

Role of Community Health Research Projects in Improving Healthcare Delivery

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I. Health professional education in improving community health.

Health professional education plays a pivotal role in strengthening community healthcare by equipping practitioners with the knowledge, skills, and attitudes needed to address population health needs effectively. A well-trained healthcare workforce is essential for preventive care, health promotion, disease management, and reducing health disparities.

1. Enhancing Competency-Based Training for Community Health Needs.

Health professional education must align with community health priorities, emphasizing primary care, preventive medicine, and social determinants of health. Competency-based curricula ensure that graduates are proficient in:

- A. Epidemiology and public health (disease surveillance, for response).
- B. Health promotion and behavioural change (nutrition, smoking cessation, vaccination advocacy).
- C. Cultural competence and patient-centered care (addressing diverse populations) [1]

2. Interprofessional Education (IPE) for Collaborative Care.

Community health requires teamwork among doctors, nurses, pharmacists, social workers, and community health workers (CHWs). Interprofessional education fosters collaboration, improving care coordination and patient outcomes.[2]

3. Community-based Education and Training.

Exposing students to real-world community setting (e.g. rural clinics, slums, outreach programs) enhances practical skills and empathy. Strategies include:

- A. Community-oriented primary care(COPC) training.
- B. Field postings in underserved areas.
- C. Participatory learning with local health workers. [3]

4. Continuing Professional Development (CPD) for Lifelong Learning.

Healthcare workers must stay updated on emerging diseases, new treatments, and public health strategies. CPD programs (workshops, online courses, certifications) improve service quality. [4] The majority of Al-Qalam anaesthesia department students are enrolled annually in WHO online courses with good outcomes related to the improvement of English language and medical information.

5. Integrating Technology and Digital Health Training.

E-health, telemedicine, and mobile health are transforming community care. Training health professionals in digital tools improves access to remote populations. [5,6,7]

6. Emphasizing Leadership and Health Policy Education.

Future healthcare leaders must understand health systems, policy-making, and advocacy to drive reforms. Training in health economics, governance, and ethics is crucial.[8]

II. Role of Community Medicine Research in the Improvement of Healthcare Delivery.

Community Medicine (also known as Public Health Medicine or Preventive and Social Medicine) focuses on improving population health through preventive strategies, health promotion, and evidence-based interventions. Research in this field plays a crucial role

in enhancing healthcare delivery by identifying health needs, evaluating interventions, and shaping health policies.

1. Identifying Health Needs and Priorities.

Community medicine research helps in assessing the health status of populations, identifying disease burdens, and prioritizing interventions. Epidemiological studies (e.g., cross-sectional surveys, cohort studies) provide data on disease prevalence, risk factors, and health disparities.

[9]

2. Designing and Evaluating Public Health Interventions.

Research guides the development of cost-effective interventions such as vaccination programs, maternal and child health initiatives, and non-communicable disease (NCD) prevention strategies. Randomized controlled trials (RCTs) and quasi-experimental studies assess intervention effectiveness. [10]

3. Strengthening Health Systems and Policies.

Research informs policy-making by providing evidence on healthcare accessibility, quality, and equity. Health systems research evaluates service delivery models, workforce distribution, and financing mechanisms. [11]

4. Promoting Preventive and Primary Healthcare.

Community medicine research emphasizes prevention through health education, screening programs, and lifestyle modifications. Studies on smoking cessation, diabetes prevention, and immunization highlight the impact of preventive strategies.[12]

5. Addressing Health Inequalities.

Research identifies social determinants of health (e.g., poverty, education, housing) and evaluates interventions to reduce disparities among marginalized groups.[13]

6. Enhancing Disease Surveillance and Outbreak Response.

Research supports the development of surveillance systems for infectious diseases (e.g., COVID-19, Ebola) and guides outbreak containment strategies.[14]

7. Improving Community Participation and Health Education.

Participatory action research (PAR) engages communities in health planning, improving intervention acceptability and sustainability.[15].

Community medicine research is fundamental in shaping effective, equitable, and sustainable healthcare systems. By generating evidence on disease patterns, intervention efficacy, and health policies, it ensures that healthcare delivery is responsive to population needs.

III. Tikrit University College of Medicine

Tikrit University College of Medicine [TUCOM] is a community based college incorporating PBL and it is the first and only medical school in Iraq to introduce an innovative curriculum [16]. TUCOM/CBE programme constitutes a community based curriculum including an acceptable balance of community based activities through out of the educational settings [6 years of study] [16-19]. CBE is one of the most powerful and important teaching and learning strategy that allows students to study the sources, nature and magnitude of health and related problems [16]. TUCOM facing challenges from different sources. However, the curriculum was implemented on a sound basis and in 1996 TUCOM fulfill the accreditation criteria. TUCOM in Iraq plays a significant role in enhancing healthcare delivery and advancing health professionals education through several key initiatives.

1. Improving Healthcare Delivery.

A. **Training Competent Graduates:** TUCOM produces skilled physicians trained to address local health challenges, such as infectious diseases, trauma care, and primary care shortages. Graduates often work in underserved regions, directly improving access to care. [20].

B. **Community Outreach Program.** TUCOM organize health campaigns, free clinics, and vaccination drives, particularly in rural areas, improving preventive care and health awareness.

C. **Clinical Partnerships:** Collaboration with hospitals (e.g. Salahaddin Military Hospital, Tikrit Teaching Hospital, Kirkuk Teaching Hospital, Samara General Hospital and Balad General Hospital) provide hands-on training for students while bolstering clinical staffing and expertise in local facilities.

D. **Research Addressing Local Needs:** Faculty and student research focuses on regional issues like infectious diseases (e.g. leishmaniasis) or conflict-related trauma, none communicable diseases, informing treatment protocols and public health strategies. [21-176].

2. Advancing Health Professionals Education.

A. **Modernized Curriculum:** TUCOM employs problem-based learning (PBL) and integrated curricula to foster critical thinking, aligning with global standards like those from the World Federation for Medical Education (WFME). [177]

B. **Simulation and Technology:** Use of simulation labs and digital tools enhances clinical training, preparing students for real-world scenarios.

C. **Continuing Medical Education:** Workshops and seminars for practicing professional update skills in area like emergency medicine, child health, and maternal health.

D. **Accreditation and Quality Assurance:** Compliance with national accreditation standards ensure graduates meet competency benchmarks, elevating the overall quality of Iraq's healthcare workforce. [TUCOM documents]

3. Policy and Collaboration:

A. **Health Policy Influence:** Research finding from TUCOM faculty contribute to national health policies, such as disease control strategies or mental health initiatives [21-176].

B. **International Collaborations:** Partnerships with global institutions (e.g. WHO, UNESCO, Toward Unity for Health, Suez Canal University Medical College) facilitate knowledge exchange and resource sharing.

4. Key Challenges and Future Directions.

TUCOM faces challenges like post-conflict infrastructure gaps and resource limitations. However, it focus on contextually relevant education and community –centered care positions it as a critical player in rebuilding Iraq's healthcare system. [62-66, 91, 101].

IV. TUCOM Community-Based Research Programs.

TUCOM has actively engaged in community-based research projects aimed at addressing local health challenges and improving healthcare delivery in Iraq, particularly in the Salahuldean Governorate and surrounding regions. These projects often focus on pressing public health issues, resource gaps, and culturally relevant interventions.

1. Addressing Infectious and Communicable Diseases.

TUCOM students in the grades 2nd, 3th, 4th and 5th annually conducted studies on diseases prevalent in the region, such as leishmaniasis, tuberculosis, haydatid cyst, and waterborne illnesses. Additionally, the postgraduate students and faculty members perform a research projects to cover variety of infectious diseases disease prevalence and incidence, and improving diagnostic approaches for infectious disease.[22-33; 45-49; 54,57;74-88; 92-100, 108, 113, 115-119, 122-127, 129-134, 139-151, 153-165, 168,171,174-176].

2. Maternal and Child Health Initiatives.

TUCOM students and faculty members have assessed maternal mortality rates, neonatal care access, and vaccination coverage gaps. Findings guide training programs for midwives and awareness campaigns in underserved communities. For example, a community survey revealed low antenatal care attendance due to transportation barriers and cultural norms. [120,135,143,163,169]

3. Mental Health and Post-conflict Trauma.

Given Iraq's history of conflict, TUCOM has prioritized research on "post-traumatic stress disorders, depression, and trauma care. Projects often involve training primary care providers to screen and manage mental health conditions. For example, A study on post-traumatic stress disorders prevalence among displaced populations in Tikrit led to the integration of mental health modules into primary care training programs.[178,179] Non-Communicable Diseases.

TUCOM students and faculty members investigate rising rate of chronic disease such as diabetes, hypertension, metabolic, allergic and cardiovascular diseases, emphasizing prevention through community education and screening projects and camps. An example, investigate whether psoriasis is a local or systemic disease and prevalence of skin diseases and underlying allergic causes in Salahuldean Governorate [34-61,67-73, 89,90,102-107,109,-111,114,120,121,128,132,136,137,138,141,144,145,152,162,166,167,170,173]

4. Environmental Health and Sanitation.

Projects of water quality, pollution, and sanitation have directly influenced infrastructure improvements. These studies include that was conducted in North Gas Company, North Oil Company, Baigi Refinery, TUCOM campaigns in Alhijaj and Samra villages. For instance, testing well water in rural areas led to collaboration with engineers to install filtration systems or not to drink well water because its contains of carcinogenic materials. [180-187]

6. Strengthening Primary Healthcare (PHC).

TUCOM evaluates PHC facility performance, focusing on staffing shortages, equipment gaps, and patient satisfaction. Recommendations from these studies have been used to advocate for PHC funding and staff training. In addition, PHC, and Allergy diploma programs was established in medical college of Tikrit University. Many doctors involved in these programs and trained in PHC activities and allergy diseases and get a jobs in many health centers with sound outcomes on healthcare delivery. [52,60,164,172, TUCOM Documents]

7. Impact on Healthcare Delivery

A. Evidence-Based Intervention: TUCOM's students and faculty member researches provides data to design locally relevant health programs (e.g. vaccination schedules, disaster response protocols). [19].

B. Policy Influence: Findings are shared with the Iraqi Ministry of Health and None-Governmental Organizations to shape resource allocation and health policies.

C. Community Empowerment: Participatory research models engage communities in problem solving, fostering trust and sustainable health practices.[188,TUCOM Documents]

8. Challenges.

A. Resource Limitations: Funding and infrastructures gaps hinder large-scale projects.

B. Security Concerns: Conflict affected areas limit access for researchers.

C. Data Accessibility: Fragmented health data systems complicate longitudinal studies.

D. Iraqi Medical Colleges: Other Iraqi medical colleges conducted Teacher-centered programs, while TUCOM established a student-centered program (integrated community-based program incorporating problem-based learning). Thus, TUCOM in 1996 provided the conditions for National Accreditation criteria that was applied now in Iraq. Despite these

challenges, TUCOM's community research remains vital for bridging gaps in Iraqi's healthcare system.

Finally, at the present time most of the Iraqi's Medical Colleges conducted a curriculums that were about the same of TUCOM and they don't mention the TUCOM learning activities and the curriculum implementation, WHY, I DON'T KNOW. The TUCOM curriculum implementation outcomes encouraged to do reform in the curriculum of Anesthesia Department in Al-Qalam University College. The integrated curriculum among subjects (topics), self-learning, problem-based learning, interactive lecture, summative and formative assessment, reports, and community-based graduation reports. For self-learning programs, about 80% of the Anesthesia Department students conducted a WHO learning programs. [189].

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