POCUS Training Concept for Primary Care Physicians

A realistic pathway tailored to general practice

PLAN

1. BACKGROUND AND RATIONALE

The certification requirements of the Swiss Society for Ultrasound in Medicine (SSUM) were designed primarily for physicians working in hospital settings, with ready access to supervisors, sufficient patient volumes, and dedicated training time. For established general practitioners, these requirements run up against significant structural constraints: short consultations, often solo practice, no on-site supervision, and no realistic way to set aside continuous training time. The traditional route to certification thus remains largely out of reach for a population that is nonetheless on the front line of diagnosis.

This concept proposes a pragmatic and tailored approach, designed specifically for primary care physicians, offering them a realistic route to structured, supervised, and recognised training without disrupting their day-to-day clinical activity.

Two founding pedagogical principles underpin the entire programme. First, personalisation: the pathway is adjusted to the needs, baseline level, and practice context of each clinician — from the practice visit to the choice of components addressed in tele-review. Second, progressiveness: competencies are built up through increasing levels of clinical priority, ensuring each practitioner consolidates solid foundations before expanding their scope. Together, these principles aim for durable integration of POCUS into daily practice, rather than mere formal validation.

Beyond certification, integrating POCUS into general practice represents a concrete opportunity to:

- reduce diagnostic delays (pleural effusion, deep vein thrombosis, gallbladder pathology, heart failure, etc.);
- reduce unnecessary referrals to emergency departments or specialists;
- improve the patient experience in the practice;
- strengthen the clinical relevance of the consultation.

The main barrier remains insufficient and unstructured training, combined with the practitioner's isolation once the initial course is over. This concept is designed specifically to address both obstacles.

2. TARGET AUDIENCE

This programme is aimed primarily at established general practitioners — whether working solo or in group practice — with little or no POCUS experience who wish to integrate this tool into their daily practice. Particular attention is given to physicians working in rural or semi-rural areas, for whom isolation and limited access to specialists make POCUS especially valuable and traditional training especially difficult to access. Both profiles share the same reality: a genuine clinical need, often strong motivation, and a lack of training solutions suited to their constraints.

3. LEARNING OBJECTIVES

Learning POCUS is not simply about learning to handle a probe. It means acquiring a complete clinical competency from the technical gesture to the decision at the bedside. This programme defines four complementary objectives that structure the entire pathway, from the first online module to the last examination submitted for tele-review.

Upon completing the programme, participants will be able to:

- **Know:** understand the indications, limitations, and pitfalls of POCUS applications relevant to primary care.
- **Know-how:** acquire diagnostic-quality images independently, progressing through the three priority levels defined below.
- **Know how to interpret:** each POCUS examination answers a specific clinical question, usually binary. Is there a pleural effusion? Biliary dilatation? A thrombosis? This closed-question approach, suited to the short consultation, structures interpretation throughout the programme.
- **Know how to be assessed:** engage in an active process of supervised progression — regularly submitting examinations to an expert via the tele-review platform, analysing feedback received on technical quality and interpretation, and incorporating corrections into subsequent acquisitions. This iterative loop (acquire → submit → correct) replaces, in the isolated practice context, the continuous direct supervision available to physicians in hospital training.

4. PROGRESSIVE CURRICULUM BY PRIORITY LEVELS

Not all POCUS applications are equally relevant in primary care. Some change patient management from the very first consultation; others require solid prior experience to be used reliably.

The curriculum is therefore organised according to three levels of increasing clinical priority, allowing each practitioner to progress at their own pace, building the most useful and accessible competencies first.

- **Level 1 — Foundations :** high clinical impact, accessible acquisition.
- **Level 2 — Consolidation :** useful in daily practice, slightly more technical.
- **Level 3 — Advanced :** require more experience or are less frequently encountered in routine consultations.

Example classification of modules across three levels of utility and complexity

Category	Component	Level
Technique	Waves and acoustic physics	1
	Ultrasound system	1
	Operating modes	1
	Artefacts in 2D mode	1
	Doppler mode	1
	Optimising use and settings	1
	Probe orientation and manipulation	1
	Probe disinfection	1
	Examination reports	1
Heart	Parasternal long axis view	3
	Parasternal short axis view	3
	Apical 4 chamber view	3
	Subcostal 4 chamber view	2
	Inferior vena cava view	2
Lung/thorax	Semiology	1
	Interstitial diseases	1
	Pleural diseases	1
	Pneumothorax	1
	Consolidation	1
	Rib fracture	1
Abdomen	Liver	2
	Ascitis and paracentesis	2
	Gallbladder	1
	Spleen	2
	Bladder	1
	Kidney	2
	Prostate	2
	Abdominal aorta	2
	Biliary tract anatomy and obstruction	3
	Appendicitis	3
	Diverticulitis	3
	Deep venous thrombosis	1
Vessels	Peripheral vein catheterisation	2
Various	Skin and soft tissue infections	2
	Lymph nodes	2
	Testis and adjacent structures	2
	Musculoskeletal system	2
	Thyroid	2
Protocols	BLUE protocol	2

5. PROGRAMME STRUCTURE: A FOUR-STEP HYBRID MODEL

The programme is designed to integrate into the general practitioner's daily routine without disrupting clinical activity. It is built on four complementary steps, combining distance learning, supervised group practice, individual practice-based supervision, and longitudinal validation through tele-review.

Step 1 — Online theoretical training

The initial theoretical and practical training programme is built on the flipped classroom principle: theory is studied in advance, at one's own pace, so that in-person time is entirely devoted to practice. Online training is therefore a prerequisite for any practical workshop and follows the level-based progression defined above.

One way to organise the content is to structure it across three levels:

- Each **component** (e.g. lung, gallbladder, deep vein thrombosis) groups together a set of **modules**,
- each module being itself composed of short sequences of one to two commented slides, each focused on a single idea.

This fine-grained structure allows practitioners to progress at their own pace and easily retrieve specific information during clinical practice.

We recommend completing each component in full before moving on to the next, following the order of priority levels defined above.

To be effective, theoretical modules should ideally include voiceover-narrated sequences — more engaging and less fatiguing than reading text — abundant annotated imagery of normal and pathological findings with particular attention to common acquisition and interpretation pitfalls, an end-of-module knowledge quiz, and a downloadable reference card (pocket guide) for use in clinical situations.

Step 2 — In-person practical workshop (one day)

Participants arrive with the theoretical foundations already in place: in-person time is entirely devoted to practice. Groups are limited to four participants per trainer to ensure individualised guidance and high-quality feedback. Workshops primarily cover Level 1 components; Levels 2 and 3 are addressed subsequently according to each participant's individual progression.

Each station follows a five-stage sequence: a brief theoretical recap anchoring the technique in its clinical context, a demonstration by the trainer on a healthy volunteer, simulator, or patient, a guided acquisition phase with immediate feedback, progressive autonomous acquisition, and finally a group debriefing focused on difficulties encountered.

Step 3 — Practice visit (half a day)

The practice visit is often the most revealing step of the pathway. What works perfectly on a mannequin or in a training room may encounter real-world constraints in the practitioner's own surgery: limited space, suboptimal ergonomics, machine settings never properly adjusted to daily use. A certified trainer visits to observe and correct these elements under actual working conditions, before poor habits become entrenched.

Domain	Points observed and corrected
Probe handling and manipulation	Grip, stability, applied pressure, sweeping movements, rotation, tilting, and angulation of the scan plane
Patient positioning	Decubitus, tilting, repositioning according to the component, optimisation of the acoustic window
Ergonomics	Practitioner's position, examination table height, screen placement, cable management
Machine settings	Depth, gain, focus, preset selection, real-time image optimisation
Acquisition of basic images	Reproducible acquisition of standard Level 1 views
Descriptive vocabulary	Correct anatomical and sonographic terminology to describe structures, artefacts, and abnormalities
Annotation and documentation	Clip labelling, report structuring, preparation for tele-review submission

At the end of the visit, the trainer determines whether the participant has reached a sufficient level to begin the tele-review phase under supervised autonomy. If significant gaps remain, a second visit is scheduled before entering this phase.

This step is pivotal: it anchors training in the reality of the practice, prevents the consolidation of poor technical habits, and ensures that the longitudinal practice phase begins on solid foundations.

Step 4 — Remote supervised practice (post-workshop, over several weeks)

This is the central step of the concept, and its main distinguishing feature.

Progress is built over time, examination after examination, at the practice. This step is the heart of the system: the practitioner acquires, submits, receives structured feedback, and starts again. It is this iterative loop, repeated over several weeks, that durably embeds competencies and enables measurable progression towards Levels 2 and 3.

The physician acquires examinations at their practice, submits them via the platform, and receives a structured review from a remote expert within 24 to 48 hours. Progression follows the order of levels, with Level 1 components submitted and validated before moving on to Levels 2 and 3.

Workflow

Each submission follows the same protocol, from the practice to the expert and back:

- Image acquisition at the practice (Level 1 components first)
- Upload of clips to the electronic logbook
- Annotation by the physician (indication, clinical context)
- Review by the supervising expert (certified POCUS trainer)
- Structured feedback: technical quality and interpretation
- Integration into the portfolio, progression towards Levels 2 and 3

What the expert assesses

Each submitted examination is assessed according to four criteria, covering the entire chain from technical gesture to clinical decision:

Criterion	Indicators assessed
Technical quality	Depth, gain, orientation, completeness of the view
Acquisition	Probe positioning, acoustic window chosen, artefacts
Interpretation	Accuracy, limitations identified, clinical conclusion
Clinical integration	Consistency between reported context and clinical decision

The number of examinations required per component is defined in line with the current SSUM certification requirements.

6. AI-ASSISTED IMAGE ACQUISITION (OPTIONAL)

In addition to the core pathway, participants may benefit from an AI-assisted image acquisition tool. The Kosmos® platform (EchoNous) is currently the most fully developed example available in clinical practice: it is a portable ultrasound device running on iPad, with natively integrated deep learning algorithms that guide acquisition in real time, automate certain measurements, and streamline documentation through structured reporting. Recent data suggest that this type of assistance enables less experienced practitioners to improve their image quality and confidence during acquisition — which is directly relevant in the context of a general practitioner new to POCUS.

When available and desired by the participant, this tool provides:

- real-time probe guidance during acquisition;
- automated feedback on image quality prior to tele-review submission;
- assistance with structured clip annotation;
- automatic tracking of progression metrics.

AI assistance does not replace human supervision. It provides complementary support for participants wishing to strengthen their autonomy between supervised steps, and reduces the workload of supervising experts by filtering out technically insufficient submissions.

7. ASSESSMENT AND CERTIFICATION

Progression through the programme is marked by concrete assessments, both theoretical and practical. The aim is not to penalise, but to ensure each competency is genuinely acquired before moving on, and to build a solid portfolio directly usable for SSUM certification.

A theoretical knowledge assessment is offered at the end of each component in the form of an online MCQ, with a minimum score defined per module.

Practical assessment is based on a portfolio of examinations validated through tele-review, organised according to the three priority levels and evaluated against quantitative and qualitative criteria.

An optional on-site practical examination with real-time acquisition in front of an examiner according to a defined clinical scenario may complement the assessment process.

8. REQUIRED TECHNOLOGICAL INFRASTRUCTURE

The programme relies on a set of simple and accessible digital tools, designed to integrate seamlessly into daily practice. Theoretical training, examination submission, and progress tracking are supported by two main platforms; AI assistance remains a complementary, optional feature.

Component	Tool / Platform	Role	Status
Theoretical training	Online course	Asynchronous e-learning, MCQs, pocket guides	Required
Tele-review	Plateform LogIC® (Reallience) or equivalent	Clips, annotation, remote expert review	Required
Portfolio & traceability	Plateform LogIC® (Reallience) or equivalent	Documentation of validated examinations, progress tracking	Required
Acquisition assistance	Kosmos® (EchoNous) or equivalent	Real-time probe guidance, image quality feedback	Optional

9. SUCCESS INDICATORS

The quality of a training programme cannot be measured solely by the number of examinations performed. It is assessed over time through the real progression of participants, their ability to maintain an autonomous practice, and the concrete impact of POCUS on their daily work. The following indicators allow these dimensions to be monitored throughout the programme.

- Online training completion rate by component and level
- Evolution of acquisition quality between the first and last examination submitted
- Progression rate from Level 1 to Levels 2 and 3
- Portfolio validation rate at the end of the programme
- Participant satisfaction
- Practice maintenance rate at 6 and 12 months

10. CONCLUSION

POCUS is now an indispensable clinical competency in primary care, yet existing training pathways remain ill-suited to the real constraints of established general practitioners.

The concept presented here offers a pathway that is both pragmatic and rigorous: structured progression by clinical priority levels, supervision grounded in the practitioner's own practice, and longitudinal support through tele-review that integrates naturally into the daily workflow. The model lends itself to regional deployment with a limited number of trainers, without compromising pedagogical quality.

This programme is not designed to circumvent SSUM requirements, but to build a realistic pathway to certification for a population of physicians who need it and who, until now, have had none. The necessary technological tools are available today: e-learning platforms, electronic logbooks, tele-review tools, and AI-assisted acquisition systems are operational and accessible. Concrete initiatives are currently being deployed. The framework is in place — all that remains is the collective will to activate it.