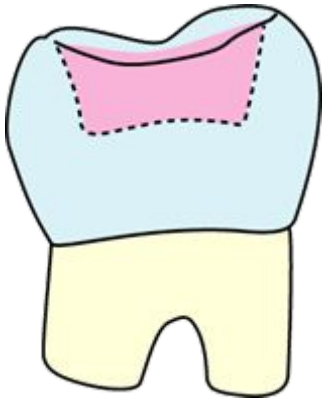
Additional indications: more and more users



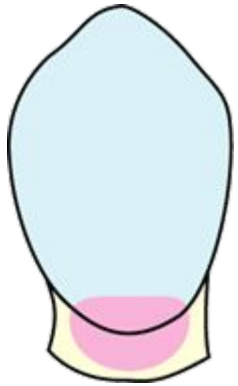
Dentine hypersensitivity



Temporary restoration of endodontic access



Intermediate restoration



Root surface protection

Fuji Triage - Indications

Dentine hypersensitivity

- Offering instant long-lasting relief

6 months

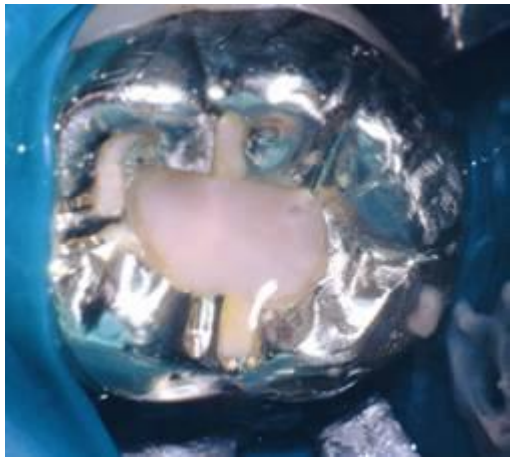
12 months

Fuji Triage is still in place

Fuji Triage - Indications

Temporary restoration of endodontic access - key to success

- Coronal leakage is an important cause of root canal treatment failure (Bobotis, 1989)
- 48.6 % periradicular inflamation when poor temporary restoration versus "only" 30.2 % periradicular inflamation when poor endodontics (Ray and Trope, 1995)
- "Glass ionomer and resin-modified glass ionomer restorative materal provide a better coronal seal against Streptococcus Mutans than Zinc oxide / eugenol" (Seiler, 2006)



	Nb of leaking specimen	Mean day of start of leakage
IRM	10	10.0
Fuji Triage	4	23.3

Fuji Triage – Indications

Intermediate restoration to stabilise caries

- Sealing caries at the preliminary stage before making a decision on next course of treatment
- For use on all tooth surfaces to provide a seal to halt the progress of caries
- Special application in situations of rampant caries or caries in xerostomia patients
- Particularly useful for elderly, caries prone and dental phobic patients

Dr. H. Ngo

Use slow handpiece or hand instrument and leave 2mm clean margins at the periphery

Fuji Triage – Indications

Protection of exposed root surfaces

- Protects older patients more at risk for developing root surface caries
  - reduced saliva flow
  - diminished buffering and poor remineralisation capacities

Dr. H. Ngo

Application of thin layer of glass ionomer

Fuji Triage - Indications

Triage definition

- "A process for sorting injured people into groups based on their need for or likely benefit from immediate medical treatment. **Triage is used** in hospital emergency rooms, on battlefields, and at disaster sites **when limited medical resources must be allocated."**

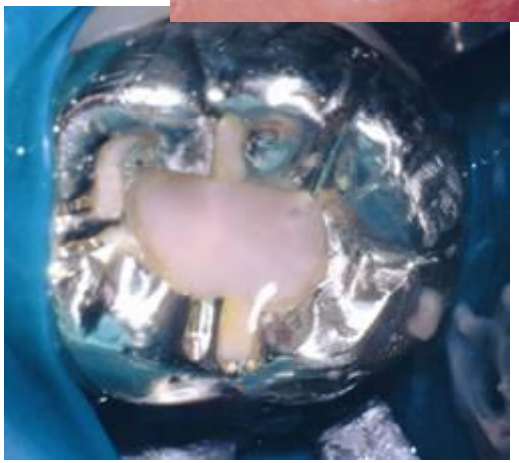
Fuji Triage – Summary of indications

For emergency situations

- Immature enamel – newly erupted molars
  - Protection when it is most needed
- Dentine hypersensitivity
  - Good immediate remmedy to relieve pain
- Access cavity restorations in endodontics
  - Better sealing for succesful endodontic treatments
- Temporary sealing of open cavities – intermediate restoration
  - Maintain tooth structure when prognosis is uncertain – gain time
  - Stabilisation material: create a mineralising seal, e.g. after use of Heal Ozone

Fuji Triage - Summary of indications

For emergency situations



Fuji **Triage**
from GC.

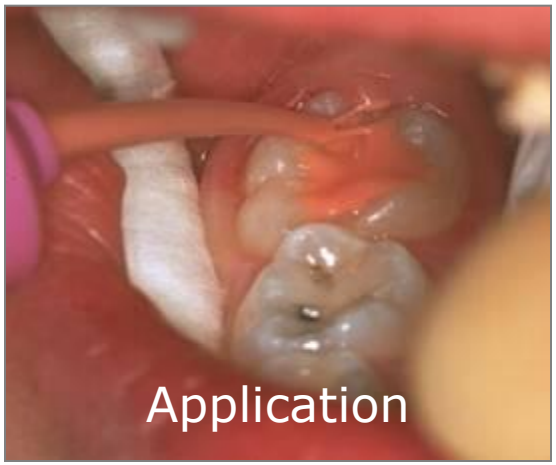
4. Procedure

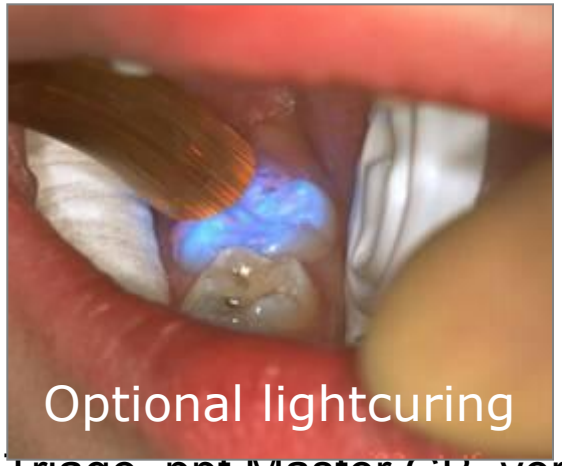
Fuji Triage - Procedure

Procedure

Fuji Triage - Procedure

Procedure





Fuji triage – Procedure

Procedure

Fuji **Triage**
from GC.

5.Packaging and pricing

Fuji Triage - Packaging and pricing

Fuji Triage Capsules

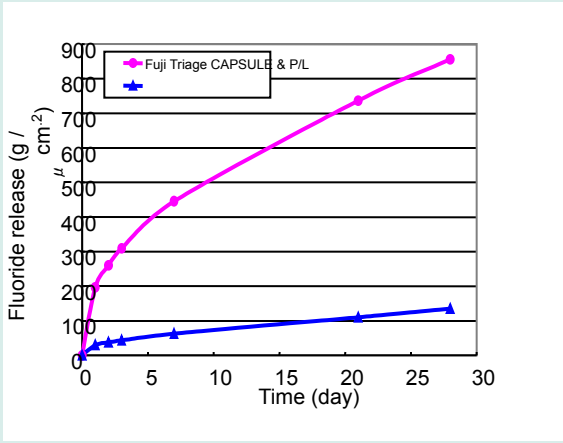
- 50 Capules
- (mixed volume per capsule 0.13 ml)

Fuji Triage P/L

- 15 g powder
- 10 g (8 ml) liquid
- 6 g (5.7 ml) Dentin Conditioner
- powder scoop
- mixing pad

Article number	Article description
002495	GC Fuji Triage Pink, box of 50 capsules
002496	GC Fuji Triage White, box of 50 capsules
002490	GC Fuji Triage Pink, 1-1 pack
002491	GC Fuji Triage White, 1-1 pack

Fuji **Triage** from GC.



6. Physical properties

Fuji Triage - Physical properties (1)

GC R&D

		Capsules	P/L
Powder / Liquid ratio (g/g)		0.30 / 0.15	1.8 / 1.0
Net volume (ml)		0,13	NA
Mixing Time		10'	20’-25'
Working time		1’40”	1'40"
Setting time	Without light irradiation	2'30"	2'30"
	With light irradiation	0’20” - 0'40"	0'20" - 0'40"
No water sensitivity after	Without light irradiation	3’00”	3'00"
	With light irradiation	2’00”	NA

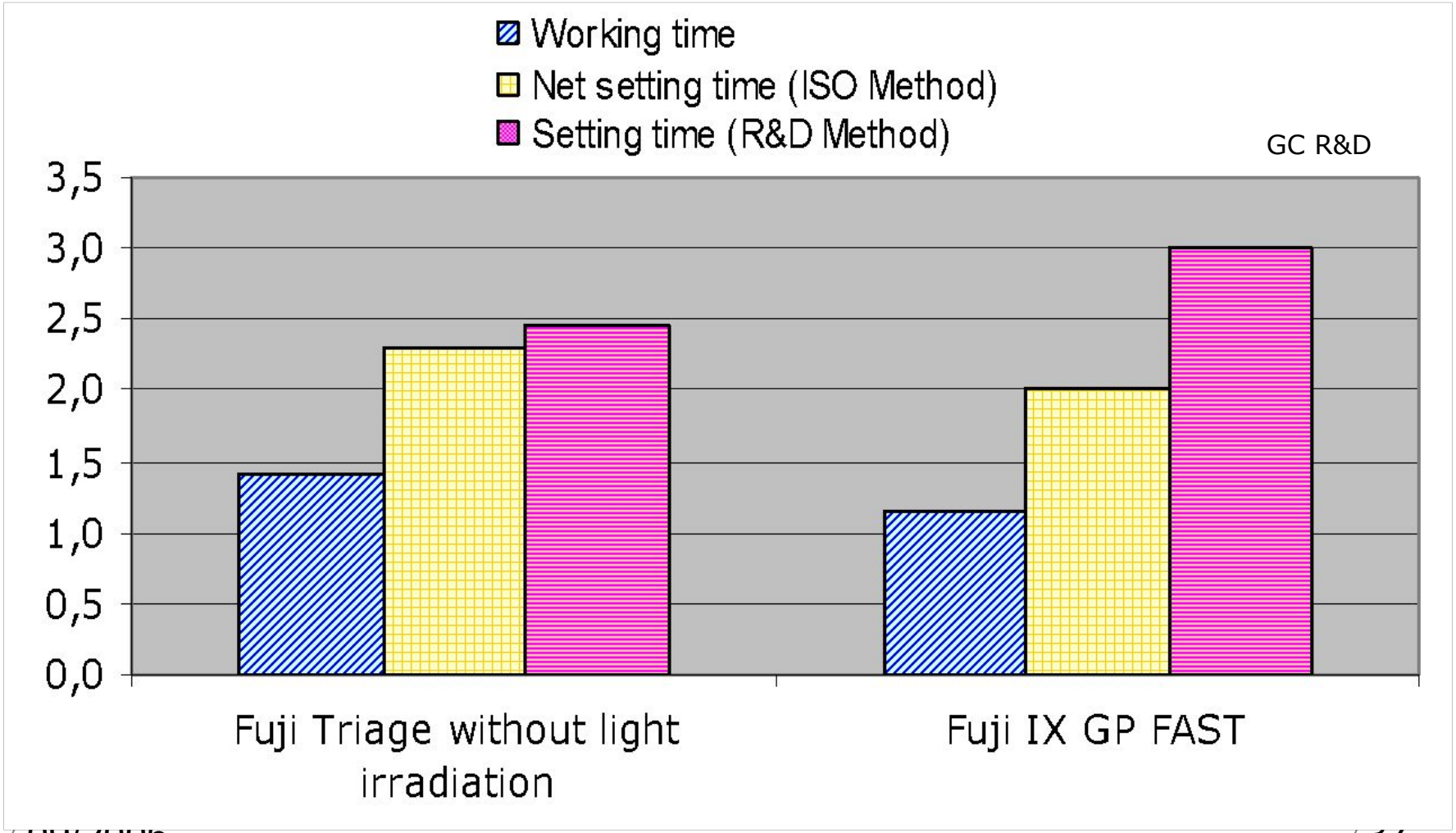
Fuji Triage - Physical properties (2)

		Capsules	P/L
Compressive strength (Mpa)	After 1 hour	100 (8)	100 (8)
	After 1 day	159 (6)	173 (6)
	After 7 days	171 (21)	189 (15)
Adhesive strength* (Mpa, After 1 day)	Bovine enamel	7.0 (0.9)	7.6 (1.7)
	Bovine dentin	6.0 (0.3)	6.3 (1.4)
Surface hardness (Hv)	After 1 hour	26 (1)	29 (4)
	After 1 day	39 (1)	40 (3)
	After 7 days	48	NA
Radiopacity (mm)		2.4	2.8
Fluoride release (µg / cm²)	After 1 day	197	183

*Without conditioner

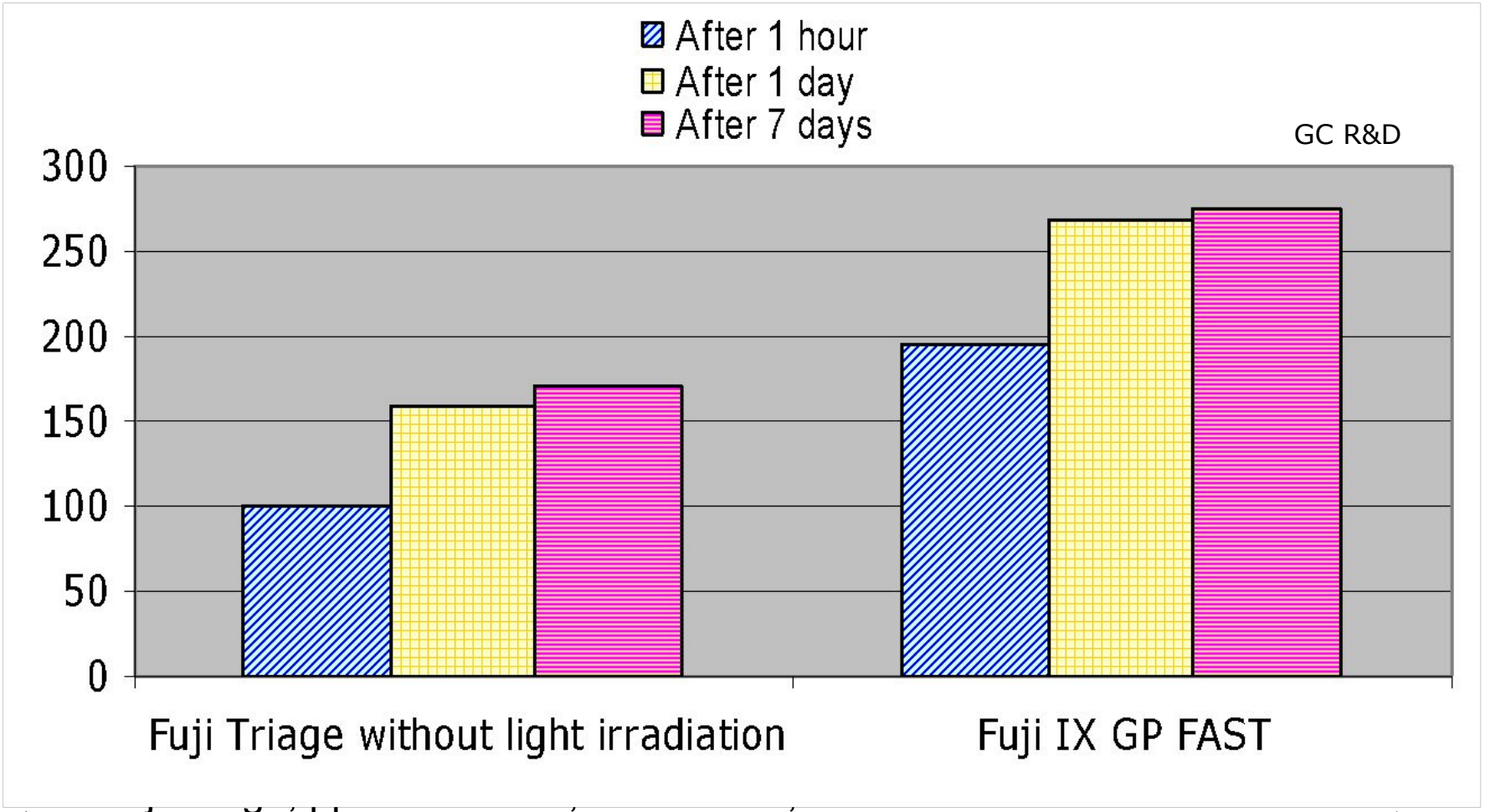
Fuji Triage – Physical Properties

Working and setting times in min.



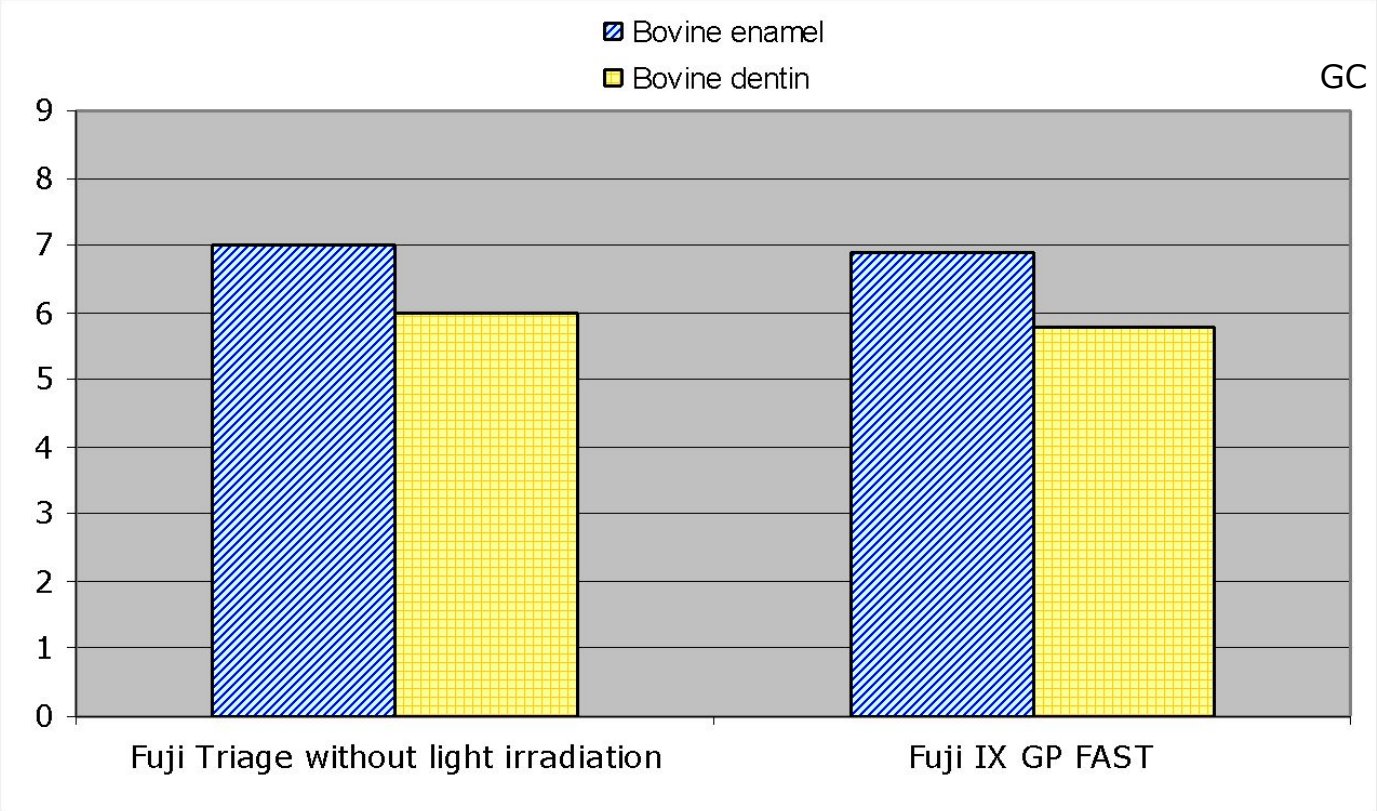
Fuji Triage – Physical Properties

Compressive strength in MPa



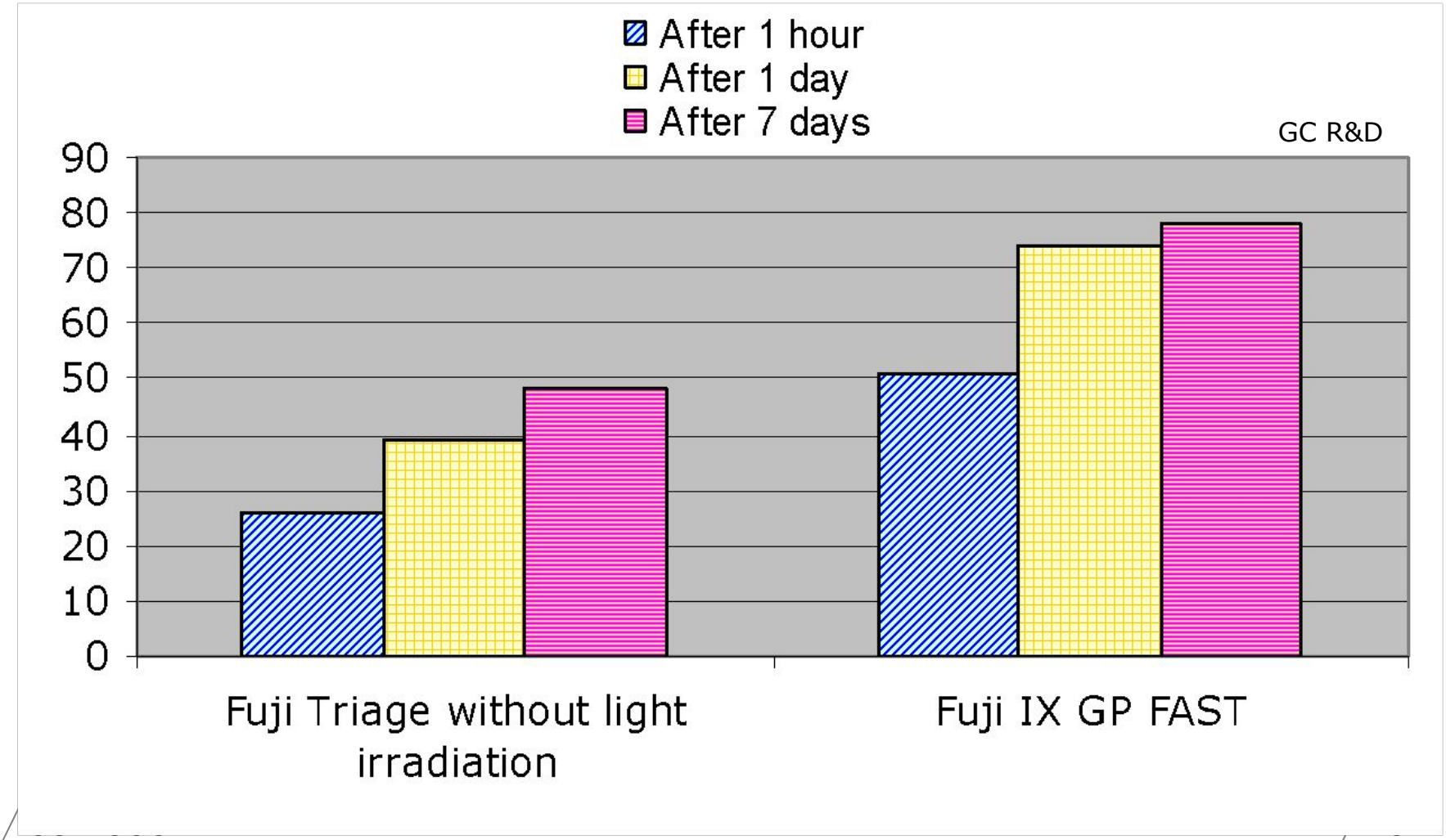
Fuji Triage - Physical Properties

Adhesive strength in MPa



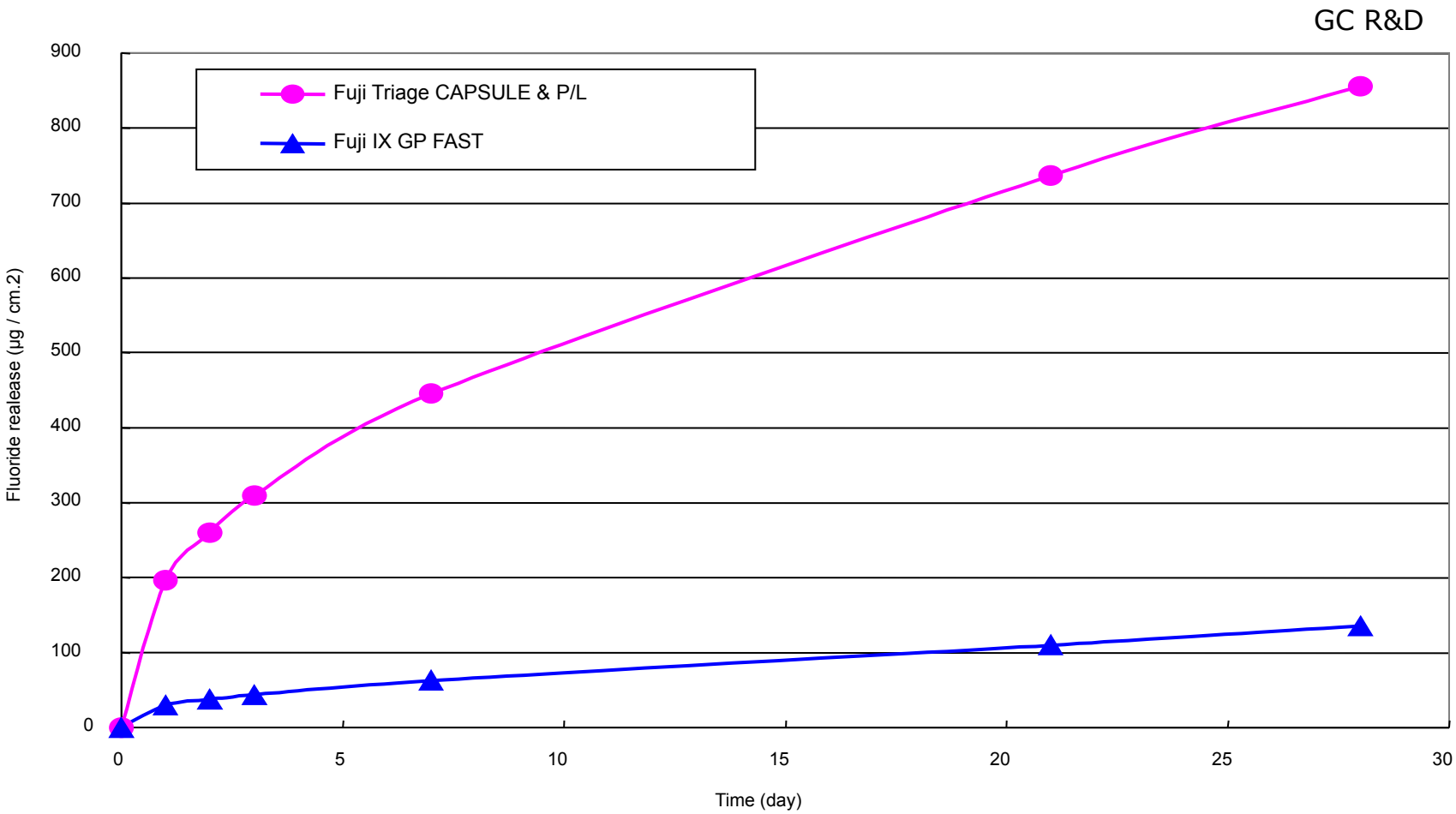
Fuji Triage – Physical Properties

Surface hardness Hv



Fuji Triage – Physical Properties

Fluoride release in µg / cm^2



Fuji Triage – Physical Properties

Antibacterial effect

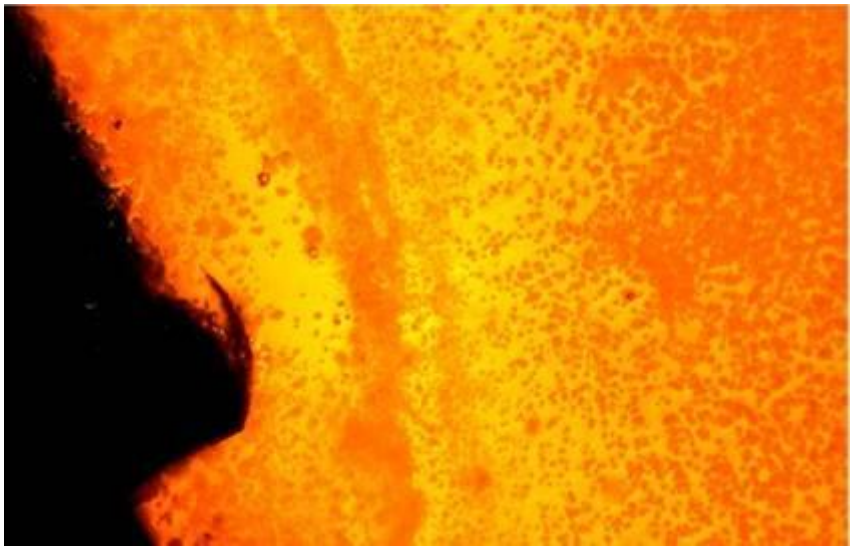
0415 **Antibacterial effect of various glass ionomers.** **M.C. PETERS*, M. JIMENEZ, G.E. POORT, and J.C. FENNO, University of Michigan, USA**

Objectives: Several studies have demonstrated the antibacterial effect of glass ionomers (GIs) on the major pathogens causing dental caries. These antibacterial properties of GIs have been attributed to both the high concentrations of fluoride and to the low pH of these materials. The purpose of this in-vitro study was to examine the inhibiting effect of several GI restorative materials on bacterial growth. Methods:Using the agar diffusion test antibacterial activities of 4 GIs, Fuji IX (F9, auto-cure:AC), Fuji II LC (F2, light-cure), PhotacFil Quick (PF, LC) and one experimental GI (EXPA in AC and EXPL in LC mode) were evaluated against the cariogenic S. mutans (clinical isolate) and S. sobrinus 6715. 1% Glutaraldehyde was used as control. The bacteria were grown in BHI broth or agar at 37 degrees under anaerobic conditions. Overnight broth cultures were concentrated 10x, and 0.1ml was spread over the surface of each agar plate. Wells of 6mm in diameter were punched and filled with material plugs, prepared according to manufacturer's recommendations. After 24 hours incubation the inhibition zone was measured. Results: The greatest inhibitory area (mm diameter/SD) was produced by the control(11.65/0.77) followed by EXPA (9.28/0.68) and F9(9.07/0.62), EXPL(8.08/0.52), F2 (7.24/0.29) and PF(7.03/0.02). Conclusion: The AC materials showed greater inhibition than the LC materials. When compared to F2 and PF, both EXPA and F9 showed a significantly larger inhibitory effect against S. mutans and S. sobrinus.

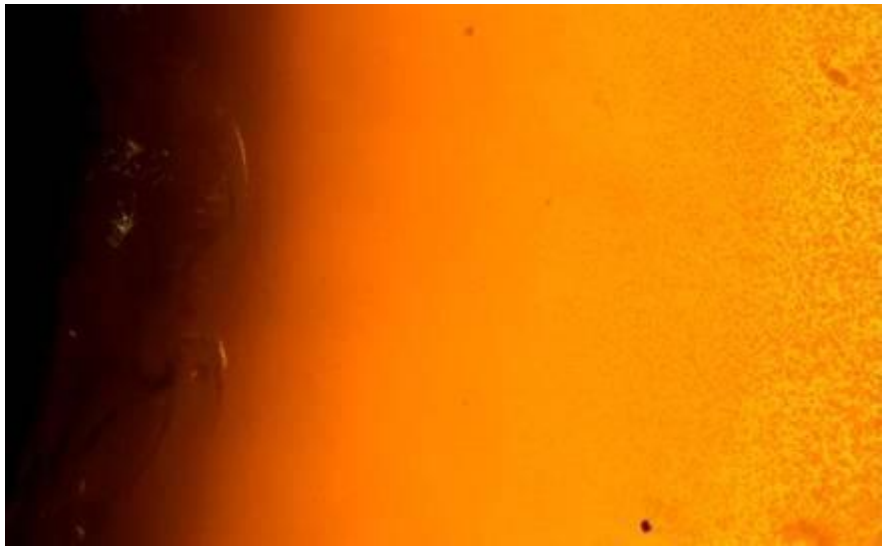
IADR,San Diego,2002

Fuji Triage – Physical Properties

Antibacterial effect



Fuji IX GP

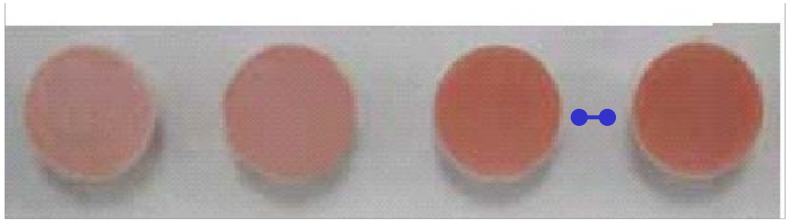


Fuji Triage

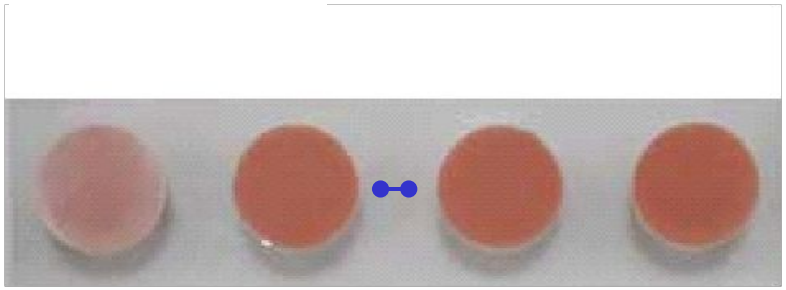
Hien Ngo, April 2002

Fuji Triage – Physical Properties

Water sensitivity



Fuji Triage - No light irradiation



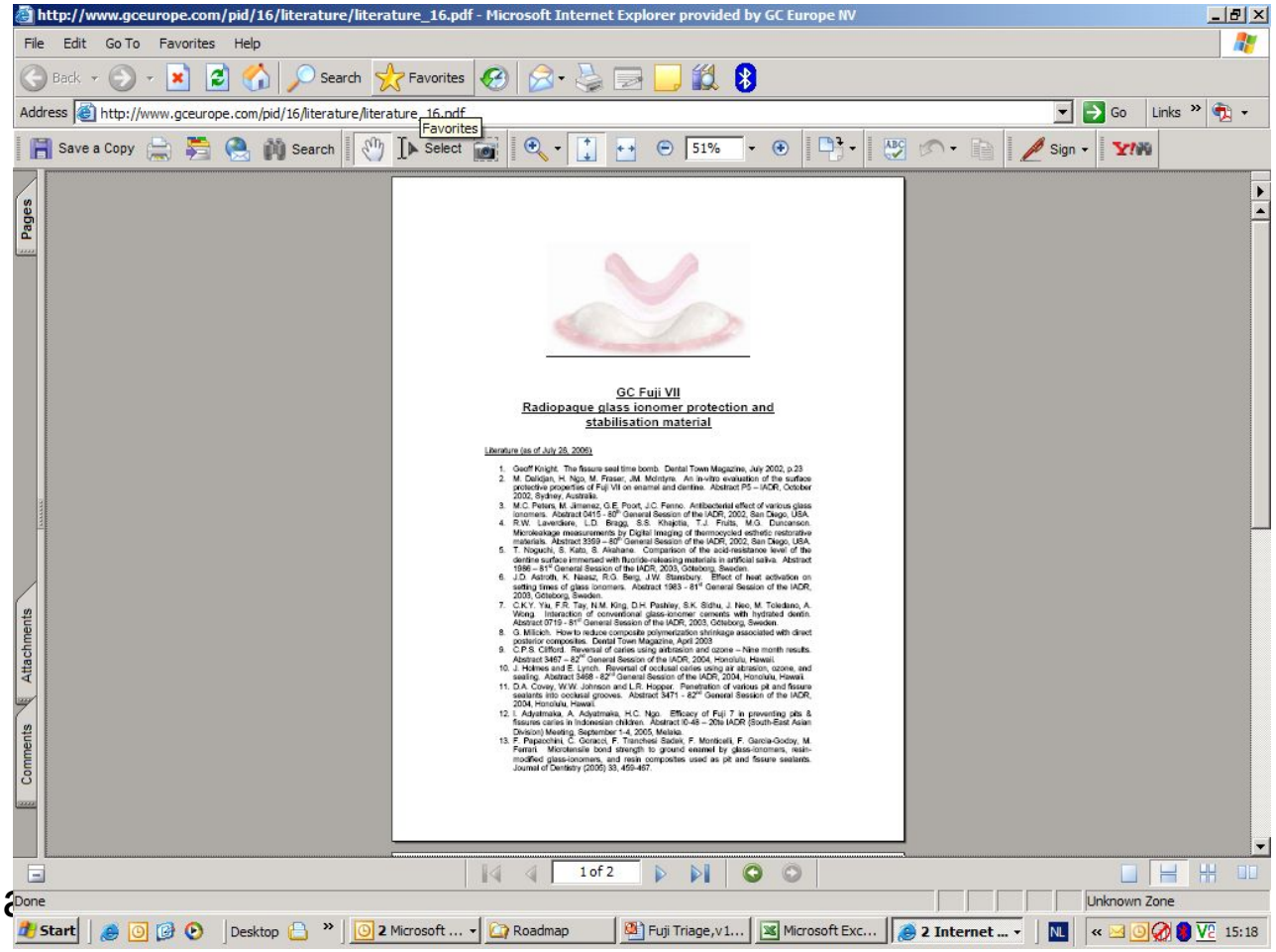
Fuji Triage - With light irradiation

Fuji IX GP Fast

1′ 2′ 3′ 4′

Fuji Triage – References

Available literature references: 23



Fuji Triage - Simplicity itself

Easy to mix

Easy to place

asy to finish

Easy to identify

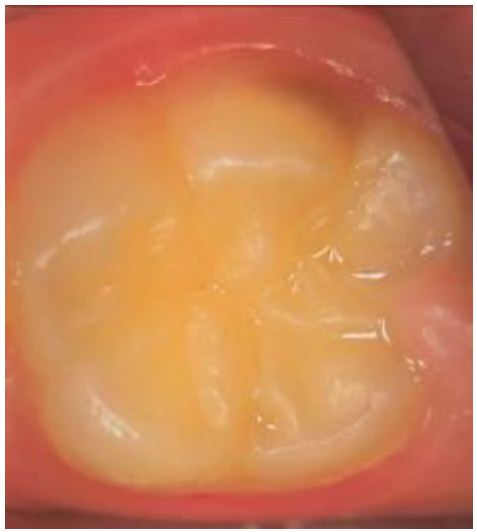
Fuji **Triage**
from GC.

7. Sales arguments

Sales argument - 1

Q: “Which product do you use for fissure sealing the partially erupted tooth in a high caries risk child?”

- In most the dentist will answer: NOTHING!
- … or wait for the tooth to erupt because the dentist knows that a composite sealant cannot be placed before that, as there is a risk of recurrent caries or loss of retention due to moisture sensitivity



Sales argument – 1 - Answer

A: Fuji Triage is the answer!!

- Use the Geoff Knight article "The fissure Seal Time Bomb" (ref #1) to explain that Fuji Triage is the only material that
  - Can be used on immature enamel
  - Needs minimal isolation
  - Does not affect the occlusion when the molar erupts
  - Can bond reliable eve, when parts of the molar is covered by the hyperculum
  - Deposits fluoride to form fluor apatite making the tooth more acid resistant and will prevent plaque accumulation
- Suggest that the dentist can use
  - The pink shade for partially erupted teeth (i.e. good colour to monitor the wear/indicates temporary status) and
  - The white shade for post-eruption (better colour for more permanent fillings)

Fuji Triage is the perfect material to "Protect" the teeth.

Sales argument – 2

Q: How do you restore lingual root cavities in ageing dentitions?

- Difficulties to permanently restore these cavities with composite/compomers
  - Cavities are near the saliva glands, so difficult to isolate from moisture
  - If too much of the caries is removed and the pulp is exposed the dentist sometimes can end up doing endodontic treatment

A: to avoid these problems, Fuji Triage can be used as a temporary plaster to "Seal & Heal"

Procedure

- Soft caries is removed
- Fuji Triage is placed onto moist semi-hard dentine
- Protected with Fuji Coat LC
- Left in place for up to 6 months whilst
- Tooth heals underneath
- Composite/Fuji IX can then be placed on a healed tooth surface for better aesthetics

Sales argument - 3

Q: How do you desensitise Hypoplastic /(Wisdom) Teeth?

- Few materials stick to the hypoplastic tooth with a sticky dentine coating
  - Problem for dentists to treat with resins

A: Fuji Triage works brilliantly as a protective desensitising coating,

- can seal the dentine and prevent further demineralisation
- also works well for partially erupted sensitive wisdom teeth

The “Protect & Seal” message works well in this case.

Sales argument – 4

Endodontic sealing

- Many endodontists have turned to GICs to seal access cavities after root canal treatment
- GICs give a much better seal due to the chemical bond to tooth structure
- Many of them require a material that is not tooth coloured so that they can identify it

Good endodontic filling with poor coronal restoration

Good endodontic filling with good coronal restoration

Sales argument – 5,6,7……

There are many more uses for Fuji Triage such as

- Temporary filling material- pink, to make sure the patient returns for their permanent filling!
- Lining when near the pulp in e.g. a child's tooth etc.
- Sealing cavities after treatment with Ozone/Photo Activated Disinfection (PAD) Dentists have been recommended to use Fuji Triage by Kavo and Denfotex

Sales argument - summary

1sts questions

- "Do you treat lots of children/elderly patients?"
- "Do you do much fissure sealing?"
- Then choose the best argument

Possibility to use a plastic model to demonstrate

- How the Fuji Triage flows into the fissures
- How the dentist can use one capsule to protect 3-4 fissures at once

If the dentists/hygienists find that it sets too quickly for them,

- Store Fuji Triage somewhere cold to increase the working time

Thank you,

for your attention.