



The influence of continuous physician education on rising awareness on stroke treatment in Croatia

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Summer Stroke School-Healthy Lifestyle and Prevention of Stroke has been a confident permanent event at the Inter-University Centre (IUC) Dubrovnik (Croatia) for the past twenty-three years (1). It still continues to attract participants as well as lecturers from around the globe. This Course's main aspiration is exchange of knowledge and experiences in neurology, primarily stroke. It encourages cooperation and promotes knowledge and experience exchange on stroke topics among professionals and students. This is a place to share accomplishments as well as fears in prevention, treatment, and outcome of stroke. Summer Stroke School represents a unique continuous event directed towards a narrow field in neurology. Lecturers are represented by a group of experienced and inspiring professionals who willingly forward their prosperous knowledge and long-term experience down to their learners. Knowledge exchange is encouraged throughout the week during discussions and workshops, as well as during organized leisure time which all participants, lecturers and learners are encouraged to spend together. The Course is intended for neurologists, neurology residents, neuroscience research fellows, but also for general practitioners who share our enthusiasm for neurology.

The aim of this report is to show this Course's valuable contribution to better stroke care in Croatia, and on-growing implementation of thrombolysis to most neurology wards as well as to a continuously growing number of Stroke Units in Croatia. We considered a ten year period, from 1999. to 2009. when many changes and novelties were introduced in treatment of stroke. This was the decade of thrombolysis introduction in Croatia, being the most valuable advancement in stroke treatment. We believe this Course has a great influence on implementation of modern treatment approaches for every neurologist in Croatia since almost every neurologist has at some point attended the Course. Also, the Course is regularly attended by many Chief of departments who then pass on the knowledge and daring to start with new treatments without fear. The value of this Course is in informal communication between participants, free and encouraged discussions about successful, as well as unsuccessful treatments, all insecurities, and fears of treatment. Participants form a group of 20 to 40 attendees, which still enables a friendly and encouraging atmosphere for open discussions.

We analyzed the amount of time dedicated to epidemiology, prevention, diagnostics, treatment and outcome of stroke during each year of the Course, as well as number of participants and compared it to the increasing number of thrombolysis throughout the past decade. A ten year period was analyzed.

We came across interesting results. It was noticed that each year following implementation of thrombolysis, their numbers grew continuously. Following a certain period it was done even in small hospitals and towns, it stopped being the treatment »reserved for University Departments«.

This finding wasn't the least bit surprising, knowing that knowledge acquisition is improved by conference attendance (2). Regardless of its name, continuous learning is considered an ethical obligation, and draws roots far in the past (3, 4). Evidence has shown that improved learning positively contributes to healthcare, especially when it is clinically focused (5, 6). Regardless of who is being educated, teachers or students, academic medicine can be improved by paying attention to relevant topics (7). Practice-based small group learning among family physicians has already shown to be successful in Canada, even though their groups were formed by 15 participants, and met more frequently, but for short amounts of time. The feedback was positive and resulted in a growing number of members and international interest (8, 9). Although some investigations point toward ineffectiveness of didactic sessions in changing physician performance (10), other studies show more optimistic results with other types of media and educational techniques (11, 12, 13). Authors point out the effectiveness of live and multiple media over written materials. The review of 105 studies showed that multiple educational techniques showed success in changing learners' performance, and were superior to the amount or frequency of exposure, which showed little effect (11). Summer Stroke School-Healthy Lifestyle and Prevention of Stroke applies interactive techniques from the beginning. As a review of systematic reviews showed a few years ago, this is the most effective approach to acceptance of new more-beneficial care and discontinuation of existing lower-benefit diagnostic and therapeutic interventions (14). Like studies before this one suggest, multimedia and multiple instructional techniques should be used whenever possible (15). The whole learning process of the Course is oriented towards two-way communication, experience exchange through real case reports, and reviewing real life situations with common obstacles of everyday practice. In this case this includes managing an early computerized tomography scan, or overcoming a personnel shortage, and still providing the best care possible. The training gained through five consecutive days greatly contributes to participants' confidence in applying new therapies and introducing them as a novelty to department colleagues. Following lectures are 2 to 3 practice related workshops during the week of the Course. This is the place of intensive learning through discussions and experience exchange. Given enough time, every participant has a chance to resolve some uncertainties through communication with experts. Knowing that learning through practice directed workshops positively changes professional practice (16), this is truly a great way of passing on ideas and turning them into practice only a week later. Introducing evidence and clinical guidelines

into routine practice is difficult, and some studies suggest there is no superior approach (17). Even though workshops have proven to be the most acceptable learning tool for most, some learners may still prefer the old fashioned style. Even if so, there is something to take home for each participant, since this Summer school provides a mixture of learning tools, from lectures to workshops. We always wonder about the message to take home, and which is the proper way of getting the message across. It should be simple-whatever works. Repeating the matter in different ways should reach most participants, in the way closest to them.

The chart showing the increasing number of thrombolysis given in Croatia corresponds to the increasing number of lectures given on thrombolysis, but also to an increasing number of participants (Chart). We noticed two peaks, the first being in the number of lectures given on stroke in 2004. This can be explained by introduction of thrombolysis and medication registration. This represents a period of intensive education and preparation for application of thrombolysis in the region. As hoped, the number of thrombolysis started to grow during the following year. Education on stroke treatment increased during the following years, as did application of thrombolytic therapy, until 2007. when thrombolysis became a routine procedure for most clinicians. This was the first year with less talk on thrombolysis, believing practitioners didn't need to be constantly reminded of what was by then routine practice. But, next years results proved the opposite, because the number of thrombolyses preformed in 2008. dropped rapidly. We agree, this may partly be due to lack of registration of thrombolyses preformed in every center in Croatia. Despite this possibility, we strongly agree that lack of enthusiasm through a larger number of lectures and workshops had a negative influence. Therefore, during the 2009. course, lectures

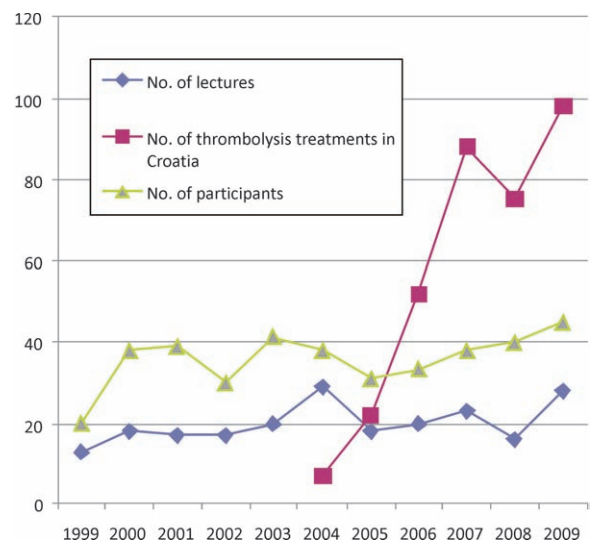


Chart 1. Number of lectures given on stroke (prevention, treatment, diagnosis) during a 10 year period, compared to number of thrombolyses given in the region, as well as number of participants.

were numerous, and so were the thrombolyses that followed. Similar temporary effect of training was observed in educational intervention to improve physician reporting of adverse drug reactions in primary medicine (18).

Even though these numbers may seem small to some readers originating from large countries, please keep in mind Croatia is a small country with less than 4.5 mil. inhabitants, and slightly over 250 neurologists of all ages.

A slight, but not unimportant rise in number of thrombolytic treatments follows two major accomplishments. First in 2001, when first Croatian recommendations for stroke treatment were published, and second in 2006, when they were updated (19, 20). These recommendations are written according to drug availability and possibilities in Croatia. They were published in both languages, therefore being available to Croatian physicians who may not feel comfortable with English language. The reason we consider this connected to the Course is that main authors are regular attendees of this Course, and lead their neurology department encouraging novelties.

REFERENCES

1. DEMARIN V, ROJE BEDEKOVIC M 2009 20th Anniversary of International Course »Summer Stroke School-Healthy Lifestyle and Prevention of Stroke« Inter-University Center, Dubrovnik. Images and memories from first 20 years. Croatian Stroke Society.
2. MCDONALD F S, ZEGER S L, KOLARS J C 2008 Associations of Conference Attendance With Internal Medicine In-Training Examination Scores. *Mayo Clinic Proceedings*.
3. SIDDIQUI Z S 2003 Lifelong learning in medical education: from CME to CPD. *J Coll Physicians Surg Pak* 13(1): 44–47
4. SALIBA G 2008 Continuing medical education: knowledge, know-how and behavior. *J Med Liban* 6(4): 235–241
5. BARMAH J S, BHUGRA D 2009 CDP and recertification: improving patient outcomes through focused learning. *Advances in Psychiatric Treatment* 15: 2–6
6. BATINAC T, PETRANOVIĆ D, DULETIĆ-NACINOVIĆ A, TROSELJ-VUKIĆ B, JELOVČIĆ-BARBIĆ B 2009 Significance of continuous medical education of general practitioners about common diseases-iron deficiency anemia. *Coll Antropol* 33(4): 1191–1196
7. BULC M, SVAB I, RADIC S, DE SOUSA J C, YAPHE J 2009 Faculty development for teachers of family medicine in Europe: reflections on 16 years' experience with the international Bled course. *Eur J Gen Pract* 15(2): 69–73
8. ARMSON H, KINZIE S, HAWES D, RODER S, WAKEFIELD J, ELSMLIE T 2007 Translating learning into practice. Lessons from the practice-based small group learning program. *Can Fam Physician* 53: 1477–1485
9. CANTILLON P, JONES R 1993 Does continuing medical education in general practice make a difference? *BMJ* 318: 1276–1279
10. DAVIS D, O'BRIEN MAT, FREEMANTLE N, WOLF F M, MAZMANIAN P, TAYLOR-VAISEY A 1999 Impact of Formal Continuing Medical Education. Do Conferences, Workshops, Rounds, and Other Traditional Continuing Education Activities Change Physician Behavior or Health Care Outcomes. *JAMA* 282: 867–874
11. DAVIS D, GALBRAITH R 2009 Continuing Medical Education Effect on Practice Performance: Effectiveness of Continuing Medical Education: American College of Chest Physicians Evidence-Based Educational Guidelines. *Chest* 135: 42S–48S
12. RINNERBERGER A, GRAFINGER M, MELCHARDT T, SÖNNICHSEN A 2009 Implementation of evidence based medicine in primary care. *Wien Med Wochenschr* 159 (7–8): 207–10
13. COLLINS J 2009 Lifelong learning in the 21st century and beyond. *Radiographics* 29(2): 613–22
14. BLOOM B S 2005 Effects of continuing medical education on improving physician clinical care and patient health: A review of systematic reviews. *International Journal of Technology Assessment in Health Care* 21(3): 380–385
15. BORDAGE G, CARLIN B, MAZMANIAN P E 2009 Continuing medical education effect on physician knowledge: effectiveness of continuing medical education: American College of Chest Physicians evidence-based educational guidelines. *Chest* 135: 29S–36S
16. O'BRIEN M A, FREEMANTLE N, OXMAN A D, WOLF F, DAVIS D A, HERRIN J 2001 Continuing education meetings and workshops: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2001, Issue 1. Art. No.: CD003030. DOI: 10.1002/14651858.CD003030
17. GROL R, GRIMSHAW J 2009 From best evidence to best practice: effective implementation of change in patients' care. *Lancet* 362: 1225–1230
18. TABALI M, JESCHKE E, BOCKELBRINK A, WITT C M, WILICH S N, OSTERMANN T, MATTHES H 2009 Educational intervention to improve physician reporting of adverse drug reactions (ADRs) in a primary care setting in complementary and alternative medicine. *BMC Public Health* 31(9): 274
19. DEMARIN V, LOVRENCIC-HUZJAN A, SERIC V, VARGEK-SOLTER V, TRKANJEC Z, VUKOVIC V, LUPRET V, KALOUSEK M, DESYO D, KADOJIC D, LUSIC I, DIKANOVIC M, VITAS M 2001 Recommendations for stroke management. *Acta Clin Croat* 40: 127–154
20. DEMARIN V, LOVRENCIĆ-HUZJAN A, TRKANJEC Z, VUKOVIĆ V, VARGEK-SOLTER V, ŠERIĆ V, LUŠIĆ I et al. 2006 Recommendations for stroke management Update, 2006. *Acta clin Croat* 45: 219–285