

THE COMPETENCES POSTULATED AS REQUIREMENTS FOR OCCUPATIONAL MEDICINE TRAINING IN EUROPE AS VIEWED BY POLISH SPECIALISTS

ANDRZEJ BOCZKOWSKI

Education Quality Division
Nofer Institute of Occupational Medicine
Łódź, Poland

Abstract. A questionnaire has been developed and disseminated in several European countries to determine common key competences required of occupational medicine specialists. The questionnaire contained 115 subjects relating to eight fields of activity of an occupational medicine physician (occupational hazards to health, assessment of disability and fitness for work, communications, research methods, management, environmental medicine, occupational health law and ethics, and health promotion). Items in each part were classified into three categories: knowledge, skills and experience. For each of the subjects respondents were asked to allocate a score from 0 (not necessary) to 5 (most important or essential). In Poland the questionnaire was distributed among two groups of specialists: (1) chief administrators of occupational health services, and (2) relatively young occupational medicine physicians attending a specialist training. A comprehensive analysis of the completed questionnaires had three dimensions: (a) substantive (classification of the importance of particular key competences, as perceived by Polish specialists in occupational medicine); (b) personal (differences in opinions among occupational medicine physicians and an attempt to explain these differences in sociological terms); and (c) comparative (evaluation and interpretation of similarities and differences between two groups).

Key words:

Occupational medicine training, Key competences in occupational medicine

Good occupational health practice should be appropriate to objective needs and subjective demands of the working population. This appropriateness is usually obtained mainly by a good training system and good specialist training programs for occupational medicine physicians [1]. In the today's strive for unified Europe it also means that some common key competences have to be met [2].

The set of such competences in occupational medicine (OM) (which may also be treated as proposed requirements for OM training) was prepared at the beginning of 1997 on the initiative of the European Association of

Schools of Occupational Medicine in collaboration with the Occupational Medicine Section of the Union of European Medical Specialities and the European Network of Societies of Occupational Physicians [3].

A questionnaire developed, distributed and collected in some European countries [4], was based on the knowledge, experience and abilities used in occupational medicine specialist training in the United Kingdom, similar to that of several other countries in Europe [5,6,7].

The questionnaire contained 115 subjects divided into eight parts – related to the eight fields of activities of an OM

This paper was presented – in slightly modified form – at the International Workshop “Occupational Health from the Perspective of Future Accession of Poland to the European Union”, 30 June – 1 July 2000, Łódź, Poland. This is a second, more demonstrative presentation of the results of the study carried out in 1997. These results were presented in more detailed way some time ago (see: Requirements for occupational medicine training in Europe postulated by Polish professionals; *Int J Occup Med Env Health* 1998; 11 (3): 255–65.

Address reprint requests to Dr A. Boczkowski, Education Quality Division, Nofer Institute of Occupational Medicine, P.O. Box 199, 90-950 Łódź, Poland.

physician (occupational hazards to health, assessment of disability and fitness for work, communications, research methods, management, environmental medicine, occupational health law and ethics, health promotion). Items in each part were classified into 3 categories: knowledge, experience and skills – considered for the purpose of the study as the elements (aspects) of professional competences [8]. For each of the subjects respondents were asked to allocate a score from 0 to 5, where 0 = not necessary, 1 = of minimal importance and 5 = most important or essential (respondents could also score 2, 3 or 4 if they believed the topic was of some less or more significant importance). The questionnaire – translated into Polish, with the supplement containing some general status questions – was then distributed in Poland among two groups of specialists: 1) chief administrators of occupational health care services from the entire country (physicians – experienced specialists in occupational medicine) participating in a conference held at the Nofer Institute of Occupational Medicine, and 2) relatively young not very much experienced OM physicians participating in a preparatory specialist training at the Institute. A comprehensive analysis of the completed questionnaires (48 by experienced specialists and 41 by relatively young adepts in occupational medicine) had three dimensions:

(1) **substantive** (the importance level of particular key competences, as seen by Polish specialists in occupational medicine), (2) **personal** (differences in opinions among the occupational medicine physicians and attempt to explain these differences in sociological terms), (3) **comparative** (evaluation and interpretation of similarities and differences between the two groups studied).

On the basis of the analysis, a hierarchy of requirements for OM training in Poland was constructed, with one set of competences recognized by the respondents as needless and other sets as useful with different levels of importance in the training program. Surprisingly, great differentiation of the respondents' opinions has given rise to the explanation hypotheses, some of them being verified with the use of the material gathered.

The average scores of competence elements and their groups (in various configurations) together with the aver-

age scores ascribed by individuals are as a matter of fact **the approval indices of items included in the questionnaire** as the training requirements in the occupational medicine specialist training process. At various levels of data aggregation, the following two modifications of these indices may therefore be used:

- (a) collective or group approval indices for the whole or some part of the set of competences, including the particular competence elements; and
- (b) individual approval indices for the whole or some part of the set of competences.

Both kinds of these indices have been used in our study to compare the opinions of two different groups of respondents in relation to particular competences and their sets. These groups were distinguished according to the experience gained in occupational medicine practice, so one was classified as “experienced”, and the other as “inexperienced”.

RESULTS

Figure 1 presents the results of the analysis concerning **the general level of competences** related to eight areas of OM physician's professional activities.

The use of the approval index allowed us to arrange these fields of activity according to the importance ascribed by the respondents.

At this level of the analysis there were no principal differences between the two study groups. The ranking resulting from the scores of the inexperienced group was similar to that of the experienced group of OM physicians. For both groups the most important areas of professional activities (also the most important aspects of specialist training) were occupational hazards to health and health promotion, whereas management and research methods were found least important.

It is worth noting that in all eight areas, the average approval indices for training requirements included in the questionnaire were lower for the inexperienced group, with a growing differentiation at lower grades of importance. In the experienced group all the areas of professional activities included in the questionnaire had the

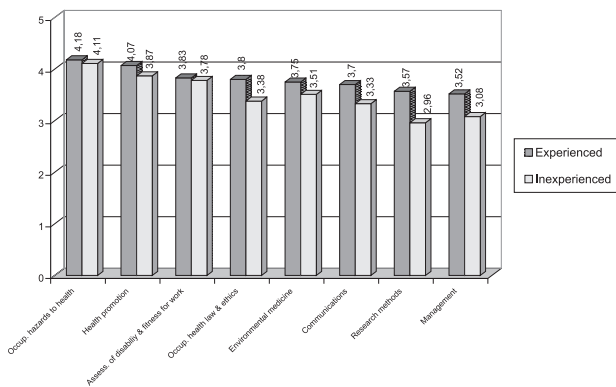


Fig. 1. The approval indices relating to particular fields of activity of the OM physician – in two groups of respondents.

approval indices higher than 3.5, while only half of them obtained similar indices in the other group.

The results of the analysis at the general level showed that such qualities as possession of formal specialist degree in occupational medicine, specialist professional experience and holding a managerial position in occupational health care services do not principally differentiate the distribution of opinions on training requirements in OM and the grade of importance resulting from this distribution.

However, the lack of these qualities (in the inexperienced group) resulted in a somewhat lower approval of proposed training requirements, especially those with lower grades of importance. It is possible though to conclude that specialist experience in OM practice together with involvement in the administrative decision-making process influence positively the awareness of these areas of activity, which to the less experienced and “executively oriented” people seem less important or even unnecessary.

Figures 2–9 show the results of a more detailed analysis, taking into consideration particular elements of competence (knowledge, skills and experience).

Apart from the trends highlighted in Fig. 1, we can observe here some interesting differences between the experienced and inexperienced groups as regards particular fields of activity. Figure 2 deals with the first of them – **occupational hazards to health**. In the inexperienced group we could observe significantly smaller approval for the experience items in occupational medicine physicians training. One may conclude that, the lack of experience leads to some extent, to disregarding experience in this area of training.

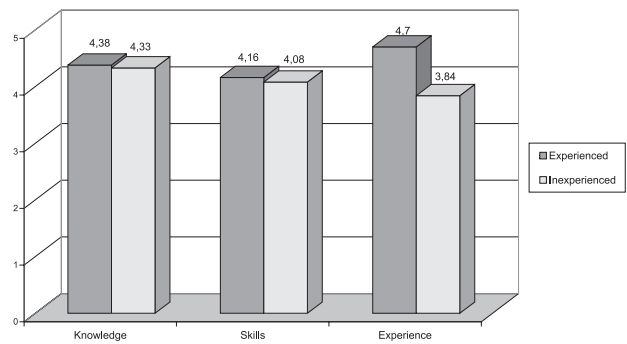


Fig. 2. Occupational hazards to health. Approval indices referring to particular aspects of competence – in two groups.

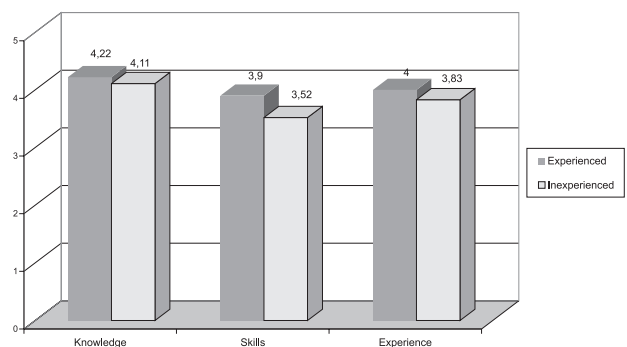


Fig. 3. Health promotion. Approval indices referring to particular aspects of competence – in two groups.

Health promotion was highly appreciated both by experienced and inexperienced groups (Fig. 3). Approval indices referring to knowledge and experience were similar in both groups. The only more significant difference appeared in the case of skills which were much less appreciated by the inexperienced group.

Knowledge of the assessment of disability and fitness for work was a little more appreciated by the inexperienced group and skills in this field were significantly less appreciated (Fig. 4). This is an evidence that practice in this field of OM is connected more with application of some knowledge, and less with the knowledge itself.

Another field of activity where some broader difference between two groups existed, was occupational health law and ethics (Fig. 5). Requirements in this area were significantly less approved by the inexperienced group, with lowest approval, as previously, for practical aspects of training. Skills and knowledge were two elements of the environmental medicine that were given the highest and the lowest approval, respectively in both groups under study. In

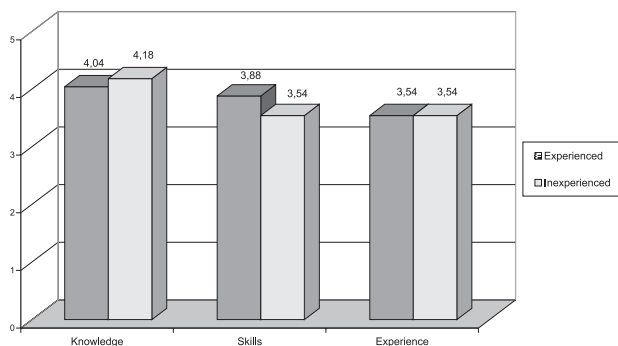


Fig. 4. Assessment of disability and fitness for work. Approval indices referring to particular aspects of competence – in two groups.

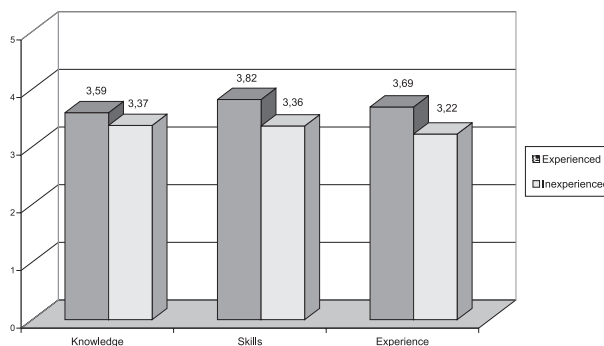


Fig. 7. Communications. Approval indices referring to particular aspects of competence – in two groups.

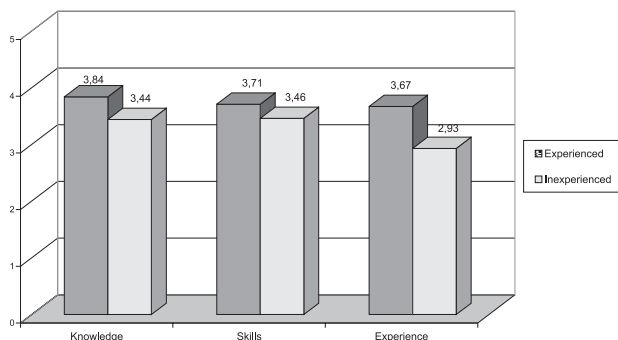


Fig. 5. Occupational health law and ethics. Approval indices referring to particular aspects of competence – in two groups.

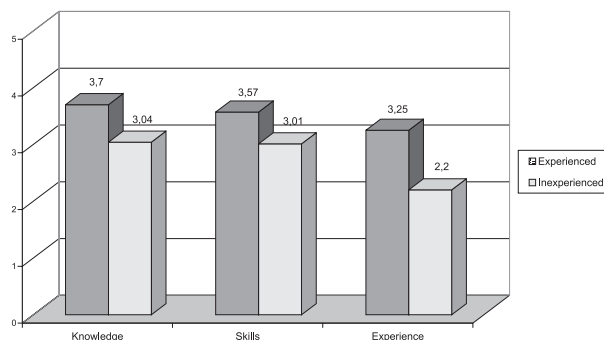


Fig. 8. Research methods. Approval indices referring to particular aspects of competence – in two groups.

general, this area of occupational medicine was perceived as little less important by the inexperienced group as compared with the other group.

Communications (relations with other professionals, patients, employers etc.) was still another area of competence. The approval or acceptance of particular elements of this competence in two groups is showed in Fig. 7. The sphere of communications as a set of training require-

ments for the future OM physicians was less important for the inexperienced group.

The set of requirements referring to the research methods was assessed as one of the least important in the OM physician training program by both experienced and inexperienced groups (Fig. 8). We observe here the greatest difference between two groups – in all three dimensions of the competence.

As seen in Fig. 9, knowledge of management is not very important for both experienced and inexperienced groups – but in the latter the average approval index concerning this element of competence is considerably lower.

Each respondent (in both groups) obtained an approval index for the whole set of requirements (the average of all scores). These indices were grouped as follows: low (less than 3.00), medium (from 3.00 to 3.99) and high (4.00 and more). Figure 10 presents the arrangement of these approval categories in two groups of respondents and Figs. 11–13 show their distribution by gender, age and duration of employment

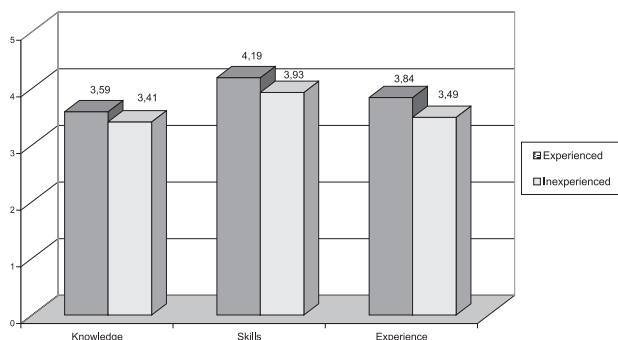


Fig. 6. Environmental medicine. Approval indices referring to particular aspects of competence – in two groups.

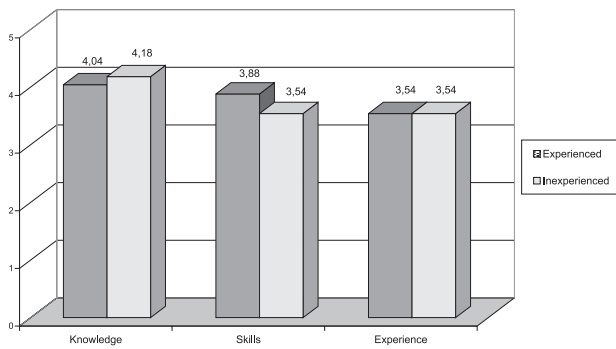


Fig. 9. Management. Approval indices referring to particular aspects of competence – in two groups.

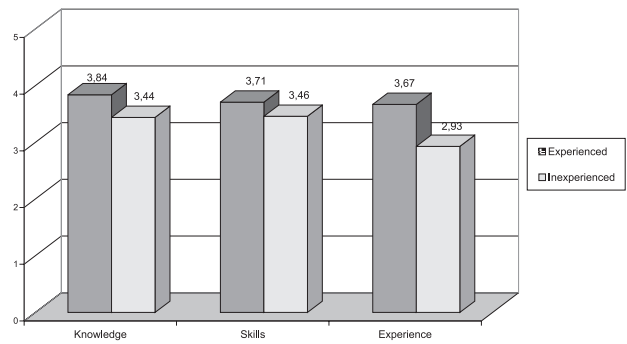


Fig. 11. The approval indices for the whole questionnaire and gender – in two groups of respondents (%).

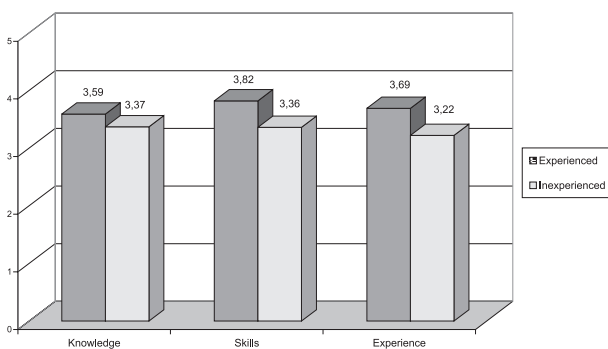


Fig. 10. The approval indices for the whole questionnaire in two groups of respondents (%).

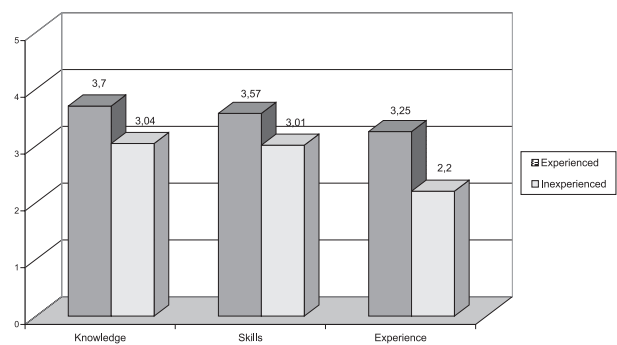


Fig. 12. The approval indices for the whole questionnaire and age – in two groups of respondents (%).

within Occupational Health Service (OHS) in two groups under study.

The experienced group taken as a whole, showed a tendency towards high assessment, while in the inexperienced group we found normal distribution: more medium indices, less high and low indices (Fig. 10).

Women from the experienced group more often than men attributed higher scores to the whole set of proposed competences. As for the inexperienced group we could notice some women's reluctance to assess the proposed competences very high or very low, whereas in the case of men the distribution of indices was more or less equal in all three categories (Fig. 11).

Relatively older experienced physicians were inclined to attribute low scores, and those younger more often attributed medium scores. Among younger inexperienced physicians the approval indices were distributed equally, among relatively older respondents from this group the normal distribution of indices was observed (Fig. 12).

The duration of employment within the OHS does not differentiate scores and approval indices in the experienced group – this is probably due to the fact that in both categories distinguished, the duration of employment was relatively long. The inexperienced physicians with longer duration of employment in OHS were more positive about lower indices, and those with shorter duration about higher indices.

The opinions of the respondents on the importance of items proposed in the questionnaire were highly differentiated. The question raised, what were the differences between the estimation of the same group of items done by particular respondents. In other words, who were the physicians whose opinions on the requirements for occupational medicine training differed considerably (sometimes even extremely) from the opinions of others in the two groups studied.

To answer this question we needed to standardize the method of comparison between respondents with regard to their opinions on the importance of various sets of competences. For this purpose an index of divergence of indi-

Table 1. “Social profiles” of “non-conformists” and “conformists”

Individual opinion divergence indices	Experienced	Inexperienced
Lowest	Relatively older persons (55 years of age and more) with longer duration of employment in OHS (above 25 years)	Relatively older persons (40 years and more) with shorter duration of employment in OHS (less than 10 years) or just starting work in this sector
Highest	Persons not differentiated by the criteria used here	Relatively younger persons (under 40 years) with longer duration of employment in OHS (10 years and more)

vidual opinions was elaborated (being a sort of reverse or reciprocity of the well-known Spearman's rank correlation coefficient - see the paper mentioned above).

Using this divergence index and also utilizing some general status data on the respondents (gender, age and duration of employment within OHS) we made an attempt to describe in both groups under study the “social profiles” of “non-conformists” (persons with the greatest divergence indices) and “conformists” (persons with the smallest divergence indices). Table 1 shows the results of this comparison.

CONCLUSIONS

1. Significant differences and similarities were found both between two groups of respondents (“experienced” and “inexperienced”) and between the individuals. Greater differences and smaller similarities existed between individuals. Smaller differences and greater similarities – between the two study groups.

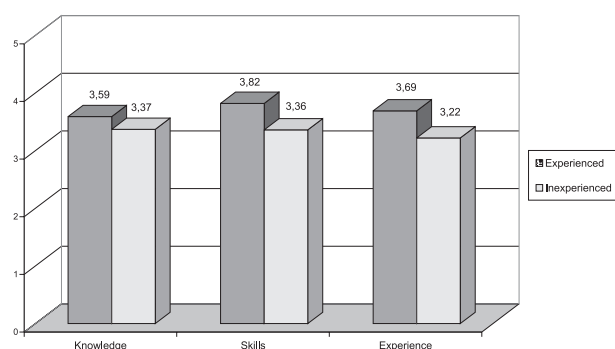


Fig. 13. The approval indices for the whole questionnaire and duration of employment in OHS – in two groups of respondents.

2. A higher approval of the whole set of competences (requirements for the OM training) in the experienced group was probably due to the fact that this proposal was prepared by more experienced OM expert(s) with the professional background comparable to that of respondents from the experienced group.

3. Personal factors influenced the attitudes towards requirements (competences) in a rather selective way. The impact is not very strong but can be taken into consideration in the analysis of educational behavior of future OM physicians.

4. In the opinions of Polish OM physicians some requirements for specialist training were more important than others and some were less significant or not important at all. The differences in the opinions of experienced and inexperienced respondents showed that perhaps some requirements should play more and others less important role than indicated in the current training programs – especially in the context of future integration with the European Union system of training in occupational medicine.

References

1. *Occupational Medicine in Europe: Scope and Competencies*. Chapter 2: *Role and functions of the occupational physician*; Chapter 3: *Specialist training*. Macdonald E, Baranski B, Wilford J, editors. Bilthoven: WHO European Centre for Environment and Health; 2000.
2. *A vision of future trends in education and training for occupational health professionals in Europe*. Copenhagen, Denmark: WHO European Programme on Occupational Health; 1998 (draft).

3. *Occupational Medicine in Europe: Scope and Competencies. Annex 1: Bodies working on developing the profession of occupational physician.* Macdonald E, Baranski B, Wilford J, editors. Bilthoven: WHO European Centre for Environment and Health, 2000.
4. Macdonald EB. *Competence in occupational medicine.* In: Macdonald EB, Ide C, Elder A, editors. *Competencies of Occupational Physicians.* Glasgow: Requirements of Occupational Medicine Training in Europe; 1998.
5. *Regulations for the award of associateship and membership.* London: Faculty of Occupational Medicine of the Royal College of Physicians; March 1994.
6. Schilling RSF. *A university's contribution to occupational health.* Br J Ind Med 1993;50: 418–24.
7. *Specialist Medical Training (SMT) in Occupational Medicine.* Faculty of Occupational Medicine of the RCP to meet the requirements of the European Specialist Medical Qualifications Order 1995 SI No 3208.
8. Appendix II: *Faculty of Occupational Medicine. Curriculum for Specialist Training in Occupational Medicine.* In: Macdonald EB, Ide C, Elder A, editors. *Competencies of Occupational Physicians.* Glasgow: Requirements of Occupational Medicine Training in Europe; 1998.