



Point of care ultrasound Sainte- Justine experience

THE WIN AND THE PITFALLS



CHU Sainte-Justine



- ▶ Children's and mother's hospital
- ▶ Tertiary care hospital
- ▶ Teaching and research hospital
- ▶ Dedicated pediatric rehabilitation facility



CHU Sainte-Justine



- ▶ **Over 6,500 employees** (including 500 doctors, dentists, and pharmacists)
- ▶ **485 beds**
- ▶ **Per year:**
 - ▶ More than 78,000 emergency visits
 - ▶ More than 215,000 outpatient clinic visits
 - ▶ More than 160,000 radiology exams
 - ▶ Approximately 3,500 deliveries



POCUS in Quebec



Since 2008, doctors in Quebec, other than radiologists, can perform a POCUS (Point-of-Care Ultrasound) exam.

- ▶ Training and skill maintenance
- ▶ Specific indications
- ▶ Documentation



Distinguishing Basic Indications from Advanced Indications



- ▶ I. BASIC INDICATIONS

- ▶ Thoracic
- ▶ Abdominal
- ▶ Obstetrical

- ▶ II. ADVANCED INDICATIONS

- ▶ Diagnostic assessment and confirmation
- ▶ Systematic monitoring
- ▶ Procedural guidance



POCUS at Sainte-Justine



- ▶ Our reality:
 - ▶ Trauma
 - ▶ ICU
 - ▶ Anesthesiology

- ▶ A **patient in radiology** is discussing an **ultrasound (US)** they had in the **Emergency Room (ER)** and sharing their diagnostic findings.

History

- ▶ There have been **multiple requests** to acquire **ultrasound machines** outside of the **radiology, cardiology, and OB (obstetrics)** departments.
- ▶ An **inter-service agreement** has been **ratified by the hospital management**, which includes the following provisions:
 - ▶ **Radiology approval:** Any new acquisition of equipment must be approved by the radiology department.
 - ▶ The agreement also specifies **which types of exams** can be performed outside of Radiology
 - ▶ Pamphlet for parents explaining difference between POCUS and radiology ultrasound

POCUS EXAM TYPES AT SAINTE- JUSTINE

- ▶ **Anesthesiology:** Peripheral access procedures
- ▶ **Neonatal department:** Mostly cardiac
- ▶ **Emergency department:** free fluid in the abdomen
- ▶ **Pediatric ICU: cardiac** transfontanel doppler
- ▶ **Sport medicine (orthopedic):** guidance for MKS ponction - guidage for Xylotest au PACS



Implementation of POCUS at Sainte-Justine



- ▶ Connecting US machine to PACS
- ▶ Preparing dedicated support documentation
- ▶ Training of administrative agent to create the order in the RIS system
- ▶ Receiving exams to PACS
- ▶ Quality assessment committee
 - ▶ Ongoing process

POCUS workflow

- ▶ RIS Order
- ▶ Worklist
- ▶ Acquire exam and archive to PACS
- ▶ Completing necessary information in the RIS system
- ▶ Daily PACS quality control

POCUS exams

2 ultrasound machines dedicated to the emergency dept.
1 ultrasound machine for Ped ICU (shared equipment with cardiology)

Year	Emergency	ICU (ped)
2023	275	131
2022	352	152
2021	227	468
2020	270	431

Since 2016

Source: RIS system RadImage



The win



- ▶ POCUS exam are now available for the radiologist

The pitfalls

- ▶ No written report available for the radiologist
 - ▶ Each department uses different systems to record their reports
- ▶ No or incomplete order in the RIS
- ▶ Manually registering patients on the ultrasound machine
 - ▶ Partial or mistyped patient information
 - ▶ Wrong or nonexistent MRN
- ▶ Manually pushed exam
 - ▶ Partial exam available
 - ▶ Machine is turned off before transfer
 - ▶ Problem transferring the exam



The pitfalls



- ▶ Shared worklist
- ▶ Turnover of administrative agent
 - ▶ Managing Access to RIS
 - ▶ Training
- ▶ Mixed Success
 - ▶ Driven by the involvement and will of the users



Impacts



- ▶ **Meetings and repetitive emails** to reinforce the workflow (RIS/EXAM/PACS)
- ▶ **Emails to doctors** to inquire about necessary information in order to correct the data
- ▶ **Correction of data** in the PACS/DSQ
 - ▶ **Registering the exam** in the RIS
 - ▶ **Pairing exams**
 - ▶ **Separating different exams** within the same entry to PACS
- ▶ **Impossible to retrace the patient**

Received exam example

Patient Name	Accession No	Patient ID	Proc Description	Study Da...	Modality	Status	Image
				Last 900			
		03-05-2022-0001	UNKNOWN	03/05/202...	US	Started	5
		1.2.840.113845.11.10...	UNKNOWN	09/12/202...	US	Sent	1
		1.2.840.113845.11.10...	UNKNOWN	13/12/202...	US	Sent	1
		1.2.840.113845.11.10...	UNKNOWN	24/03/202...	US	Sent	6
		1.2.840.113845.11.10...	UNKNOWN	22/05/202...	US	Sent	1
		1.2.840.113845.11.10...	UNKNOWN	24/10/202...	US	Sent	2
Vw		1.2.840.113845.11.10...	UNKNOWN	02/09/202...	US	Sent	1
Vw, T		1.2.840.113845.11.10...	UNKNOWN	08/09/202...	US	Sent	1

Limits of the present workflow

- ▶ POCUS reports aren't available for the radiologist
 - ▶ Information transfer by phone is mandatory
 - ▶ Observations by the emergency physician recorded in Stat-URG
 - ▶ Observations by the intensive care physician recorded in ICA
- ▶ Maintaining workflow in an emergency context is challenging
- ▶ Quality of the data
- ▶ Are there alternative solutions?



There's hope



- ▶ Call for tender for a provincial VIM-VNA
- ▶ Exam/data could be tied to:
 - ▶ Emergency visit
 - ▶ Outpatient visit
 - ▶ Hospitalization period
 - ▶ RIS order
 - ▶ ...
- ▶ For POCUS
 - ▶ New workflow
 - ▶ Liberating POCUS process need for RIS
 - ▶ Easier and faster workflow for POCUS