

OrthancCon 2019

Telemedicine using Orthanc Two use cases at CHU Liège

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CHU Liège - SAI

Teledermatology

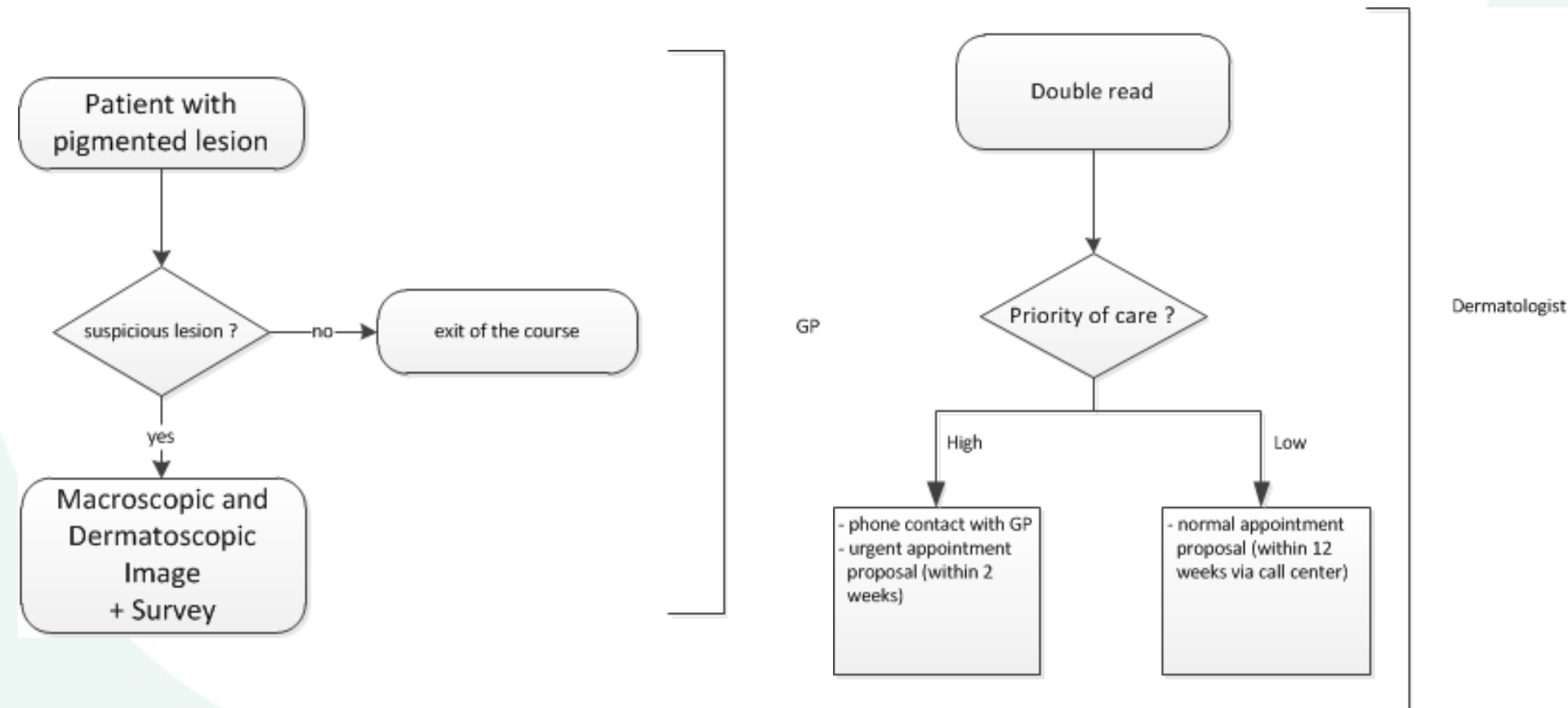
- Skin cancer has risen sharply in recent years
- In 2015, he is the 4th most frequent among women
- 2000 new cases were detected and an increase of 49% is speculated by 2025
- Having an appointment at the specialist for a consultation can take 8 to 12 weeks

Teledermatology

- Propose a rapid and reliable diagnostic aid in the face of a suspicious pigment lesion
 - Accelerate the care of very suspicious malignant lesions
 - Revalorize the first line of care in screening and early diagnosis
-
- ➔ Creation of a specialized tool for general practitioners
 - ➔ TeleSPOT : Teledermoscopy Smartphone-based Pigmented lesion diagnosis Online Taskforce

Teledermatology

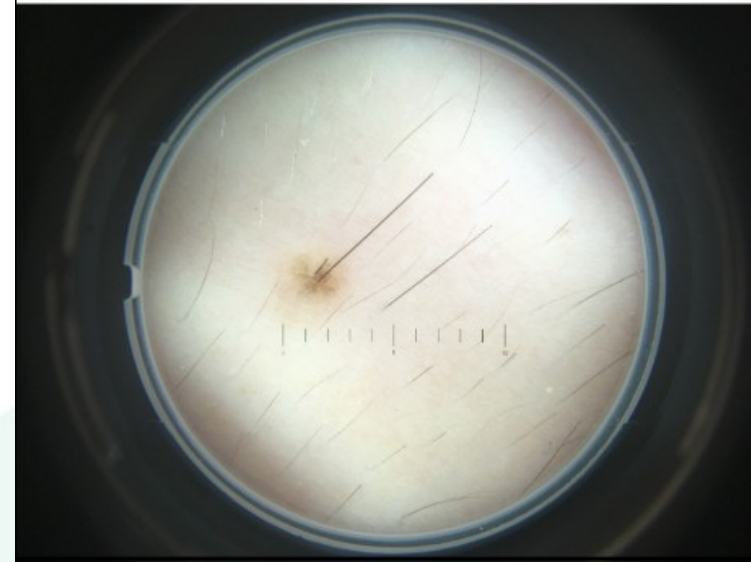
– Workflow



Teledermatology

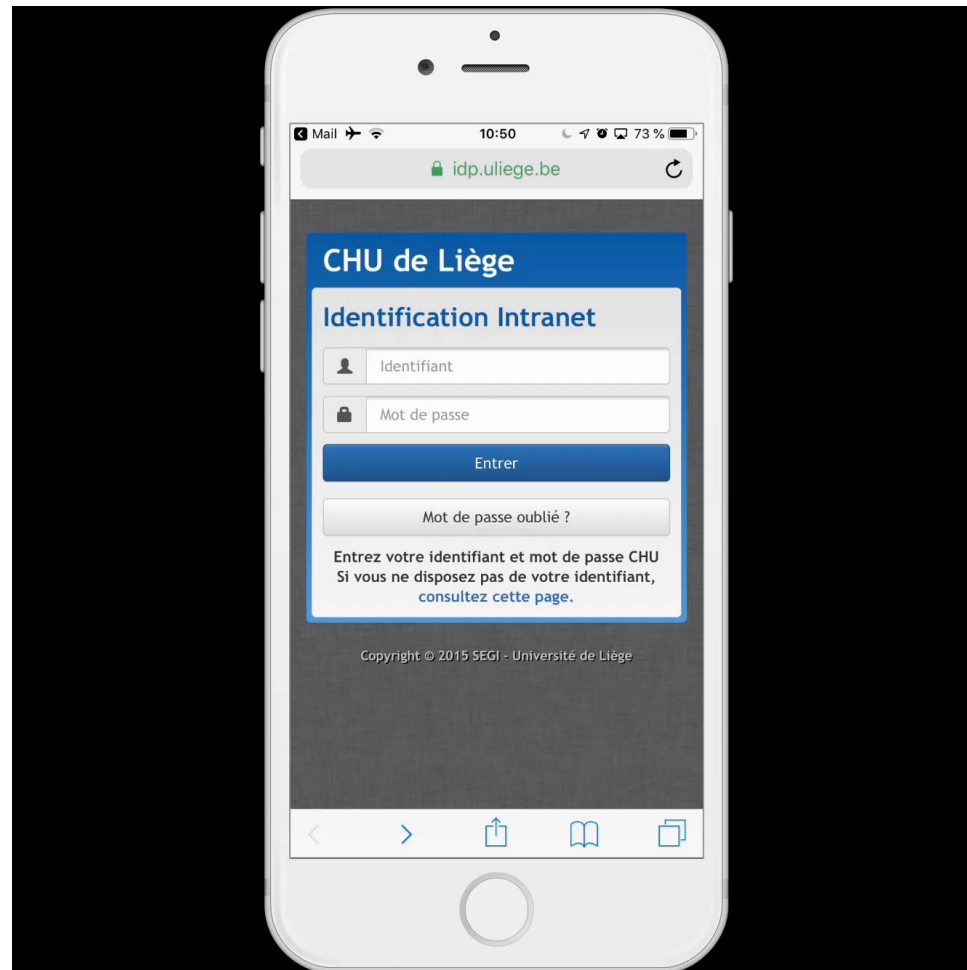
– Equipment

- Macroscopic image : from the smartphone camera
- Dermatoscopic image: Via Heine IC1 device



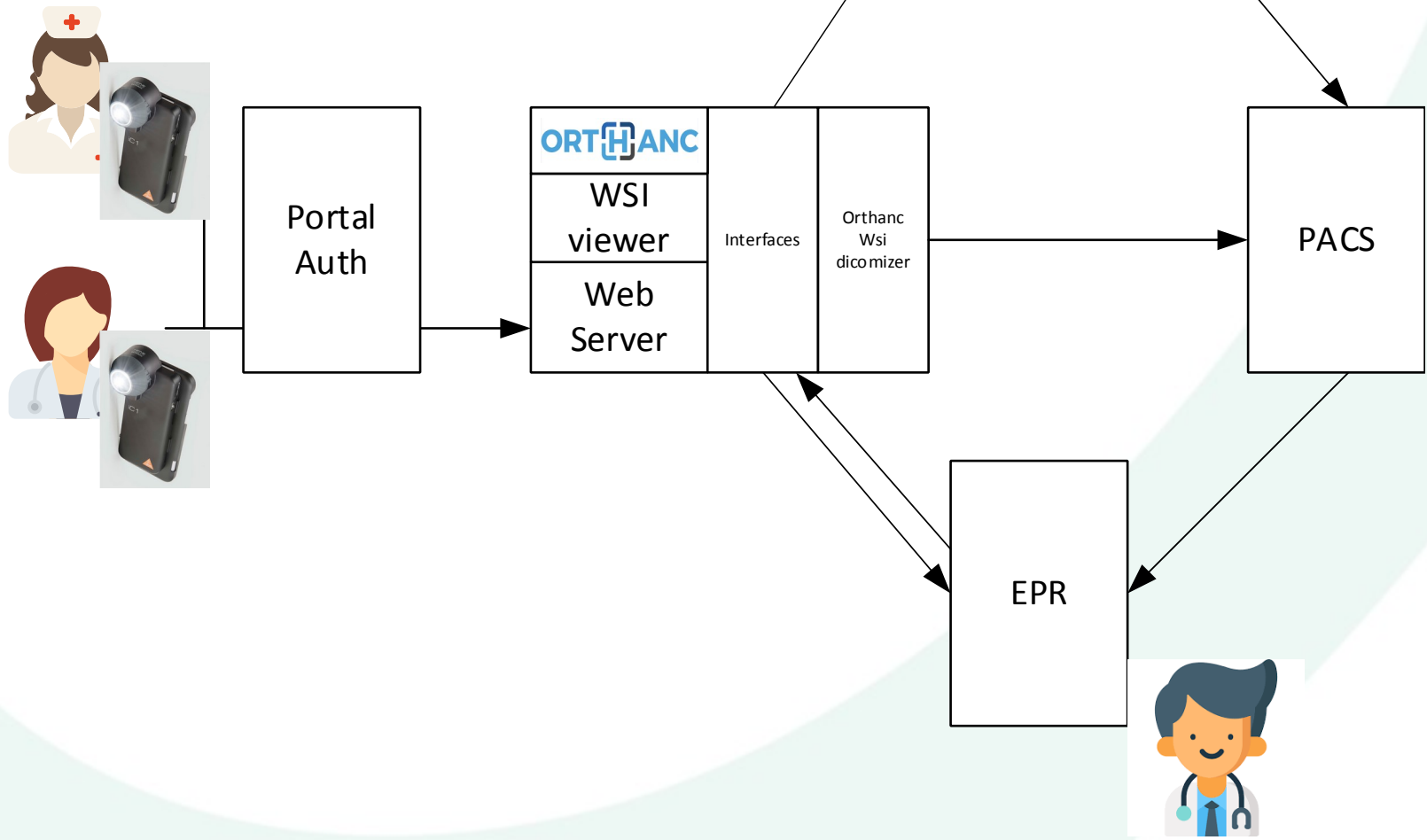
Teledermatology

– Demo



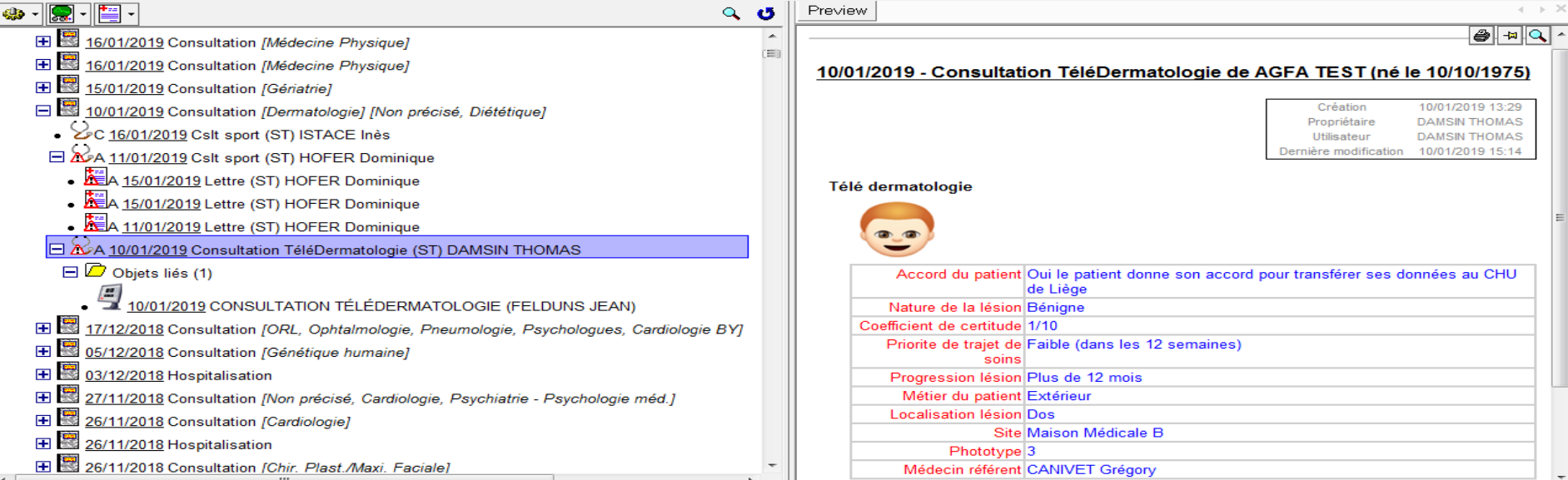
Teledermatology

– Backend



Tele dermatology

- Integration :
 - With EPR for the specialist
 - Notification by internal mail + FollowUp




The screenshot displays a medical software interface. On the left, a tree view shows a list of consultations. The selected item is '10/01/2019 Consultation TéléDermatologie (ST) DAMSIN THOMAS'. The right pane shows a 'Preview' of this consultation.

10/01/2019 - Consultation TéléDermatologie de AGFA TEST (né le 10/10/1975)

Création	10/01/2019 13:29
Propriétaire	DAMSIN THOMAS
Utilisateur	DAMSIN THOMAS
Dernière modification	10/01/2019 15:14

Télé dermatologie



Accord du patient	Oui le patient donne son accord pour transférer ses données au CHU de Liège
Nature de la lésion	Bénigne
Coefficient de certitude	1/10
Priorité de trajet de soins	Faible (dans les 12 semaines)
Progression lésion	Plus de 12 mois
Métier du patient	Extérieur
Localisation lésion	Dos
Site	Maison Médicale B
Phototype	3
Médecin référent	CANIVET Grégory


Tele dermatology

– Integration :

Télé dermatologie

Phototype

☐ 1
 ☐ 2
 ☒ 3
 ☐ 4
 ☐ 5
 ☐ 6



Envoyer

Médecin référent

JACQUEMIN Pauline

Site

CHU

Localisation lésion

Dos

Progression lésion

Entre 3 et 6 mois

☐ Antécédent personnel
 ☒ Antécédent familial

test 3 encodage par infirmier. patient inconnu

Métier du patient

Intérieur

Accord du patient

Oui le patient donne son accord pour transférer ses données au CHU de Liège

Nature de la lésion

Maligne

Coefficient de certitude

7/10

Priorité de trajet de soins

Haute (dans les 2 semaines)

Proposition de diagnostique

Suspicion de mélanome.
 Exérèse urgente.
 Voir rendez-vous programmé.

Teledermatology

- Integration :
- At the doctor's office :
 - Notification via email with contextual link to the result
 - eHealthBox messaging
 - Phone contact in cases of suspicious lesions with high priority

Teledermatology

– Benefits :

- Results within 5days
- No need to wait 3months for an appointment
- Patient does not have to travel far for the first contact
- GP learns from the results
- Less appointments for benine lesions
- Optimize appointments for suspicious/malin/urgent cases

Teledermatology

- Linked with pedagogic database
 - Images numerized and labeled / anonymized
 - Junior dermatologists can look for interesting or similar cases

Formulaire de recherche

Application: Dermatologie

Date de début: 12/11/2019

Date de fin: 12/12/2019

Mot-clé: lésion

Séparez vos mot-clés et expressions par des '+' ou '-' pour combiner/exclure plusieurs critères simultanément

Cas intéressants uniquement: ☐

Rechercher

Resultats : 13

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▶

⬇

Exporter données

Accession number	Date examen	Age	Compte-rendu	Visualiser	Cas int. ▼	Lien image
09170789	26/11/2019		Teledermoscopie			
09170798	26/11/2019		Teledermoscopie			
09177797	28/11/2019		Teledermoscopie			

Digital Pathology

- Frozen Section dicomization and transfert using Orthanc

- **L'examen télé-extemporané**

Définition.

Examen au microscope par un anatomopathologiste d'un prélèvement frais durant une opération chirurgicale.

Les résultats de cet examen, immédiatement disponibles, donne au chirurgien la possibilité d'adapter son acte pendant l'opération

- **Frozen section**

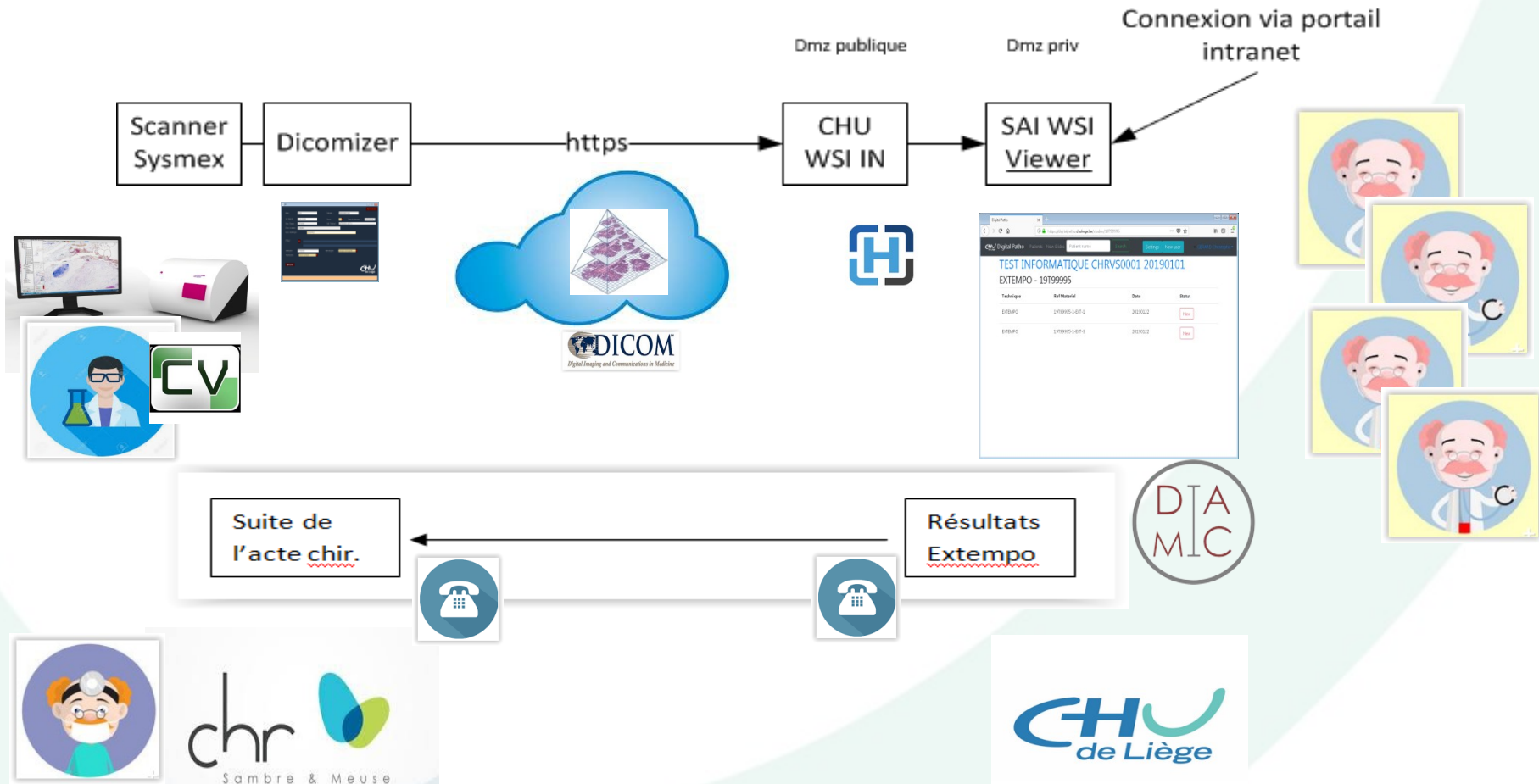
Examination under the microscope by a pathologist of a fresh sample during a surgical operation. The results of this examination, immediately available, give the surgeon the possibility of adapting his act during the operation

Digital Pathology

- The pathologist has 30min max to give the diagnosis
- Prelevement site is 1h drive from CHU
- Diagnosis time is 10min max.

Digital Pathology

- Workflow



Digital Pathology

CHU IDP — □ ✕

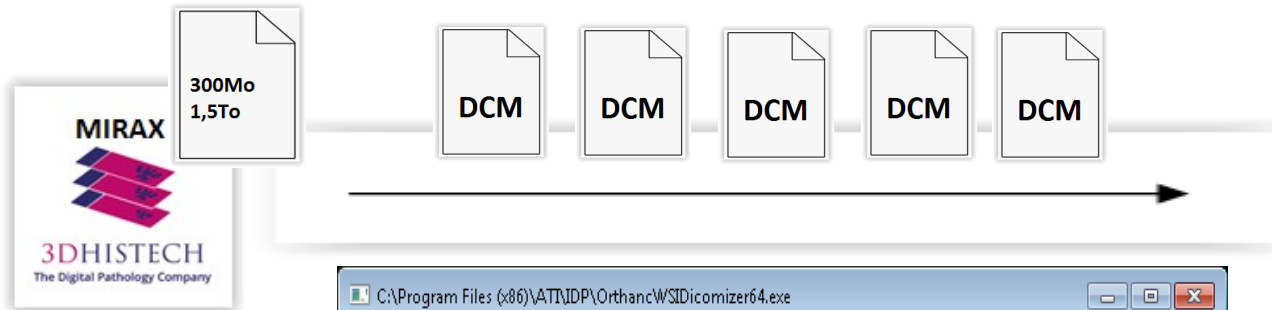
Administration

Nom :	CANIVET	Prénom :	GREGORY	
Id. Patient :	12345	Sexe :	M ▼	Date de Naissance : <input type="text"/>
Num. Damic :	<input type="text"/>	Réf. Matériel :	<input type="text"/>	
Desc. examen :	<input type="text"/>			
Desc. technique :	<input type="text"/>			
Fichier :	<div><div>...</div><div></div></div>			
Institution :	CHU	Pathologiste :	Thierry Leroy ▼	
Technicien :	Technicien 4 ▼			

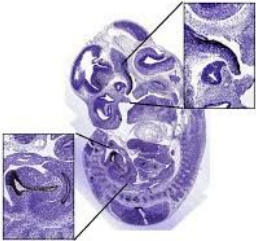
Envoyer

Digital Pathology

- Dicomisation du format Natif Mirax

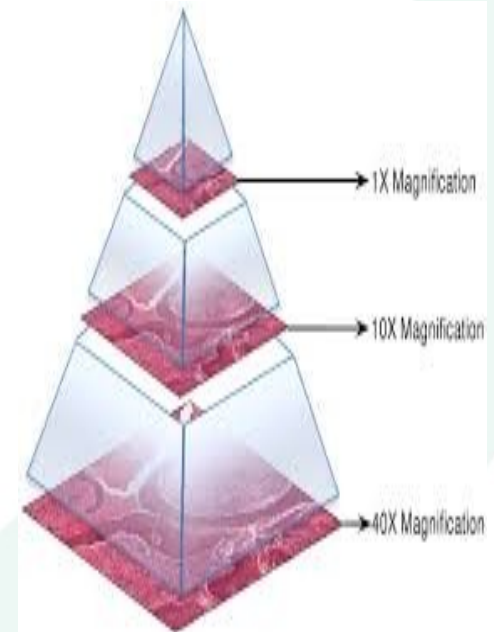


SHH mRNA (scanned with Mirax)

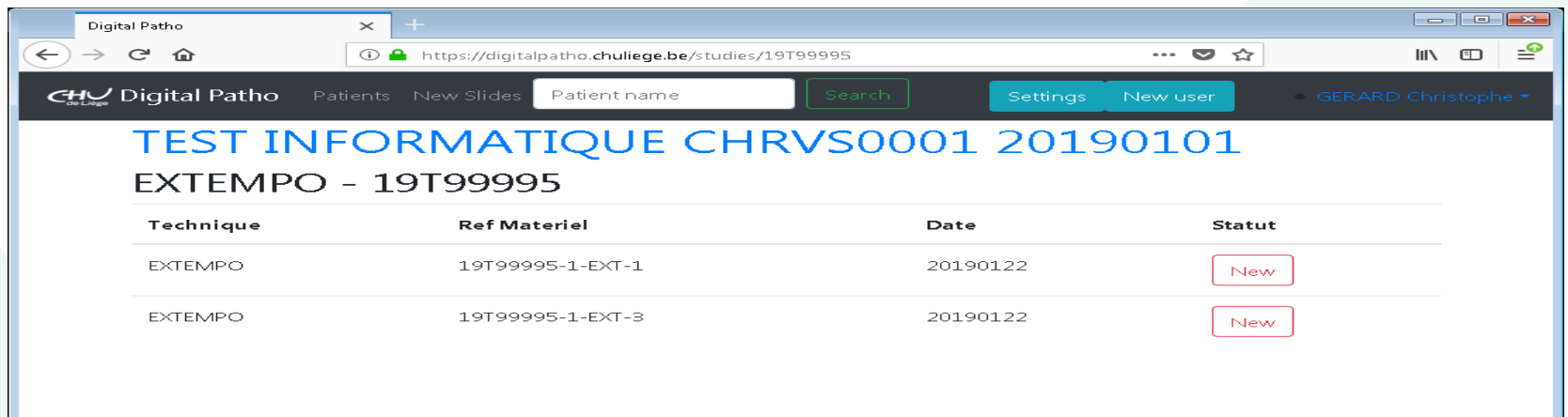
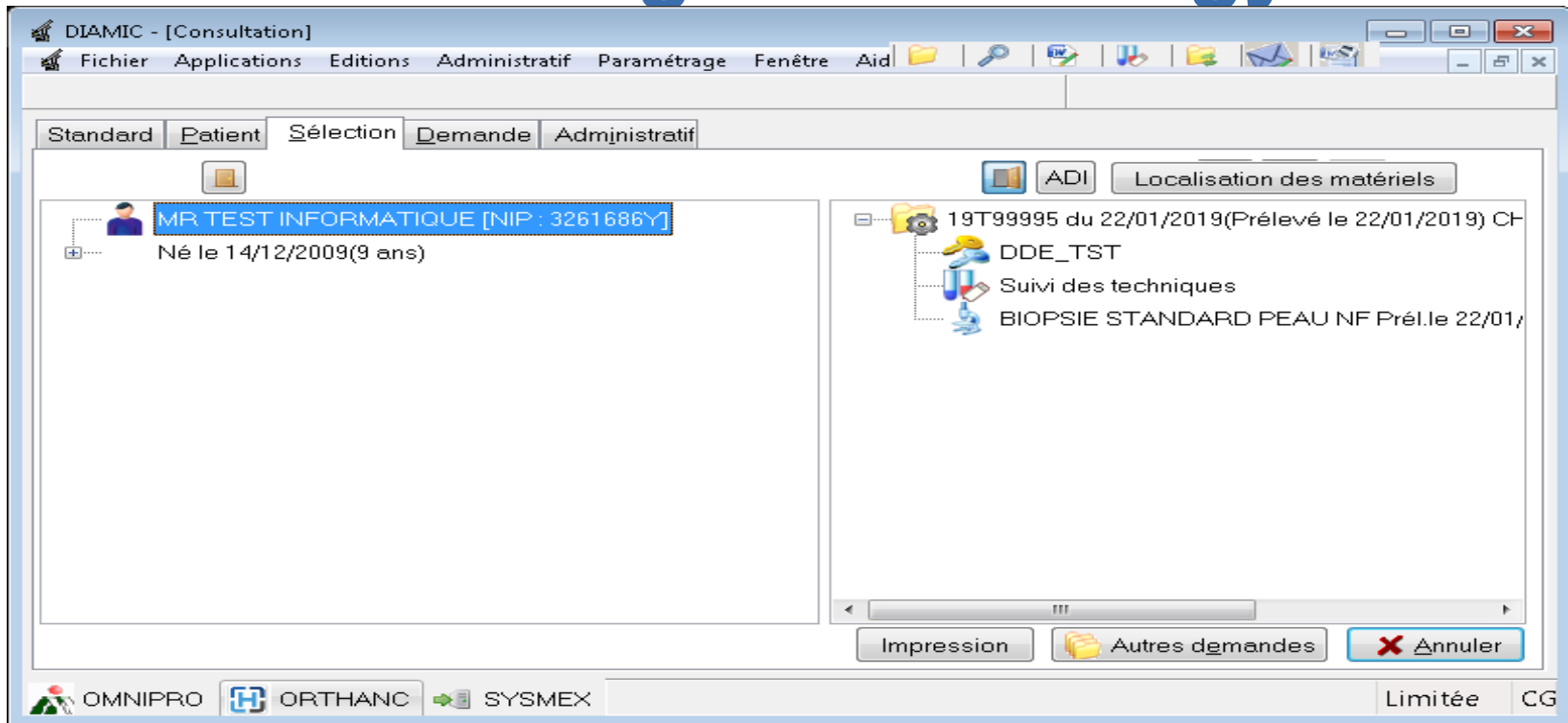


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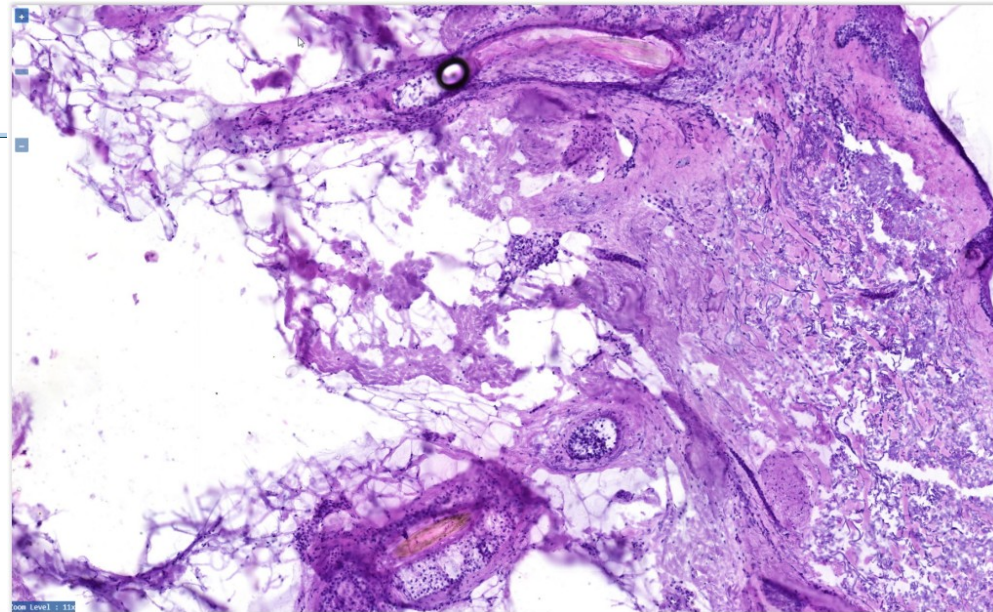
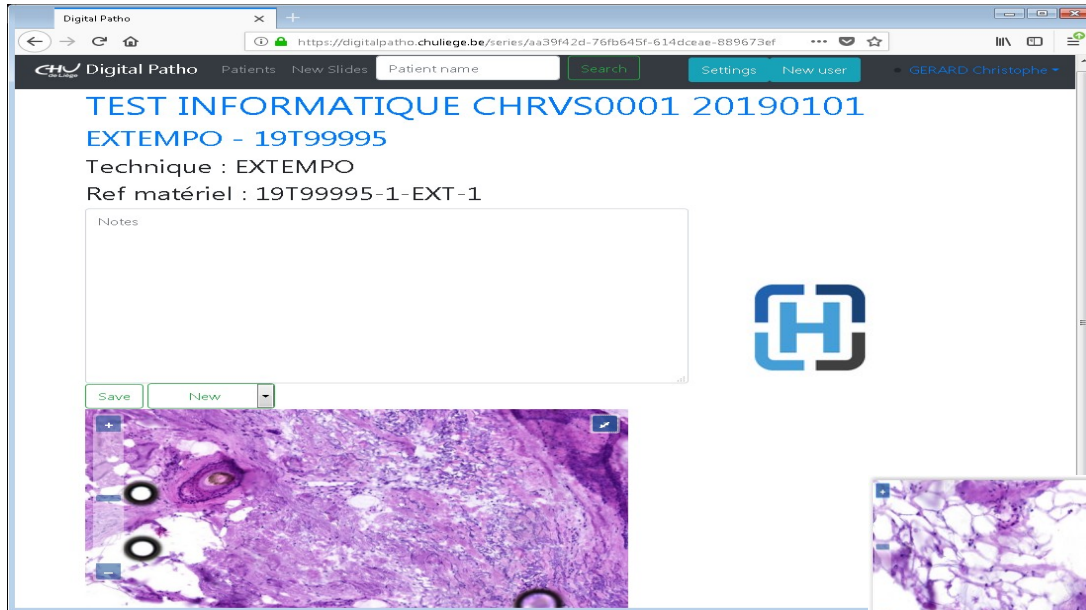
C:\Program Files (x86)\AT\IDP\Orthanc\WSIDicomizer64.exe
255,255,255>
W0128 22:55:00.918233 Dicomizer.cpp:1921 Size of target tiles: 512x512
W0128 22:55:00.918233 Dicomizer.cpp:1961 Target image compression: Jpeg with qua
lity 90
W0128 22:55:00.918233 Dicomizer.cpp:911 Creating level 0 of size 84840x190256
W0128 22:55:00.933833 Dicomizer.cpp:911 Creating level 1 of size 42420x95128
W0128 22:55:00.933833 Dicomizer.cpp:911 Creating level 2 of size 21210x47564
W0128 22:55:00.933833 Dicomizer.cpp:911 Creating level 3 of size 10605x23782
W0128 22:55:00.933833 Dicomizer.cpp:911 Creating level 4 of size 5302x11891
W0128 22:55:00.933833 Dicomizer.cpp:911 Creating level 5 of size 2651x5945
W0128 22:55:00.933833 Dicomizer.cpp:911 Creating level 6 of size 1325x2972
W0128 22:55:00.933833 Dicomizer.cpp:911 Creating level 7 of size 662x1486
W0128 22:55:00.933833 Dicomizer.cpp:911 Creating level 8 of size 331x743
W0128 22:55:00.949433 Dicomizer.cpp:961 Transcoding the source pyramid
W0128 22:55:00.965033 ApplicationToolbox.cpp:1051 Running 82445 tasks
W0128 22:55:00.965033 ApplicationToolbox.cpp:1061 Using 16 threads for the compu
tation
W0128 22:55:01.745023 ApplicationToolbox.cpp:901 Progress: 1%
W0128 22:55:02.774610 ApplicationToolbox.cpp:901 Progress: 2%
W0128 22:55:05.582574 OrthancTarget.cpp:671 ID of the whole-slide image series i
n Orthanc: 2f8c780e-cc6803ce-a2c54687-adda20e4-74672423
W0128 22:55:06.081767 ApplicationToolbox.cpp:901 Progress: 3%
W0128 22:55:06.643360 ApplicationToolbox.cpp:901 Progress: 4%
W0128 22:55:07.563748 ApplicationToolbox.cpp:901 Progress: 5%
  
```



Digital Pathology



Digital Pathology



Digital Pathology

- 1 transfert takes 5min
- Integrated in the patient record
- Monitoring tools
- Fall back apps

- Thank you !
- Questions?