Supplementary 1: Distribution of the participant's characteristics

Participants	Sex	Role	Department
P1	F	Medical educator	Anesthesia
P2	M	Medical educator	Anesthesia
P3	M	Medical educator	Medical radiology
P4	F	Medical educator	Medical radiology
P5	M	Medical educator	Medicine
P6	M	Medical educator	Medicine
P7	M	Medical educator	Nursing
P8	M	Medical educator	Nursing
P9	F	Medical educator	Midwifery
P10	M	Medical educator	Midwifery
P11	F	Undergraduate program coordinator	Nursing
P12	M	Undergraduate program coordinator	Medical radiology
P13	F	Undergraduate program coordinator	Anesthesia
P14	M	Undergraduate program coordinator	Medicine
P15	F	Undergraduate program coordinator	Midwifery
P16	M	A medical educator with TOT certification	Anesthesia
P17	F	A medical educator with TOT certification	Medical radiology
P18	F	School dean	Medicine
P19	M	School dean	Allied health science
P20	M	Department head	Anesthesia
P21	M	Department head	Medical radiology
P22	M	Department head	Medicine
P23	M	Department head	Nursing
P24	M	Department head	Midwifery

Supplementary 2: English version interview guide

The semi-structured interview guide (Only used to guide the interview process)

Introduction: Good morning/ afternoon; my name is _____. I am here as a researcher to conduct research on the implementation of problem-based learning (PBL) in undergraduate medical education. This qualitative interview aimed to explore medical educators' and educational leaders' perspectives regarding the implementation of PBL in undergraduate medical education. We are especially interested in your ideas and insights regarding your programs, institute understandings, and actions supporting PBL in your institutions.

The benefit of the study: The study is important to provide information on the PBL readiness of undergraduate programs at the College of Health Sciences, Addis Ababa University. It also gives recommendations based on the findings, which play a major role in the planning and monitoring of PBL implementations in higher education institutes.

The harm of the study: The study has no harm without taking the participant's time.

The Participant's Rights: You can stop participating in the study anytime. During the interview, you can ask questions that are not clear.

Confidentiality: I request you to respond honestly to interview questions, and your participation is voluntary. To ensure that all of the information we capture is accurate, we want to inform you that this interview will be recorded and transcribed. The findings from interviews won't precisely name people or their institutions. The information obtained will only be used for research purposes and will remain confidential and your anonymity will remain protected at all times. In addition, we would like you to ensure your permission to use the information for the research including the publication of anonymized responses.

Contact: If you have any questions about the study, you can ask me. You can also communicate with the Principal Investigator, Mr. Ali Beyene (+251 917 43 16 79), or the Co-investigator, Robel Tezera (+251 911 93 04 08),

Consent: At this point, do you have any questions?

Is it all right to start the interview?   1- Yes   2 – No

May I audio-record the interview, as it would help me to listen to it again later and to make a transcript of the interview for data analysis purposes?

Part I: Biographic Data

Characteristics	Response
Q101. What is your Gender?	1-Male 2-Femal
Q102. How old are you? (In years)	
Q103. Department	1-Anesthesia 2-Medical Lab 3-Medical Rad technology

	4-Medicine
	5-Midwifery
	6-Nursing
	7-Pharmacy
Q104. What is your Position at the University?	1-Department head
	2- Educator
Q105. What is your highest qualification?	1- First degree
	2-Second degree
	3-Third degree
Q106. How many years of experience in the position do you have?	

Part II: Interview questions and probes

1. What is the purpose of the PBL in your respective program?

2. What are your own experiences with problem-based learning?

3. What is your opinion about the PBL program in the context of CHS?

   Probing: PBL (strengths and weaknesses, how to improve PBL; desirable features of tutorials, tutors, students)

4. What is your perspective on using PBL as an instructional method?

   Probing: What is the difference between the PBL approach compared with teaching through other methods?

5. What is your perspective on the readiness of your department for PBL implementation?

   Probe 1: What opportunities are there to support readiness?

   Probe 2: what are the reasons that hinder the readiness for PBL implementation?

6. What recommendations do you suggest for improving the PBL programs?

7. What is your opinion on improving PBL implementation?

Part III: Departmental Questions

Characteristics	Response	Description for probe
Q201. Is the curriculum allocated time for PBL sessions? (**Probing:** please tell me more, is that Adequate)	1-Yes 2-No	
Q202. Does your department use PBL as a teaching method? (**Probe**: if not, why, if yes, please explain the implementation)	1-Yes 2-No	
Q202. Are cases available for PBL sessions? (**Probing:** please explain developed or adopted, adequate, variety, and their quality)	1-Yes 2-No	
Q203. Are the assessment tool available for PBL sessions?	1-Yes 2-No	
Q203. Are the staff trained in PBL case development?	1-Yes	

(**Probe:** how many, who provided the training, are they involved in case development)	2-No	
Q203. Are the staff trained in PBL case facilitation? (**Probe:** how many, who trained them, are they involved in PBL facilitation)	1-Yes 2-No	
Q204. Are small (syndicate rooms available for PBL sessions? (Please elaborate)	1-Yes 2-No	
Q205. Are there adequate resources for PBL facilitation? (Example, learning guides, flipcharts, adequate reference for self-study, etc.)	1-Yes 2-No	
Q206. Are the students being aware of PBL sessions (Are they trained?)		

I would like to thank you for your time and participation in this study.

Supplementary 3:Visual description of the thematic analysis (the coding tree)

Main themes	Sub-themes	Codes
PBL opportunities	1. Imperatives of PBL integration in	PBL integration as part of undergraduate health science

	undergraduate medical education	education in the CBC, The purpose of PBL, time allocation for the PBL sessions
	2. The learning benefits of PBL	Benefits of the PBL: for individual students, the college, and the community; significance of PBL as a pedagogical approach; PBL's role in facilitating the integration of basic sciences of medicine and clinical knowledge
PBL implementation challenges	3. Issues related to PBL curricular design and governance	Contextual variation of the PBL model in different countries; The need for contextualized adoption of PBL; Lack of proper strategy and plan to conduct the PBL sessions; Lack of robust administrative body monitoring the PBL

		curricular execution; the need for the establishment of central office and PBL implementation committee at the department level
	4. Issue related to staff training and awareness creation	Lack of formal training programs and workshops; lack of awareness regarding the concept and the process of learning by PBL; lack of PBL facilitation skills; lack of PBL session preparation and case development
	5. Issues related to the demanding nature of the PBL instruction	Demanding nature of the PBL in terms of teaching facilities and infrastructure time-intensive nature of the PBL instruction; limited timeframe allowed by the CBC curriculum for PBL program implementation
	6. The educational environment readiness	lack of syndicate rooms available for PBL sessions;

	to implement PBL in CHS	insufficient resources for PBL facilitation (such as learning guides, flipcharts, and sufficient reference materials to facilitate the learner's self-study); shortage of qualified manpower
Strategies for effective implementation of the PBL	7. Contextualized adoption of the PBL	The problem of replicating the foreign PBL model; PBL adoption and meticulous planning that accounts for local contextual factors; ensuring the involvement of educators in the curriculum design process, rescheduling of academic periods to facilitate proper PBL execution; amending the curriculum to rectify PBL implementation
	8. Providing tailored capacity-building training for educators	Awareness creation about the conceptual underpinnings of the PBL, working on the

		mindset of faculty and students to avoid resistance and seek transformation from the traditional curriculum; collaboration, and partnership with other institutions; Capacitating the faculty through continuous training and workshops
	9. Strategies to address the resource-demanding nature of the PBL	provision of essential infrastructural, logistical, technical, and technological support; engagement of educational leaders and administrative support

Note: The table presented above does not encompass all the codes and categories. Instead, it focuses on the primary codes and offers a concise representation of the main themes and sub-themes.