leadership, teamwork, knowledge of foreign language as well as the ability to do research. Furthermore, student-centered training methodology is needed to promote course selection possibilities, problem solving systems, unity and participation of society which will in turn create a concrete evaluation system of students and graduations as well as providing lifelong skills.

Конфликт интересов. Авторы заявляют об отсутствии конфликта интересов.

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Инновации в медицинском образовании Монголии
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Summary.
Aim: to study changes in medical education in Mongolia.
Methods. An analytical review of the literature on medical education in Europe and the Pacific, comparing traditional and modern methods of curriculum development. Description of the chronology of the introduction of modern educational programs in Mongolia.
Result. The democratic changes of 1990 had affected all sectors of the country and Mongolian National University of Medical Sciences also went through massive changes during the transition period. Faculties and professionals of the university focused on producing internationally qualified and regional needs met programs in the field. Within last decade our university focused on curriculum development covering content and credit match analysis, alignment of curriculums, reordering courses to comprehensiveness, and promoting individual learning in order to meet the global standards and to be recognized by the western pacific institutions. We have initiated medical curriculum reformation comparatively with
European medical education and closely collaborated with Groningen University in Netherlands and Leeds University in United Kingdom from 1996. The new integrated curriculum has been implemented between 2000 to 2019.

**Conclusion.** Medical education in Mongolia has undergone major reforms, culminating in the creation of a new integrated curriculum.

**Key words:** Medical Education; Innovation; curriculum development.

The history of medical education in Mongolia had experienced various stages of development including the Huns to 16th century “treat-cure, cognitive revolution, and education”; Asian medicine thriving centuries until 19th century, Religious teaching and mentorship training until 1921, first modern medicine training for hygienists, nurses and physician assistants based on traditional medicine between 1921 to 1942, and followed by National University for higher education in medicine, domestically trained medical doctors and professionals with Soviet style. Currently the medical education is focusing on modernization and globalization of medical education in Mongolia form 1990.

The history of medicine in Mongolia is rich and ancient. Ancestors of Mongolians were nomadic people and discoveries found stone medical equipment from 209 BC. In 1681 the first Buddhist schools for traditional medicine were established and had significant role in medical teaching in Mongolia. However, in 1921 social reforms dismantled the system and future of medical training had no vision. The newly established government started introducing modern medicine and teachings from European science, practitioners of traditional medicine and Soviet professionals began working together, and some traditional medications were banned.

The Soviet experts had played enormous role in development of modern medical practice and establishing educational system for locally trained medical professionals in Mongolia. However, in 1921 more than 150 professionals were invited between 1942 and 1990. The government of Mongolia has emphasized medical institute to university status by the 154th act published on November 11, 1990 in order to meet the global standards and to be recognized by WHO.

Medical education in Mongolia has undergone major reforms, culminating in the creation of a new integrated curriculum.

**Table 1. Concept difference of traditional and integrated curriculums**

<table>
<thead>
<tr>
<th>№</th>
<th>Items</th>
<th>Traditional curriculum</th>
<th>Integrated curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Concept</td>
<td>The medical approach to cure illnesses</td>
<td>Preventive and public health oriented</td>
</tr>
<tr>
<td>2</td>
<td>Disease</td>
<td>Acute and infectious diseases oriented</td>
<td>Minimizing risk factors of chronic illnesses</td>
</tr>
<tr>
<td>3</td>
<td>Diagnosis</td>
<td>Pathologic diagnosis based</td>
<td>Syndrome based and individually oriented</td>
</tr>
<tr>
<td>4</td>
<td>Treatment</td>
<td>To cure the disease</td>
<td>To treat the people at the same time</td>
</tr>
<tr>
<td>5</td>
<td>Prophylaxis</td>
<td>Strong chemical compounds e.g antibiotics, vaccination</td>
<td>Healthy lifestyle and rehabilitation integrated</td>
</tr>
<tr>
<td>6</td>
<td>Expert</td>
<td>Specialists</td>
<td>General practitioners</td>
</tr>
</tbody>
</table>

**Table 2. Contents comparison of the curriculum styles**

<table>
<thead>
<tr>
<th>№</th>
<th>Curriculums</th>
<th>Subjects</th>
<th>Content update</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Traditional style core curriculum (1998)</td>
<td>Social sciences, History, Russian language, Neurosurgery</td>
<td>Social sciences, Russian and specialist medical courses were common</td>
</tr>
<tr>
<td>2.</td>
<td>Updated core curriculum (2008)</td>
<td>Research methodology, Information technology, Communication skills</td>
<td>Problem solving concepts and contents that are practically important and subjects</td>
</tr>
</tbody>
</table>
students, discouraging creativity of students, and grading evaluations were not blinded nor objectively measured.

As a member of the Western Pacific medical education committee, Mongolian National University of Medical Sciences is closely collaborating with regional higher education institutions to maintain international standards quality education. Not only promoting the content and standard improvements to regionally acceptable level, we were qualified by the external curriculum evaluation by the committee. It is worth mentioning accomplishment of the quality assurance in educational service.

Western Pacific Medical Education Committee experts visited MNUMS between October 2nd to 7th, 2011 and evaluated the integrated undergraduate medical education at the School of Medicine. The committee consisted of 8 members from 6 countries namely, Australia, Japan, South Korea, the Philippines, Taiwan, and United States of America. During this time our faculties and staff prepared in advance the evaluation neatly.

We signed a memorandum of understanding prior to the external evaluation by the Western Pacific Medical Education Committee (WPMEC) and a formal support from the Ministry of Education, Culture, Sciences of Mongolia. Following to memorandum of understanding signing ceremony, we delivered self-evaluation to the committee. The accreditation consists of self-evaluation report on curriculum and selected team had presented on behalf of the university to experts’ committee. The committee then visited to medical school, clinical setting, teaching hospitals, and interviewed faculties and doctors as well as students over the implementation status of integrated curriculum.

Groningen team – June 15-17, 2015

Recommendations |
---|
To consider outcome based learning
To maintain the integrity of the block contents and to increase evaluation standards
To introduce problem based learning contents in blocks
To support clinicians in career development in clinical teaching
To reduce in person classes and promote individual learning
Reconsider order of the block contents
Faculty payment should not be measured by in person teaching hours
To enhance teaching resources

Interpretation |
Efforts from the faculties and students are well, very enthusiastic
The university is ready for curriculum reformation
Cannmed’s roles are delivered well
Block contents are getting reorganized
In person hours are reducing
Faculty development is continuously maintained

Groningen team – October 11-14, 2017

Recommendations |
---|
The activities in the field of Faculty Development are impressive
The number of blocks is reduced substantially and an integrated block exam is introduced
The number of contact hours is reduced
The use of e-learning has increased

Interpretation |
Impressive implementation of Faculty Development
Substantial progress in updating the programme
Evaluate practical skills/clinical rotations in relation labour market
Reconsider the extracurricular position of professional development related topics
Gradual implementation of Cannmeds/competencies is advised

It was an historic moment in Mongolian higher education system, that medical school’s integrated curriculum was accredited by international committee for the very first time in Mongolia.

External evaluation did allow us to understand integrated curriculum and shift towards modernization change was important, curriculum renovation was enormous work of our university. The reformation of medical education began in 1990 and clearly defines how we stand in the globalized world for medical education. Reorganizing the subjects and contents also gave us important take away, how important is having academic freedom.

Conclusion: We restructured our mission and vision with the lessons learned from the evaluation process itself and gained great experiences. Maintaining quality assurance over the medical education became an integral part of our organizational goals. We also realized importance of creativity and innovation approach was essential for the evaluation and renovation.

In this regards, curriculum development is a continuous process of medical education research and scientific problem.

Конфликт интересов. Авторы заявляют об отсутствии конфликта интересов.

Проведено исследование на основе спонсорской поддержки. Исследование не имело сторонних влияний.

Декларация о финансовых и иных взаимодействиях. Все авторы принимали участие в разработке концепции и дизайна исследования и в написании рукописи. Окончательная версия рукописи была одобрена всеми авторами. Авторы не получали гонорар за исследования.

Работа поступила в редакцию: 16.10.2019 г.

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УДК: 616 (092)
DOI: 10.34673/ismu.2019.15.72.015

РУКАВИШНИКОВ ВИКТОР СТЕПАНОВИЧ (К 70-ЛЕТИЮ СО ДНЯ РОЖДЕНИЯ)

RUKAIVISHNIKOV VICTOR STEPANOVICH (ON THE 70TH BIRTHDAY)

6 августа 2019 года исполняется 70 лет со дня рождения выдающегося ученого-гигиениста, члена-корреспондента РАН, доктора медицинских наук, профессора, почетного профессора «НИИ медицины труда им. академика Н.Ф. Измерова» и Всероссийского НИИ железнодорожной гигиены Роспотребнадзора Виктора Степановича Рукавишикова.


В наставничество Виктора Степановича Рукавишиков – ведущий специалист в области медицины труда и экологии человека в Сибирском регионе и в России.

В условиях системной перестройки науки В.С. Рукавишикову удалось не только сохранить, но и организовать активно работающий коллектив Института и сформировать сибирскую школу медицины труда. В результате фундаментальных исследований, проведенных под руководством В.С. Рукавишикова, были выявлены основные закономерности формирования условий труда и профессиональной заболеваемости на предприятиях по добыче и извлечению драгоценных металлов, разработана патогенетическая схема нарушений функции щитовидной железы при хронической интоксикации цианистыми соединениями. Все это позволило впервые обосновать 2 новые формы профессиональных заболеваний: гипотиреоз и кожные заболевания (дерматиты) у работающих на золотоизвлекательных фабриках.

Исследования В.С. Рукавишикова по изучению влияния физических факторов на организм работающих позволили сформировать концепцию «сенсорного конфликта» и «гироскопического эффекта» как основ...