#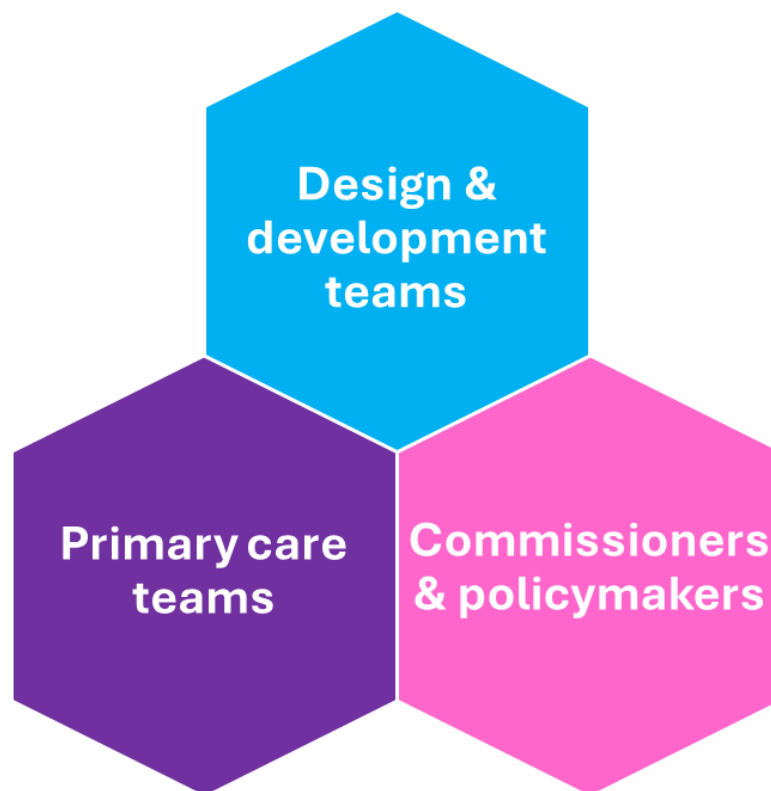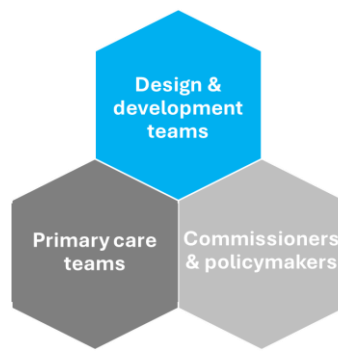 Recommendations for design and implementation of Clinical Decision Support Systems (CDSS) for early detection in primary care

CanDetect

Design & development teams

Primary care teams

Commissioners & policymakers

Integrate CDSS with existing Electronic Health Record (EHR) and IT systems

- Ensure data security
- Update technology automatically
- Work with clinical software companies to ensure complete, error-free integration

Align CDSS with current practice and complex workflow

- Ensure CDSS is efficient, flexible and time-saving
- Integrate patient facing and primary care team components along the primary care pathway to enable easy documentation and monitoring
- Build CDSS for complex interrupted workflows

Ensure front-end usability by developing simple, intuitive and attractive CDSS

- Use consistent, appealing and high-quality graphic displays with good structure and visualisation, familiar format and clear wording
- Create a simple navigation through few screens that hides redundant information and uses auto-population of fields
- Provide passive, non-intrusive prompts with acceptable frequency that are easy to address
- Show results as clear, objective, quantitative percentage score with interpretation aids adjusted to users' levels of education and skills

Support adaptability

- Provide technical FAQs within the system
- Address technical challenges to improve functionality
- Update with new guidelines and IT changes

Design CDSS for appropriate diagnostic challenges

- Select conditions that are challenging to diagnose and manage in every-day primary care
- Align CDSS with existing evidence-based clinical guidelines
- Consider using CDSS to support professional skills development and clinical judgement (e.g., in LMICs)

Engage stakeholders early and throughout the developmental process

- Include institutional leaders, frontline healthcare workers, community partners, local opinion leaders
- Align CDSS with PCPs' and patients' expectations and requirements, including when and how to use CDSS

Test and evaluate CDSS adequately prior to implementation

- Evaluate the accuracy of underlying risk model, feasibility in clinical practice, effectiveness for patient outcomes, and cost-effectiveness

Communicate the value of CDSS for patient and providers and actively address concerns

- Emphasise value and positive examples for:
  - Complex/ borderline decision-making
  - Workload and optimisation of the diagnostic process
  - Quality of patient care (e.g., more effective management and shared decision-making, better prevention)
- Inform PCPs about patients' support for use of CDSS, if combined with professional consultation
- Address concerns regarding CDSS output, technical issues, AI/ machine learning and data security, and perceptions of CDSS being a professional threat
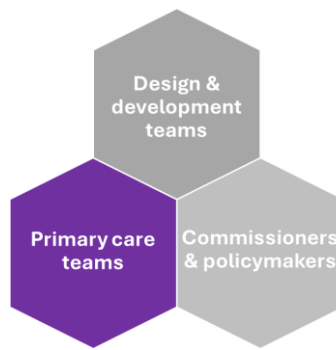
Clarify team responsibilities

- Explicitly agree roles and responsibilities regarding the CDSS with the whole practice team (and patients where applicable)
- Assign a practice CDSS champion to manage expectations and support implementation
- Create an open and supportive organisational culture

Engage and support patients

- Ensure training that is interactive and accessible with a practical element of how to use CDSS
- Promote education about specific condition and management/ guidelines
- Support users to develop a routine when first implementing CDSS

Provide training for healthcare professionals

- Be aware of potential stigma around conditions (e.g., mental health)
- Be mindful of patients' health literacy and computer skills
- Consider including patient education resources alongside CDSS
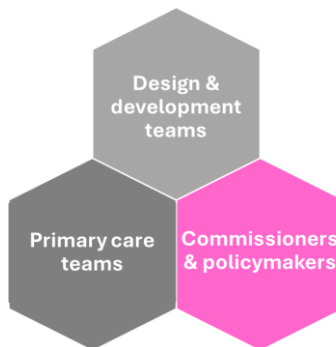
Address the wider context of CDSS implementation

- Specify and deliver a collaborative strategy to incorporate sustainable digital solutions in healthcare systems, including governance and quality control mechanisms
- Provide guidance on use of evidence-based CDSS in clinical guidelines to endorse use
- Clarify liability and medicolegal practice prior to implementation (e.g., non-adherence, algorithm and human errors)
- Provide adequate funding for staff and the development, integration, and maintenance of CDSS and functioning IT systems