FACULTY FOCUS
FOR
Rowan-SOM & OPTI faculty

Coming Soon: Faculty Development YouTube Channel and Facebook! Stay tuned! Stay Connected!

In this issue:

- **Why are we so slow to change the way we teach?**
- **Variations of high frequency parameter of heart rate variability following osteopathic manipulative treatment**
- **New** Faculty Wellness: Preventing Physician Burnout from the AMA *(See Attached)*
- **New** Cultural Competency Training: Tips on Working with a Language Interpreter *(See Attached)*
- Cultural Competency Training: Found in Translation - an interview with language services expert Nataly Kelly
- Innovative Teaching Strategy: Teaching Large Groups
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- Free Webinar: Structural Stigma and the Health of Lesbian, Gay, and Bisexual Populations
- Free Webinar: "Professionalism and Communication in Medical Education" by Dr. Dennis Novack

Events and Announcements:

- **Guest Speaker on Tuesday, February 9:** U.S. Drug Enforcement Special Agent Phil Streiker
Some thoughts about change—not so much what to change, as the process of change, offered in light of its slow occurrence.

Yes, lecture is a good example. In a recent survey, 275 econ faculty who teach principles courses reported they lectured 70 percent of the class time, led discussion 20 percent of the time, and had students doing activities for 10 percent of the time. The article cites studies in that field from the mid-'90s reporting similar percentages. Maybe some other fields have changed more, but evidence supports a continuing reliance on lecture in many fields. However, lecture isn’t the only example of where we’re slow to change. Many aspects of teaching—course design, approaches to testing, assignments, and grading—have also changed little. Granted, some faculty do change, a lot and regularly, but not the majority. The question is, “Why?” Here are some possibilities I’ve been considering.

Change is harder than we think. We are so vested in our teaching, and, like our students, we are error averse. Try something new, and there’s a risk of failure. There’s risk with what we do every day, but it feels safer to go with the tried and true. And most of the time, what’s new has to be revised, tweaked, and further refined. First time through, it doesn’t go as smoothly as what we’re used to doing.

The work in cognitive psychology on the use of deliberate practice to develop expertise is relevant here. It’s practice with specific characteristics: it involves difficult tasks that
require focus and effort to achieve. Developing expertise also involves work on specific components of the task. There is a need for feedback from a coach with the ability to analyze the performance and propose how it can be improved. And the learner must reflect on both the performance and the feedback. As the name implies, deliberate practice means planned, purposeful practice, a consistent and concerted effort to improve.

Faculty tend to underestimate the complexity involved in changing teaching. They approach it with a Nike “just do it” attitude. That can-do attitude is spot-on, but the approach to change is too often piecemeal and reactive. “Oh, that sounds like a good idea. I’ll try that.” Or “Gee, that might be a potential fix,” for whatever problem is occurring. The hodge-podge infusion of new techniques, interesting ideas, and promising strategies circles around effective teaching rather than moving toward it with a map and designated route.

The “just do it” approach implies implementation before consideration of goals—what the change will accomplish and how to figure out whether it does. A range of issues bear on the challenges of assessing change. Many of us have unrealistic expectations for success. We want the change to work perfectly right from the start and be a “top 10” learning experience for every student and in every course. We are noble in our aspirations but unrealistic about outcomes. Instructional changes don’t work perfectly, we discover. But then, how often do we assess the results beyond our view of how it went down? In private we question our ability; in public we pin problems on the approach and/or students.

We make change harder by going it alone. Do we discuss details with anyone beforehand? Do we contemplate the possibility of a coach or mentor? Do we solicit feedback from students? I’m thinking that more often we implement and assess changes in isolation.

Uncomfortable with the implementation and disappointed in the results, we give up on the change, which rounds back to how vulnerable failure makes us feel. Wieman and Gilbert describe a large grant-funded project that involved the implementation of changes in 160 courses. They report that “roughly 100 hours” of practice were needed to switch to using new teaching methods effectively. I’m not sure how that figure was derived, but it makes clear that trying something on the fly once or twice is not likely to have the enduring effects we envision.

How we make changes isn’t the only reason so much of what’s done in the classroom stays the same, but it’s a reason we can do something about.

Variations of high frequency parameter of heart rate variability following osteopathic manipulative treatment in healthy subjects compared to control group and sham therapy: randomized controlled trial


**Context:** Heart Rate Variability (HRV) indicates how heart rate changes in response to inner and external stimuli. HRV is linked to health status and it is an indirect marker of the autonomic nervous system (ANS) function.

**Objective:** To investigate the influence of osteopathic manipulative treatment (OMT) on cardiac autonomic modulation in healthy subjects, compared with sham therapy and control group.

**Methods:** Sixty-six healthy subjects, both male and female, were included in the present 3-armed randomized placebo controlled within subject cross-over single blinded study. Participants were asymptomatic adults (26.7 ± 8.4 y, 51% male, BMI 18.5 ± 4.8), both smokers and non-smokers and not on medications. At enrollment subjects were randomized in three groups: A, B, C. Standardized structural evaluation followed by a patient need-based osteopathic treatment was performed in the first session of group A and in the second session of group B. Standardized evaluation followed by a protocoted sham treatment was provided in the second session of group A and in the first session of group B. No intervention was performed in the two sessions of group C, acting as a time-control. The trial was registered on clinicaltrials.gov identifier: NCT01908920.

**Main Outcomes Measures:** HRV was calculated from electrocardiography before, during and after the intervention, for a total amount time of 25 min and considering frequency domain as well as linear and non-linear methods as outcome measures.

**Results:** OMT engendered a statistically significant increase of parasympathetic activity, as shown by High Frequency power ($p < 0.001$), expressed in normalized and absolute unit, and possibly decrease of sympathetic activity, as revealed by Low Frequency power ($p < 0.01$); results also showed a reduction of Low Frequency/High Frequency ratio ($p < 0.001$) and Detrended fluctuation scaling exponent ($p < 0.05$).

**Conclusions:** Findings suggested that OMT can influence ANS activity increasing parasympathetic function and decreasing sympathetic activity, compared to sham therapy and control group.
Interpreters for spoken and signed languages can be found in the halls of hospitals throughout the world. Written translations are used on a daily basis to communicate with linguistically diverse patient populations. But how much do you really know about the importance of translation and interpreting in everyday life? In this webinar, Nataly Kelly shared useful information and fascinating stories about translation and interpreting in health care, the future of technology, and other facets of this vital field. For example, did you know that a special type of machine translation is preventing public health outbreaks, right this very minute? Or, did you know that crowdsourced translation saved countless lives after the Haiti earthquake? Likewise, human lives can be at risk when translation goes awry.

This interactive webinar started with a 30-minute interview portion, led by Julia Puebla Fortier, followed by 30 minutes for a live Q&A session, during which Ms. Kelly was be glad to answer questions about the book, the fields of translation and interpreting in general, and healthcare-specific questions.

Presenter Bios:

Nataly Kelly
Nataly Kelly has worked in the language services industry since 1996 as a certified court interpreter, freelance translator, and a member of upper management of some of the world’s largest translation and interpreting suppliers, including Language Line Services. She is fluent in Spanish and English, and has also studied French, Italian, German, Arabic, and Japanese.
Her latest book is Found in Translation: How Language Shapes Our Lives and Transforms the World (Perigee/Penguin USA). She is also the author of Telephone Interpreting, the first book ever written on the topic.

In her work at Common Sense Advisory, Nataly oversees the company's research services. She is responsible for production of the company's research deliverables and acts as the main point of contact for research-related matters. Her research and insight are cited in numerous media outlets, including BusinessWeek, New York Times, NPR, Wall Street Journal, among others. She has served as an invited speaker on the language industry for the European Commission, and was a member of the National Project Advisory Committee for a web-based training program for culturally and linguistically appropriate services offered through the U.S. Department of Health and Human Services Office of Minority Health.

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**TEACHING LARGE GROUPS**

*Article By Peter Cantillon*

“The successful teacher is no longer on a height, pumping knowledge at high pressure into passive receptacles . . . he is a senior student anxious to help his juniors.”

William Osler (1849-1919)

Lecturing or large group teaching is one of the oldest forms of teaching. Whatever their reputation, lectures are an efficient means of transferring knowledge and concepts to large groups. They can be used to stimulate interest, explain concepts, provide core knowledge, and direct student learning. However, they should not be regarded as an effective way of teaching skills, changing attitudes, or encouraging higher order thinking. Large group formats tend to encourage passive learning. Students receive information but have little opportunity to process or critically appraise the new knowledge offered. How can lectures be used to maximise learning and provide opportunities for student interaction?

This article will supply some of the answers and should help you to deliver better, more interactive lectures.

*Please See Attached*
ROWAN SOM BLACKBOARD PRESENTATION:
Performing Effective Searches - Janette Pierce, MS, AHIP

This webinar can be accessed through the RowanSOM Faculty Development Blackboard page: https://rowansom.blackboard.com.

To access them,

1. Log into Blackboard.

2. You will be required to log in using your Rowan ID.

3. Click on “RowanSOM Faculty Development Resources”

4. Click on “Teaching Essentials Webinar series”.

If this course is not visible once you log into Blackboard, or if you need assistance accessing these Webinars, please contact Elizabeth Cronin at cronine@rowan.edu. If you are a volunteer faculty member and need a RowanID, please contact Jan Skica at skica@rowan.edu.

WEBINAR FROM THE AMERICAN ACADEMY ON COMMUNICATION IN HEALTHCARE
"PROFESSIONALISM AND COMMUNICATION IN MEDICAL EDUCATION" BY DR. DENNIS NOVACK

Healthcare communication teaching, assessment and research is reaching maturity after over three decades of intense work. In recent times, medical educators have begun to understand the importance of focusing on professionalism. The lessons from the work of AACH members and others have broad applicability in the emerging field of
professionalism education, assessment, remediation and research. Dr. Novack will highlight the major advances in field of healthcare communication and discuss their applicability to promoting the professional growth of medical students and residents.

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**FREE WEBINAR FROM THE NATIONAL LGBT HEALTH EDUCATION CENTER**

The National LGBT Health Education Center provides educational programs, resources, and consultation to health care organizations with the goal of optimizing quality, cost-effective health care for lesbian, gay, bisexual, and transgender (LGBT) people.

Feb 11, 2016 1:00 pm: **Structural Stigma and the Health of Lesbian, Gay, and Bisexual F**

*Presented by Mark L. Hatzenbuehler, PhD, Associate Professor, Department of Sociomedical Sciences, and Co-Director, Center for the Study of Social Inequalities and Health, Columbia University Mailman School of Public Health*

[Register Here!](#)

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**GUEST SPEAKER! YOU’RE INVITED!**
“Pharmaceutical Diversion and the DEA,” a lecture and Q&A session with U.S. Drug Enforcement Special Agent Phil Streiker, on Tuesday, February 9, from 8 – 9:30 a.m., in the Multi-Purpose Room of the Academic Center.

SAVE THE DATE!
As you know, one of the main ingredients to achieving success in medical school is strong mentorship; someone who has walked this path and can share their wisdom with a medical student to make their journey better. At SOM, we have the D.O.C.’s (D.O.’s Counseling students) program and are in need of physician mentors to pair with our students! This is a great way to engage
with students who are following in your footsteps. It’s easy to participate and a small investment in time can make a world of difference in a student’s life. For more information and to register, visit: SOM D.O.C.s program.
I AM THE DREAM: THE PAST, PRESENT AND FUTURE

Keynote Speaker

Regina Benjamin, MD
EIGHTEENTH SURGEON GENERAL OF THE UNITED STATES
Transgender Medicine Symposium

Robert Win, MD
Medical Director
Mazzoni Center

Christine McGinn, DO
Plastic and Reconstructive Surgeon
Papillon Center

Dr. Rachel Levine, MD
Physician General
Commonwealth of Pennsylvania
Professor of Pediatrics and Psychiatry
Penn State College of Medicine

A.C. Demidoff, MD
Infectious Disease Specialist
Circle Care Center

John H. Turo, MD
Professor of Medicine
Geisel School of Medicine,
Dartmouth College

Timothy Cavanaugh, MD
Medical Director
Fenway Health’s Transgender Health Program

Norman P. Spack, MD
Director, Gender Management Services
Assistant Professor, Harvard Medical Center

Sherman Leis, DO
Surgeon, Professor Lecturer and Founder
Philadelphia’s Center for Plastic and Reconstructive Surgery

Anne I. Koch, DMD
Founder and Past Director
Postdoctoral Program in Endodontics
Harvard School of Dental Medicine

Maureen O’sbame, Ph.D.
Psychologist Specializing in Gender Identity Issues

CME’s will be recorded.
For more information please contact...
NEW TOOL!

Library Offers

Proofreading and Editing Service

Students, faculty and staff are invited to take advantage of a new proofreading/editing service at the Health Sciences Library. Any student, staff or faculty member may request help with their own writing. We also encourage faculty to refer students who could benefit from this kind of assistance.

This service can be tailored to your needs, whether you just want someone to proofread for grammar and punctuation or require complex editing assistance. It is available for all levels of writing: student papers, conference presentations and articles being submitted for publication (we can help you find manuscript requirements, too).

Turnaround time is negotiable, depending on the complexity of service requested, but we anticipate an average of 3-5 business days. In-person consultation by appointment is preferred, with prior e-mail submission for review.

The primary contact for this service is Lisa Price. She holds a BA in Spanish and English (Communications) and worked as an advertising copywriter before earning her MS in Library Science. Throughout her career, she has produced numerous newsletters and desktop publications. Known among Library staff as having a passion for clear, grammatically correct writing, she is excited about sharing her expertise with the Stratford campus community.

For more information or to schedule an appointment, please contact Lisa Price at 856-566-6765 or via e-mail at priceL2@rowan.edu.
NEW FACULTY ORIENTATION
TUESDAY, MARCH 15, 2016

We want to officially welcome you to the Rowan University School of Osteopathic Medicine! To help acquaint new faculty members with the School of Osteopathic Medicine, the Center for Teaching and Learning (CTL) holds a New Faculty Orientation program in March and September each year. We invite you to attend our next orientation program, which will be held on **Tuesday, March 15, 2016 rom 8:45AM to 1:00PM**. Even if you have spent a few months here at SOM already, we are certain that you will find this session informative.

The workshop will begin with a continental breakfast at 8:45 a.m. in the Academic Center-Dean's Conference Room (3rd floor), followed by the orientation sessions. We will provide lunch in the afternoon, and our program will finish by 1:00pm. This schedule will allow you to attend to other important personal and academic concerns while providing you with information crucial to navigating your first year. I will be available to assist you one-on-one that day, if you have additional questions. An agenda will be forwarded upon your confirmation of attendance.

This half-day session is only the beginning of your orientation. The Center for Teaching and Learning will offer short seminars throughout the year for new faculty, providing more in-depth information about a variety of topics and issues our faculty have told us are important in making decisions regarding your teaching, scholarship, and service.

Please contact Colleen Rucci in the Center for Teaching and Learning (856-566-6734) or at ruccicd@rowan.edu) by February 20, indicating whether or not you are able to attend. Please do not hesitate to contact either Colleen or me if you have any special needs, dietary restrictions, or require any other assistance.

We are looking forward to formally meeting our new colleagues!
Diverse Voices, Common Vision: Fostering Effective Healthcare Communication through Inclusion
June 16-19, 2016
Yale University | New Haven, CT

The American Academy on Communication in Healthcare (AACH) is combining the ENRICH course and Research and Teaching Forum programs for the first time in summer 2016! Forming this joint meeting strengthens the sense of community across researchers and teachers in the field of healthcare communication.

Joint Sessions: ENRICH and Forum participants will convene for joint keynote sessions, special interest groups, and a poster session, fostering interaction and connection with a wide variety of healthcare communication colleagues.

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ACCESS TO KAPLAN COMLEX PREP MATERIALS

RowanSOM faculty members can now access the online Kaplan COMLEX Level 1 and Level 2CE prep materials that SOM students use to prepare for these exams. You can access your account at www.kaplanmedical.com with the following log in details:

Username: access@rowan.edu
Password: kaplan

Be sure to click "show more courses" at the bottom of the account page to reveal the full list of courses you have access to.

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SMALL GROUP FACILITATORS NEEDED
Small groups are an integral part of our second year curriculum. The Department of Academic Affairs is in need of faculty volunteers who would be willing to facilitate one or several of these groups on the following dates:

**Women’s Health**
Monday, February 22, 2016 1-3pm and 3-5pm  
Thursday, February 25, 2016 1-3pm and 3-5pm  
Monday, February 29, 2016 1-3pm and 3-5pm  
Wednesday, March 2, 2016 1-3pm and 3-5pm

**Pediatrics**
Monday, April 4, 2016 1-3pm and 3-5pm  
Thursday, April 7, 2016 1-3pm and 3-5pm  
Monday, April 11, 2016 1-3pm and 3-5pm  
Tuesday, April 12, 2016 1-3pm and 3-5pm

If you are interested in volunteering, please contact Sterling Crawford (overtost@rowan.edu) as she coordinates these groups. If you are a new volunteer, please also email Elizabeth Cronin (cronine@rowan.edu) who will contact you to arrange a brief introduction and training session, which can be scheduled at your convenience.

Thank you to those who have volunteered thus far! Your time is valued and appreciated!

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**FACULTY SUPPORT SERVICES AT CTL**

[CLICK HERE TO VIEW OUR FACULTY DEVELOPMENT WEBSITE](#)

The Center for Teaching & Learning (CTL) at RowanSOM is here to help with specific Faculty Development program and/or site needs. Please contact us for one-on-one consultations, workshops and seminars, and specific educational materials. Please [e-mail](#) your faculty or professional development request with the following information:

1. Specific topic and learning objective(s)
2. Target audience and number of participants
3. Format (one-on-one live or e-mail or audio/videoconference), workshop/seminar (live or videoconference), or educational materials
4. Target date and time
5. Your contact information
Variations of high frequency parameter of heart rate variability following osteopathic manipulative treatment in healthy subjects compared to control group and sham therapy: randomized controlled trial

Nuria Ruffini¹,², Giandomenico D’Alessandro¹,², Nicolò Mariani¹, Alberto Pollastrelli¹, Lucia Cardinali¹,² and Francesco Cerritelli²*

¹ Research Department, Accademia Italana Osteopatia Tradizionale, Pescara, Italy, ² Clinical-based Human Research Department, Centre for Osteopathic Medicine Collaboration, Pescara, Italy

Context: Heart Rate Variability (HRV) indicates how heart rate changes in response to inner and external stimuli. HRV is linked to health status and it is an indirect marker of the autonomic nervous system (ANS) function.

Objective: To investigate the influence of osteopathic manipulative treatment (OMT) on cardiac autonomic modulation in healthy subjects, compared with sham therapy and control group.

Methods: Sixty-six healthy subjects, both male and female, were included in the present 3-armed randomized placebo controlled within subject cross-over single blinded study. Participants were asymptomatic adults (26.7 ± 8.4 y, 51% male, BMI 18.5 ± 4.8), both smokers and non-smokers and not on medications. At enrollment subjects were randomized in three groups: A, B, C. Standardized structural evaluation followed by a patient need-based osteopathic treatment was performed in the first session of group A and in the second session of group B. Standardized evaluation followed by a protocoled sham treatment was provided in the second session of group A and in the first session of group B. No intervention was performed in the two sessions of group C, acting as a time-control. The trial was registered on clinicaltrials.gov identifier: NCT01908920.

Main Outcomes Measures: HRV was calculated from electrocardiography before, during and after the intervention, for a total amount time of 25 min and considering frequency domain as well as linear and non-linear methods as outcome measures.

Results: OMT engendered a statistically significant increase of parasympathetic activity, as shown by High Frequency power ($p < 0.001$), expressed in normalized and absolute unit, and possibly decrease of sympathetic activity, as revealed by Low Frequency power ($p < 0.01$); results also showed a reduction of Low Frequency/High Frequency ratio ($p < 0.001$) and Detrended fluctuation scaling exponent ($p < 0.05$).
Conclusions: Findings suggested that OMT can influence ANS activity increasing parasympathetic function and decreasing sympathetic activity, compared to sham therapy and control group.

Keywords: osteopathic medicine, heart rate variability, high frequency, healthy subjects, smoking, autonomic nervous system, parasympathetic effect

Introduction

Heart rate, one of the most variable organism’s phenomena, corresponds to a number of heart beats per minute. Heart rate variability (HRV) is the variation of the consecutive RR interval period (Aa.Vv., 1996; Kara et al., 2003; Freeman et al., 2006), where R is a point corresponding to the QRS complex peak of the electrocardiogram wave, related to left ventricle depolarization. Its variability, depending on metabolic (inner) and environmental (external) stimuli (Caruana-Montaldo et al., 2000; Henley et al., 2008; Routledge et al., 2010), is responsible of maintaining homeostasis. HRV can be influenced by several factors, such as intrinsic variability of sinoatrial node (Ponard et al., 2007), neurohormonal hematic fluctuation (Galetta et al., 2008), circadian rhythm (Huikuri et al., 1990; Bonnemeier et al., 2003; Cavallari et al., 2010), and autonomic nervous system (ANS) activity. HRV is considered an indirect proxy of ANS function (Aa.Vv., 1996; Porta et al., 2001; Malliani and Montano, 2002; Pumplra et al., 2002; Freeman et al., 2006; Kemp et al., 2012), as parasympathetic and sympathetic activity regulates cardiac rate and inotropism. These branches respectively lead to a reduced or increased efficiency of the cardiovascular pump, modifying, therefore, HRV parameters (Aubert et al., 2003; Guyton and Hall, 2006). To quantify the sympathetic and parasympathetic activities, several HRV indices and methods are used. The most common are the frequency domain indices—low frequency (LF) and high frequency (HF)—and the ratio between LF/HF.

Among the external factors able to influence HRV-values, smoking has been demonstrated to be particularly strong (Minami et al., 1999; Pope et al., 2001). A study conducted in 1999 by Minami et al. investigated the effect of smoking cessation on HRV and other cardiovascular indices (Minami et al., 1999). Results showed that smoking cessation significantly decreased the high frequency (HF) component throughout a 24-h period, indicating that in habitual smokers, parasympathetic nervous system is altered. HRV parameters have been linked, also, to health status (Karemaker and Lie, 2000).

In addition to traditional medicine, also complementary and alternative medicines (CAM) have been starting to use HRV variations to understand how different therapeutic approaches, like homeopathy (Mishra et al., 2011), massage (Lee et al., 2011), acupuncture (Haker et al., 2000; Li et al., 2003; Litscher, 2009, 2010; Arai et al., 2011; Anderson et al., 2012; Huang et al., 2012; Litscher et al., 2012), auricular acupuncture (Gao et al., 2012) can influence health status.

Among CAM, osteopathic medicine is a form of drug-free non-invasive manual medicine. It relies on manual contact for diagnosis and treatment. Osteopaths use a wide variety of tests to locate the somatic dysfunction (SD) (ICD-10CM Diagnosis Code M99.09-09). Diagnostic criteria are focused on tissue abnormality and tone. Areas of asymmetry, misalignment of bony landmarks and the quality of motion are evaluated. Osteopathic care is based on two phases: structural evaluation and treatment. The structural evaluation aims to locate SDs using a well-established sequence of structural tests. The treatment currently encompasses more than 20 types of manual techniques and has the scope to treat SDs.

In osteopathy, Henley’s work (Henley et al., 2008) examined HRV changes in healthy subjects receiving osteopathic manipulative treatment (OMT) compared to control and sham therapy groups after tilt test. Low frequency expressed in normalized unit (nuLF) significantly increased in the control and sham groups compared to OMT group when subjects move from horizontal to head-up tilt. After the application of OMT, nuLF increased significantly less in the head-up position than in control and sham groups. Contextually high frequency, measured in normalized units, (nuHF) was significantly lower in OMT group compared to sham and control. Moreover, OMT group occurred to have a lower LF/HF ratio in the head-up tilt phase after intervention compared to sham and control groups.

In 2013, another osteopathic study (Giles et al., 2013) investigated the effect of sub-occipital decompression (a specific cranium-sacral technique) on HRV indices in healthy subjects, showing an increase of absolute HF and a decrease of LF/HF ratio, compared to sham therapy and control groups. However, several limitations could be pointed out leading to lack of clinical generalizability of findings. Firstly, both research focused on a single session without investigating the long term variations of HRV parameters. Secondly, smokers were not included in Henley’s study, while in Giles’ one no information was provided about smoking. Finally a single standard, pre-determined technique was administered in both studies not considering usual clinical care procedures. The present trial, therefore, aimed to investigate the effect of OMT on ANS using HRV as a primary outcome measure.

Materials and Methods

Primary outcome of this randomized placebo controlled within subject cross-over single blinded study was to explore the extent to which OMT changed nuHF-value, compared to sham therapy and control group. Secondary outcomes were baseline changes in nuLF, LF/HF ratio and Detrended fluctuation scaling exponent (DFAa1), HF absolute power (nuHF measured in absolute units; i.e., ms²).
Population
Asymptomatic healthy adults, of either gender, were considered eligible for the study. Inclusion criteria applied were: age between 18 and 45 years; absence of chronic pain or acute symptomatology during the last 72 h before the session; no diagnosed pathology.

Exclusion criteria were: pregnancy; menopause; menstrual flow during the session; alcoholism; alcohol abuse 48 h prior to the session; chronic pain; diagnosis of pathological condition; chronic drug treatment; use of medications and drugs during the last 72 h; use of orthotic devices during the last 3 months; medical history of surgical interventions; last OMT at least 3 months before the session.

Volunteers from different universities were recruited from May 01, 2013 to July 31, 2013 through e-mail, phone, direct contact and leaflet/posters. The latter were posted at Accademia Italiana Osteopatia Tradizionale (AIOT) and at an osteopathic clinical center inviting people to call a phone number managed by the recruitment supervisor.

Informed consent was read and signed by each volunteer at the beginning of the first session. The trial was approved by the institutional review board of AIOT. The trial was registered on clinicaltrials.gov identifier: NCT01908920.

Experimental Protocol
Subjects were divided and randomized into three groups using “permuted block” randomization method (block size equal to 3), formulated by the statistical software R v.2.15.1 (R Developmental Core Team, 2010) and stratified by smoking. A ternary sequence (0, 1, 2) was used to allocate subjects into groups A–C (Figure 1).

First session was rescheduled if the subject presented at least one of the following exclusion criteria: acute pain in the last 72 h, assumption of any medicine or drug in the 72 h before the session, menstrual flow during the intervention day, alcohol abuse in the last 48 h. Subjects were considered drop-out in case of nonattendance at the second session.

Subjects allocated to treatment groups A and B received both an OMT and a sham therapy session at different time points on the basis of the cross-over design. At the first session group A received OMT while group B received sham treatment. At the second session group A received sham treatment whilst group B received OMT. Group C was used as time control thus neither treatment nor sham therapy were provided in both two sessions (Figure 1).

Evaluations and treatments were performed in the same room, with stable temperature and humidity, to avoid any influence on ANS activity. Moreover, the 2 weekly sessions were scheduled at the same hour to control for circadian rhythm.

The OMT intervention consisted in a patient’s need based treatment, thus no pre-determined protocol was applied. Osteopathic session lasted 25 min, 10 min for evaluation and 15 min for treatment. Techniques used in the present study were left at the discretion of the operator but limited to balance ligamentous techniques, balance membranous techniques and cranio-sacral techniques (Magoun, 1976).

For this trial, sham therapy mimicked the osteopathic care, based, therefore, on structural evaluation and treatment. The sham evaluation overlapped the osteopathic structural evaluation procedure in terms of tests and time. The sham treatment consisted in contacting an established sequence of anatomical areas for 2 min each: right ankle, left knee, right hip, diaphragm, right shoulder, neck, cranium. The operator mentally counted from 120 to 0 for each area to prevent placebo autonomic activation (Meissner, 2011). Sham session lasted 25, 10 min for evaluation and 15 min for treatment.

All interventions were performed by four osteopaths with the same educational curricula assigned randomly to group A or B. Each osteopath was responsible for the same patient from enrollment to the end of the study.

Control group sessions were managed by one operator in charge of data collection, no osteopaths were present.

Osteopaths were blinded to the study design, outcome and HRV data. Two external operators were in charge of randomization and data collection. Both were blinded to the study design and outcome, as well as allocation. All data collected was examined by an external statistician, who was blinded of randomization, allocation and study design. Subjects were blinded to study design, outcome and the type of intervention received.

Data Analyses
Data was collected through a socio-demographic form and a HRV detector system Flexcomp (http://www.righetto.biz/Biofeedback/flexcomp_infiniti.htm). The latter is composed of a plethysmograph put on the third finger of the left hand, two cutaneous conductance detectors on the second and fourth left fingers and two stripes positioned around the thorax and the abdomen to control lung ventilation. R–R intervals were extracted from ECG (256 Hz sample rate) using Physiology Suit software (www.thoughttechnology.com/physsuite) and imported in Kubios software (http://kubios.uef.fi) to calculate all HRV parameters considered in the present trial. RR series of 300 cardiac beats were analyzed. Only one sequence was analyzed in each condition. If more than 300 RR-values were recorded, a sequence of 300 beats was selected randomly inside the period of analysis. If less than 300 RR-values were recorded, all the values were analyzed.

HRV analysis method, based on processing recorded RR intervals, was divided into linear analysis (time and frequency domain) and nonlinear analysis (Aubert et al., 2003). From power spectra (Fast Fourier transformation using Blackman Harris window) of equidistant linear interpolated (4 Hz) tachograms (resampled to 2 Hz) the following frequency domain standard HRV indices were considered for linear analysis: absolute HF and m0HF, from 0.15 to 0.4 Hz, is a signal of parasympathetic modulation on heart rate (Aa.Vv., 1996; Berntson et al., 1997; Taylor et al., 1998); absolute LF and m0LF component, from 0.04 to 0.15 Hz bandy (Lane et al., 2009). LF/HF ratio is showed to be a reliable marker of ANS balance (Pagani et al., 1986; Malliani et al., 1991). DFA is considered for nonlinear analysis. DFA is a proxy of the parasympathetic function, it is considered more sensitive (Kemp et al., 2010, 2012) and able to catch the long term correlations and complexity in RR interval series (Peng et al., 1993). The DFA method detected long-range correlations between inter-beat intervals separated by
several beats by investigating the scaling behavior of the heartbeat fluctuations on different time scales. A detailed description of the DFA algorithm and its underlying theory for the analysis of neuronal oscillations was pertinently presented by Hardstone et al. (2012). A fractal structure of heart rate was quantified by estimating a short-term (a1, short-term fluctuations, obtained from the range $4 \leq n \leq 16$) and a long-term (a2, long-term fluctuations, obtained from the range $16 \leq n \leq 64$) scaling exponent by DFA.

At enrollment, subjects completed the socio-demographic form. For each session, a paradigm was developed consisting of 4 conditions: (1) 5 min no hands-on for baseline assessment; (2)
HRV records were performed at (1), (3), and (4). Subjects were instructed to keep still, eyes closed and in silence during the three recording steps.

Statistical Analysis
Sample size was computed considering a correlation coefficient among repeated measure of 0.15, an effect size of 0.3, a type-one error of 0.05 and a power of 0.80. The final sample \( n = 51 \) (17 per group) was additionally increased up to 60 to prevent loss of power.

A per protocol analysis was performed in the present trial. Stationary was assessed using the RWS test \((\text{Porta et al., 2004})\), which checks if mean and variance remain constant over \( M \) patterns. Given a series of \( RR \), the first step was to use Kolmogorov Smirnov goodness-of-fit test to evaluate the normality of the distribution \((p < 0.05)\). If non-normal distribution resulted, a log transformation was applied and normality retested. If data was still non-normally distributed, then it was finally rejected. The next step was to test normality along \( M \) patterns, which are randomly selected from a set of sequences of length \( I \) \((\text{Porta et al., 2004})\). To test the stability of the mean an ANOVA was performed, otherwise Kruskal–Wallis test. To test the stability of the variance, Barlett test was used if data was normally distributed otherwise Levene’s test using the median was adopted.

A descriptive analysis of the population was performed at the baseline using arithmetic means, medians, standard deviations and standard errors. Univariate statistical tests used chi square test for establishing differences among categorical variables, such as gender, OMT, and smoking. Results were expressed in percentage.

At baseline, One-Way ANOVA was used to analyze continuous variables, such as age, BMI, auHF, auLF, nuLF, nuHF, LF/HF ratio, and DFAa1. Tukey post-hoc analysis was used to explore any statistical difference resulted from ANOVA.

Mixed effect regression (MER) model considering random effect for osteopath and a fixed effect for period was used to determine dependent variables differences between groups. Post-hoc pairwise analysis adjusted by Holm-Bonferroni correction was used to explore any statistical difference resulted from MER. Sensitivity analyses were performed according to smoking and session.

Effect size was computed using Cohen’s \( d \) to show any clinical effect of OMT compared to sham therapy and control group. Statistical significance was based on a probability level at less than 0.05. All analyses were performed using R v 2.15.01.

Results
Out of 97 volunteers, 66 were included in the study and randomized. Nine subjects dropped out and consequently 57 completed the study \((\text{Figure 1})\). None of the subject enrolled recorded less than 300 cardiac cycles at any study condition.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Baseline values of osteopathic manipulative treatment (OMT), Sham, and Control groups.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OMT</td>
</tr>
<tr>
<td>Age*</td>
<td>26.5 ± 8.8</td>
</tr>
<tr>
<td>BMI*</td>
<td>18.9 ± 8.8</td>
</tr>
<tr>
<td>Male§</td>
<td>10 (53)</td>
</tr>
<tr>
<td>Previous OMT§</td>
<td>5 (26)</td>
</tr>
<tr>
<td>Smoking§</td>
<td>7 (37)</td>
</tr>
<tr>
<td>auHF*</td>
<td>1391 ± 1850</td>
</tr>
<tr>
<td>nuHF*</td>
<td>47.12 ± 26.36</td>
</tr>
<tr>
<td>auLF</td>
<td>1138 ± 676</td>
</tr>
<tr>
<td>nuLF*</td>
<td>54.34 ± 28.37</td>
</tr>
<tr>
<td>DFAa1*</td>
<td>1.05 ± 0.33</td>
</tr>
<tr>
<td>LF/HF*</td>
<td>2.34 ± 2.6</td>
</tr>
</tbody>
</table>

Numbers in table are: *mean ± sd, §n (%), p-values from *ANOVA and Schi square test.

The RWS revealed a stationarity of mean and variance. At enrollment, One-Way ANOVA did not reveal any statistically significant imbalance among OMT, sham and control, in terms of age, BMI, gender, previous OMT experience, smoking, auHF, nuHF, auLF, nuLF, DFAa1, and LF/HF ratio values \((\text{Table 1})\). Among the 38 participants receiving sham and OMT interventions, the percentage of subjects able to correctly guess which treatment they received did not differ \((\text{session 1}: 16\% \text{ OMT} \text{ vs.} 21\% \text{ Sham}, p = 0.68; \text{ session 2:} 31\% \text{ OMT} \text{ vs.} 26\% \text{ Sham}, p = 0.72)\).

Primary Outcome
MER showed a statistically significant difference between groups on the primary outcome \( \text{nuHF} \) \((p < 0.001)\) \((\text{Figure 2B})\). Tukey post-hoc analysis revealed that OMT group significantly increased \( \text{nuHF} \)-values compared to sham \((p < 0.01)\) and control group \((p < 0.001)\). Sham therapy did not show any significant modification of \( \text{nuHF} \)-values compared to control group \((p = 0.44)\). OMT had a medium effect size compared to sham therapy \((d = 0.38)\) and control group \((d = 0.49)\).

Secondary Outcome
Low Frequency
\( \text{auLF} \) analysis showed a statistically relevant difference between groups \((p < 0.01)\) \((\text{Figure 2D})\). Tukey analysis demonstrated that OMT significantly decreased \( \text{auLF} \)-values compared to sham \((p < 0.05)\) and control \((p < 0.001)\). No similar results were shown for sham and control \((p = 0.40)\).

Detrended Fluctuation Scaling Exponent (DFAa1)
DFAa1 was statistically different between groups \((p < 0.05)\) \((\text{Figure 2C})\). Post-hoc analysis showed that OMT significantly decreases DFAa1-values compared to control \((p < 0.001)\) but it was almost significant compared to sham therapy \((p = 0.09)\). Moreover, sham therapy significantly lowered DFAa1 compared to control group \((p = 0.05)\). Effect sizes were small \((\text{OMT vs. sham group}: d = 0.22)\) and medium \((\text{OMT vs. control}: d = 0.51; \text{ sham vs. control}: d = 0.30)\).
Low Frequency/High Frequency Ratio
Statistically significant decrease of LF/HF ratio was observed between groups ($p < 0.001$) (Figure 2E). Tukey post-hoc analysis showed that OMT scored significantly better than sham therapy ($p < 0.001$) and control ($p < 0.001$).

Sham therapy did not show any statistical association compared to control group ($p = 0.40$).

High Frequency—Absolute Unit
$au_{HF}$ showed statistically significant differences between groups ($p < 0.01$) (Figure 2A). Post-hoc analysis demonstrated that in
the OMT group a significant increase was revealed compared to sham and control \((p < 0.001)\).

**Sensitivity Analysis**
Sensitivity analyses were performed taking into account smoking and sessions.

Stratifying by smoking, results showed statistically significant baseline differences in the OMT group for the parameters measured: HF(au), HF(nu), LF, LF/HF ratio, \(\text{DFA}_{1}\), and \(\text{DFA}_{2}\). Each of these parameters demonstrated a relevant increase in OMT group compared to sham and control \((p < 0.001)\). In more detail, OMT significantly changed baseline values in all HRV parameters measured \((p < 0.01)\). Sham therapy and time control groups did not demonstrate any valuable change.

The first and second sessions of OMT led to an increase of HF(au), HF(nu), LF, LF/HF ratio, \(\text{DFA}_{1}\), and \(\text{DFA}_{2}\) compared to baseline values in smokers and non-smokers as showed in Figures 3 and 4. In more details, OMT significantly changed baseline values in all HRV parameters measured \((p < 0.01)\). Sham therapy and time control groups did not demonstrate any valuable change.

The first and second sessions of OMT led to an increase of HF(au), HF(nu), LF, LF/HF ratio, \(\text{DFA}_{1}\), and \(\text{DFA}_{2}\) compared to baseline values (Figures 5, 6, etc.)
statistically significant at $p < 0.01$). Sham therapy and time control group did not reveal variations compared to baseline values.

**Adverse Events**

No adverse events were reported during the trial.

**Discussion**

The present trial showed that OMT modifies ANS activity through modulating the parasympathetic functioning of healthy subjects compared to sham therapy and control groups. Statistically significant changes were revealed during the...
treatment period. This clinical study used a larger sample size to confirm previous findings showing that OMT can globally influence the tonic activity of ANS (Henley et al., 2008; Giles et al., 2013). However, several differences can be highlighted between former studies and this trial. Henley used an additional tilt test to evaluate HRV variations in response to an environmental stress. Then, both Henley and Giles limited the OMT intervention to anatomical areas (cervical spine and sub-occipital area) directly connected with parasympathetic and sympathetic heart rate control. The present trial used a patients’ need-based treatment to improve the clinical generalizability of findings.
Interestingly, there were trend differences between smokers and non-smokers for HRV-values in the OMT group. In non-smokers, HRV-values of the final 5 min record remained unchanged compared to the HRV-values of the treatment phase. In contrast, smokers presented a difference, although not statistical significant, of the HRV-values between the final 5 min and the treatment phase, showing an influence of smoking on HRV changes after OMT. Overall, we suggest that the treatment of an osteopathic dysfunction, independently from its location, could modify autonomic activity of both smokers and non-smokers.

Interestingly, other OMT mediated improvements in clinical outcomes such as reduction of pain grade and frequency and
improvement of the range of motion, may correlate to the decrease of sympathetic activity resulting from this study. As a matter of fact, parasympathetic branch of ANS has anti-inflammatory and anti-nociceptive actions. Tracey demonstrated that the release of acetylcholine by vagal endings binds to alpha-7 nicotinic receptors of macrophages selectively inhibiting pro-inflammatory cytokines production (Tracey, 2002). Sympathetic branch has instead an opposite pro-inflammatory action, potentially increasing pain grade. A 2013 study showed how interleukin-6 release, induced by norepinephrine, is mediated by β2-adrenergic receptors (Stohl et al., 2013). Clinical effects following osteopathic treatment could also be referred to the trophotropic tuning of the patient’s organism, due to the shift of ANS tonic activity toward the parasympathetic functioning. According to Hess (1955), the trophotropic tuning is characterized by a decrease in frequency and an increase in amplitude of brain waves, a decrease in heart and respiratory rate, an increase in skin temperature, a decrease in muscle tension and anxiety.

Several strengths and limitations have to be considered for the present trial. No changes to methods and outcomes were applied after trial commencement. It was based on rigorous methodology, controlling for allocation, detection, sequence generation biases. Attention was paid to confounding factors like temperature, humidity of the room, smoking, and circadian rhythms. It included a large sample size and a patients’ need-based treatment. Moreover, DFAα1 was taken into account as nonlinear parameter to further explore the ANS activity.

Limitations are in terms of incomplete emptiness of the bladder that was not systematically asked to participants, difficulty to control for subjects emotional conditions and daily habits before the trial started.

### Conclusion

Results demonstrated that OMT produced changes of tonic activity of ANS as shown by HF, DFAα1, α1-LF, and LF/HF ratio variations. The present study focused on healthy subjects. Future studies are warranted to further explore the extent to which OMT can change ANS activity in pathological conditions and comparing its effect with usual care, hypothesizing that OMT could be used as a supportive care in addition to traditional methods.

### Author Contributions

NR, GD, NM, AP, conceived the idea, drafted the first version of the paper. LC supervised the experiment, exported the data and reviewed the paper. FC run the statistical analysis, supervised the research and reviewed the paper for intellectual content. All authors approved the final version.

### Acknowledgments

Authors sincerely thank Luca Righetto for his technical support and Dr. Michael Hicks for reviewing the paper.

### References


Ruffini, D’Alessandro, Mariani, Pollastrelli, Cardinali and Cerri (2015). HRV parameters variations following OMT. Frontiers in Neuroscience | www.frontiersin.org 12 August 2015 | Volume 9 | Article 272

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Preventing physician burnout

Improve patient satisfaction, quality outcomes and provider recruitment and retention.

AMA IN PARTNERSHIP WITH

Hennepin County Medical Center

ACP

CME CREDITS: 0.5

How will this module help me successfully eliminate burnout and adopt wellness approaches in my practice?

1. Seven key steps to help you prevent provider burnout
2. Ten-item survey designed to assist you in assessing burnout
3. Examples of successful burnout prevention programs in a variety of practice/organization settings
Increasing administrative responsibilities—due to regulatory pressures and evolving payment and care delivery models—reduce the amount of time physicians spend delivering direct patient care. Increasing responsibilities and stress can lead to physician burnout, which plagues 50 percent of practicing physicians. Burnout can have a significant impact on organizational productivity, morale, costs and the quality of care being delivered. By measuring and responding to burnout, physicians and their practices will be able to reduce sources of stress and intervene with programs and policies that support professional well-being.

**Preventing physician burnout**

**Release Date:** June 2015  
**End Date:** June 2016

**Objectives**

At the end of this activity, participants will be able to:

1. Establish provider wellness as a quality indicator that is regularly measured
2. Start a wellness committee and appoint a champion
3. Administer an annual ten-item wellness survey to assess burnout
4. Initiate selected interventions to address existing burnout and determine approaches to refine and improve the interventions

**Target Audience**

This activity is designed to meet the educational needs of practicing physicians.

**Statement of Need**

Physicians face many stressors every day that can lead to burnout. In fact, burnout impacts half of practicing physicians. External stressors that can result in burnout include healthcare reform, Medicare and Medicaid policies, and unemployed and/or uninsured patients. Other stressors are internal, such as administrative demands of the practice, long work hours, on-call schedules, stress of losing a patient and concerns about medical malpractice lawsuits. Learning to mitigate and prevent stress will help reduce burnout rates. In turn, reducing or eliminating burnout can improve patient satisfaction, quality outcomes, provider retention and the overall practice environment. This module will help practices identify and correct sources of stress with interventional approaches to promote wellness and reduce burnout.

**Statement of Competency**

This activity is designed to address the following ABMS/ACGME competencies: practice-based learning and improvement, interpersonal and communications skills, professionalism, systems-based practice, interdisciplinary teamwork and quality improvement.

**Accreditation Statement**

The American Medical Association is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

**Credit Designation Statement**

The American Medical Association designates this enduring material for a maximum of 0.5 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

**Claiming Your CME Credit**

To claim AMA PRA Category 1 Credit™, you must 1) view the module content in its entirety, 2) successfully complete the quiz answering 4 out of 5 questions correctly and 3) complete the evaluation.

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**About the Professional Satisfaction, Practice Sustainability Group**

The AMA Professional Satisfaction and Practice Sustainability group has been tasked with developing and promoting innovative strategies that create sustainable practices. Leveraging findings from the 2013 AMA/RAND Health study, “Factors affecting physician professional satisfaction and their implications for patient care, health systems and health policy,” and other research sources, the group developed a series of practice transformation strategies. Each has the potential to reduce or eliminate inefficiency in broader office-based physician practices and improve health outcomes, increase operational productivity and reduce health care costs.

**Disclosure Statement**

The content of this activity does not relate to any product of a commercial interest as defined by the ACGME; therefore, neither the planners nor the faculty have relevant financial relationships to disclose.

**Media Types**

This activity is available to learners through Internet and Print.

**References**


Additional References


Introduction

What is provider burnout?

Burnout is a long-term stress reaction characterized by depersonalization, including cynical or negative attitudes toward patients, emotional exhaustion, a feeling of decreased personal achievement and a lack of empathy for patients. By measuring and responding to burnout you will be able to:

- Reduce sources of stress
- Intervene with programs and policies that support professional well-being
- Prevent burnout

“Burnout makes it nearly impossible for individuals to provide compassionate care for their patients.”

Steven Lockman, MD, Senior Medical Director, Neurosciences, Orthopedics and Rehabilitation Service Line/Chief, Physical Medicine and Rehabilitation Hennepin County Medical Center, Minneapolis, MN

Seven steps to prevent burnout

1. Establish wellness as a quality indicator for your practice
2. Start a wellness committee and/or choose a wellness champion
3. Distribute an annual wellness survey
4. Meet regularly with leaders and/or staff to discuss data and interventions to promote wellness
5. Initiate selected interventions
6. Repeat the survey within the year to re-evaluate wellness
7. Seek answers within the data, refine the interventions and continue to make improvements
Establish wellness as a quality indicator for your practice

Encourage your clinic or organization to recognize the impact of burnout on providers as well as patients, the quality of care delivered and finances (e.g., through turnover). Establish provider wellness, which is the inverse of burnout, as a quality indicator that is regularly measured in your practice. Consider using annual burnout scores on the “mini Z” (see step 3) as a sign of the health of the provider workforce within your organization; if scores should slide, use the interventions described in step 5 to turn things around.

Q&A

What factors can contribute to burnout?

The “big 4” factors known to contribute to stress and burnout include:

1. Lack of control over work conditions.
2. Time pressure.
3. Chaotic workplaces.
4. Lack of alignment of values (around mission, purpose and compensation) between providers and their leaders.

Why should my practice measure provider stress and burnout?

Recent studies show a national burnout rate of 46 percent among physicians in practice, including private practice, academic medical centers and the Department of Veteran’s Affairs (VA). With almost half of US doctors showing signs of burnout, and numerous adverse outcomes for physicians linked to burnout, it is an important issue for practices to address. Reducing burnout can have a positive impact on your practice, including higher retention rates, improved devotion to patients, better morale in the office and improved recruitment.

Why does control over the work environment matter and how does it contribute to burnout?

Providers who are unable to control their work are not able to balance the competing demands of the practice with their personal commitments. This results in increased stress and eventual burnout.

When work demands are balanced by work control (e.g., ability to control one’s schedule), burnout is less. When demands are heavy, workers (in this case, providers) use work control to mitigate stress and avoid burnout. For example, providers who are also parents often need to adjust end-of-day and start-of-day schedules to allow for dropping off or picking children up at child care. Having control over their workday reduces the likelihood of burnout.

Why does burnout matter?

Stressful work conditions and burnout can lead to the following practice issues:

• Increased clinician errors
• Reduced empathy for patients
• Reduced patient satisfaction
• Decreased patient adherence to treatment recommendations
• Increased physician intent to leave the practice
2. Start a wellness committee and/or choose a wellness champion

The wellness committee should be made up of providers (MDs, NPs and PAs) from various disciplines and administrators (finance, management) that can work with your practice or organizational leaders to periodically measure burnout. Members can then present data to providers and brainstorm solutions to challenges. The committee should plan to meet for about one hour a month to review current projects, plan new initiatives, discuss survey data and respond to new opportunities or stresses.

If you have a solo or small practice, a wellness champion may be a better option. Wellness champions are individuals within an organization that promote the use of wellness resources, model positive behaviors such as leaving work on time and encourage employees to complete the annual wellness survey.

3. Distribute an annual wellness survey

The 10-item Zero Burnout Program survey, also referred to as the “mini Z,” is short and easy to use. Distribute this survey annually to all providers in your practice. The mini Z can be completed individually online below or with paper copies. Solo or small practices can also take the mini Z and use the data to improve the practice environment.

4. Meet regularly with leaders and/or staff to discuss data and interventions to promote wellness

Share mini Z data with practice/departmental leaders or office staff. Meet regularly to discuss the data. An easy way to share the results of the mini Z survey is to create a document with summary data for all respondents. After reviewing the data, identify the areas of greatest concern, either practice- or organization-wide or by department. Based on the problem area(s), select appropriate interventions to address them. More information can be found in the article, “10 Bold Steps to Prevent Burnout In General Internal Medicine.”

Q&A

Who should be on the wellness committee in my practice?

All relevant practice stakeholders should be involved in wellness initiatives. This approach can work for many types of providers, including hospital-based physicians, surgeons, non-office-based physicians and advanced practice providers (NPs and PAs). Depending on the size of the practice or organization, representatives can be drawn from different functional areas. Practice professionals will learn from each other and be able to spread findings and news throughout the organization.

Q&A

Should data be shared across the practice or organization?

That is a choice the wellness committee or wellness champion will have to make. Some leaders may feel they are being attacked if their results are poor. Others may want to see where they rank compared to
others. Sharing the data across practices provides an opportunity to introduce thoughtful and consistent programs throughout the organization to strengthen team culture.

What about naysayers who believe burnout doesn’t matter?

• Appeal to what they care about, including their experiences as a busy health care provider, administrator or patient. “Would you like yourself or your family members to receive care from a frustrated, cynical or angry provider?”
• Emphasize the relationship between work conditions that lead to burnout, turnover and recruitment challenges. Replacing a single physician is estimated to cost over $250,000
• Provide evidence of the relationships between burnout improvement and beneficial effects on quality and safety in your practice
• As burnout decreases, assess changes and present findings in key metrics, such as the patient experience, cost of care and staff productivity

Initiate selected interventions

Prioritize and select interventions to address burnout where it exists. Interventions may take one of three forms:

1. Workflow redesign
2. Better communication between providers in your practice
3. Quality improvement (QI) projects targeted to clinician concerns

DOWNLOAD Tactics to reduce burnout

Workflow redesigns to reduce burnout may include: pairing nurses or medical assistants (MAs) with physicians in stable relationships, improving preparation and organization and pre-visit planning with pre-visit labs, sharing tasks with non-physician staff, including having MAs enter patient data into the EHR and altering workflow between MAs and appointment coordinators. You may also consider if the time allotted for daily visits, procedures or bedside inpatient care in your practice is insufficient or if it is causing time pressure for your providers. Please see other STEPS Forward™ modules for suggestions to improve workflow in your practice.

Communication intervention projects could include: co-location of key team members (e.g., nurses/medical assistants and providers), daily huddles to discuss complex patients and care coordination and scheduling monthly provider meetings focused on either work-life issues and personal challenges or difficult patient care management issues. Please see other STEPS Forward™ modules for assistance with improving communication in your practice.

Targeted QI projects could include: a streamlined prescription renewal process, screening patients for depression, employing clerks instead of clinicians to track forms and send faxes, presenting mini Z data in an open forum to prompt discussions of issues within the practice and hypertension or pre-diabetes management programs. Please see STEPS Forward™ modules on hypertension and pre-diabetes for guidance on QI recommendations in these areas. Table 1 summarizes interventions performed as part of the Healthy Work Place (HWP) study conducted by Mark Linzer, MD, and colleagues. Many of these interventions are the foundation for the recommendations in this and other STEPS Forward™ modules.
Table 1. Examples of interventions to reduce burnout in your practice.*

<table>
<thead>
<tr>
<th>WORKFLOW</th>
<th>COMMUNICATIONS</th>
<th>TARGETED QUALITY IMPROVEMENT (QI)</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift to MA entering data into EHR instead of physician. Covered in team documentation</td>
<td>Improved interpersonal communication and teamwork. Discussed in team meetings</td>
<td>Implementing a hypertension management program</td>
<td>Implementing panel management</td>
</tr>
<tr>
<td>Better patient flow through the clinic enabled by pre-visit planning including pre-visit laboratory testing</td>
<td>Improved opportunities for informal communication among providers, such as a shared lounge or periodic shared meals. Reviewed in team culture</td>
<td>Establish quality improvement projects for issues of importance to providers</td>
<td>Dashboard of patient population measures for clinicians</td>
</tr>
<tr>
<td>Sharing information to make the clinic more efficient</td>
<td>Monthly formal discussions on patient care for clinicians to improve collegiality</td>
<td>Freeing time for nurses and physicians by implementing synchronized prescription renewal</td>
<td>Presentation of wellness data to prompt discussions on changing the clinic environment</td>
</tr>
<tr>
<td>Assess workflow between MAs and nurses to identify opportunities for change. Discussed in expanded rooming and discharge protocols</td>
<td>Informal survey of clinicians for a ‘wish list’ of issues to be corrected</td>
<td>Implementing a pre-diabetes management program</td>
<td></td>
</tr>
<tr>
<td>More time for nursing/MA staff to complete tasks</td>
<td>Sharing organizational updates with monthly email or meeting with leaders</td>
<td>Implementing processes to improve medication adherence</td>
<td></td>
</tr>
<tr>
<td>Pairing one MA with each attending physician. Described in expanded rooming and discharge protocols</td>
<td>Clinicians meeting individually with leadership to review operations and identify concerns</td>
<td>PDSA program for patient portals. Discussed in lean management</td>
<td></td>
</tr>
</tbody>
</table>

EHR=Electronic Health Record; MA=Medical assistant; PDSA=Plan, Do, Study, Act quality improvement program


Your practice may also consider developing a resource list detailing how individual practitioners can reduce burnout through time management, delegation, exercise, sleep and mindfulness. Please see the resiliency module.
Q&A

Should self-care interventions be included to reduce burnout?

Yes, self-care is an important tool that providers in your practice can use to reduce their individual stress levels and prevent burnout. Some self-care interventions include meditation, getting enough sleep, a regular exercise routine, engaging in other hobbies or taking mini-breaks throughout the day in a quiet space to decompress. Please see the resiliency module for more details.

What are the benefits of addressing burnout?

By addressing burnout clinics are more likely to achieve other organizational goals, such as better recruitment, higher retention, better quality of care and improved patient safety. A model of burnout prevention is highlighted below:

Figure 1. Conceptual model of the quality improvement feedback look to prevent physician stress, burnout and turnover.

Will these interventions cost money?

Yes, some interventions do have costs associated with them. But burnout is likely to be even more costly to your organization or practice. Each provider who leaves the practice costs money and adds stress to remaining providers. This finding suggests that investing money now to reduce physician stress and burnout could provide significant return on investment down the road.

Are the interventions all expensive?

No, many are very inexpensive. Re-engineering schedules for provider-parents and making team meetings more productive are examples of inexpensive interventions. However, some needed interventions to reduce chaos, such as additional exam rooms for more efficient use of provider time, require resource investment.

Another low cost intervention is discussing clinic or departmental values. Lack of values alignment with leaders is a known contributor to stress and burnout, and by making time to discuss and agree on shared values, you can alleviate this source of stress.
For example, begin staff meetings with an interesting case and allow time for group discussion. Providers chose this profession for the medicine! Discussing rare or interesting cases can re-energize your providers and help them reconnect with the joy of practicing medicine. Another free option is to create a list of values that your practice deems important. This exercise can be valuable even in a solo practice. Consider starting with a short menu to expand upon, such as:

- Excellence
- Advocacy
- Compassion
- Equity
- Quality over productivity
- Respect
- Work-home balance

I’ve heard people talk about “meetings with meaning.” What are they and how can I use them as an intervention?

Clinicians have limited time to meet. Research indicates that restructuring meetings to address clinical cases or challenging patients and issues of concern to them, rather than administrative issues, is a successful way to reduce clinician stress. These restructured meetings are called “meetings with meaning.”

What is “career fit” and how can that help providers?

Shanafelt et al. define career fit as the extent to which an individual is able to focus their effort on the aspect of work that they find most meaningful.\(^5\) Physicians often have a particular passion they wish to pursue (e.g., education, research, QI). Researchers at Mayo Clinic have shown that when the amount of time a physician has to pursue what they are passionate about falls below 10 to 20 percent, burnout rises dramatically from 29.9 percent to 53.8 percent.\(^5\) Physicians may decide to devote part of their work week to what interests them most, be it workflow improvement or improving communication in the office.

Can burnout be helped by community service?

Providers who are burning out may benefit from leading community service programs outside of the clinic, such as providing health education for children or adults. Studies have shown that community service can substantially reduce burnout, as it brings people closer to their true values and mission in medicine.

What kind of interventions work for providers with very high burnout?

Add a comment box on the survey for those respondents that have the highest burnout score (5 on the 5-point scale, “I am so burned out I cannot go on...”) so that they can provide more information about reasons they are burned out. List a telephone number directly on the survey for the person to call for help, for example, the “Employee Assistance Program,” human resources or a member of the wellness committee. Alternatively, if you do not survey anonymously, you can let individuals know that you will be contacting those that indicate very high burnout.

Repeat the survey within the year to re-evaluate wellness

Compare stress and burnout scores from before and after intervention. Use a simple spreadsheet or graph to show changes in stress levels, burnout, satisfaction, control over work, chaos and alignment of values (if applicable) over time. Develop an understanding of what worked and celebrate those successes. Examine factors that saw no change or a rise after intervention and seek remediable explanations.
Seek answers within data, refine the interventions and continue the improvements

Determine which interventions are working; refocus on those interventions and reinvigorate staff to carry them out. In areas where burnout is increasing or observed improvements are not sustained, analyze the mini Z results to guide new or modified interventions. The commitment of the wellness committee or wellness champion to the wellness interventions will help convince providers that your practice is dedicated to staying on a path to reduce burnout.

Q&A

What's the long-term goal of this type of “measure, intervene, re-measure” program? What are the short-term goals?

The overarching goal is zero provider burnout. Since burnout is a long-term stress reaction, surveying for high stress levels and intervening may help prevent most cases of burnout.

A short-term goal could include bringing clinical and administrative leadership on board with wellness initiatives. Knowing your own data, addressing it and providing stability, if not improvement, in the work environment is another short-term goal.

When do we stop measuring the impact of our wellness interventions? Can we stop if they appear to be working and sustained?

Medicine is a high-stress profession. Even if burnout in your practice is driven down to zero, stress may still exist and the need to monitor it will not be eliminated. Keep on measuring and keep supporting successful programs.

AMA Pearls

Wellness interventions work

Improving workflows within the practice is the most powerful antidote to burnout. This approach increases the odds of reducing burnout six-fold. Targeted quality improvement projects addressing clinician concerns increase the odds of reducing burnout five-fold. Improving communication between team members can improve the odds of professional satisfaction up to three-fold. Please see other STEPS Forward™ modules for guidance on practice redesign to improve workflow, communication and practice culture.

Celebrate successes

Try not to embarrass or blame people with negative findings. Be supportive and encourage improvement. Congratulate leaders on successful steps they have taken and provide additional concrete actions they can take. Be creative with them in seeking ways to improve their department, unit or practice. Function as a liaison with clinic administration to find best practices and advocate for bigger organizational or practice changes when they are needed to make a difference for individual departments or units.
Change is slow and steady
Don’t try to move the needle too far too fast. Patience is needed to make sustained work-life improvements. Small improvements can make a difference in the day-to-day work lives of physicians, so do not be discouraged if you cannot make big changes right away.

The unsolvable can be solved
Don’t be intimidated or discouraged by your challenges. Ask your colleagues for possible solutions. You may find that the problem has been discussed and solutions have been identified but not shared across the practice. Be creative when looking for partners. Don’t forget you could have allies in departments/units such as Finance and Billing, Environmental Services or Quality Improvement. Every unit/person will see the problem from a different perspective so seek to understand what they see and how they’d fix it.

Don’t be afraid to create new work schedules
Consider alternative clinical structures, such as “7 days on, 7 days off,” even for predominantly ambulatory providers. At Hennepin County Medical Center (HCMC) in Minneapolis, MN, graduating residents suggested a 7-on, 7-off model to encourage careers in ambulatory medicine. HCMC took their advice and developed a model program for new faculty hires. They’ve since hired two physicians and three nurse practitioners to join the two full time clinicians with the 7-on, 7-off work schedules. The work schedule includes atypical work hours, but the providers have a week off in-between. They are leading the organization in certain aspects of innovation, such as measuring the impact of scribes and problem-oriented charting on quality of care, provider satisfaction and clinic finances.

The creation of a Provider Wellness Program at HCMC demonstrates that we recognize that the well-being of providers is critical to the health and wellness of our patients. Small changes that come from the suggestions of providers can be hugely impactful and strengthen the unity of the care teams, thereby improving the quality of care and satisfaction of patients, families and providers.

If you standardize, customize
Remember to adjust standard work for complex lives. Most busy provider schedules don’t fit comfortably in four-hour boxes (8 a.m. to noon, 1 to 5 p.m.). Allow for flexibility, especially around the beginning and end of work shifts.

Conclusion
Provider stress and burnout can have a significant impact on organizational productivity, morale, costs and the quality of care being delivered. This module will help you take corrective action early by identifying sources of stress and developing interventional approaches that will help your organization reduce burnout and promote wellness.
STEPS in practice

How’s it working in Boston?

The Boston Medical Center (BMC) Wellness Committee was created to combat burnout and reduce physician stress with seed money from a malpractice insurance program in 2012. The committee is composed of 15 members from different departments. Its project from 2012 to 2013 was to develop a broad wellness website that brought together resources from around campus on work, personal and health topics. The Wellness Committee also organized seminars on resiliency training and narrative writing.

The committee also developed various in-person programs, including a monthly clinical case discussion group within the GIM clinical practice started by Jane M. Liebschutz, MD, MPH, Associate Chief of General Internal Medicine in 2013. This discussion group, which continues to this day, was modeled after Balint groups, which are groups of clinicians who meet and talk through clinical cases to better understand their relationships with patients. At this monthly meeting, one clinician presents a difficult case to groups of eight to 12 colleagues. It is an opportunity to overcome the isolation inherent in clinical practice and feel supported by colleagues, which decreases personal and professional stress. This program was endorsed by over 80 percent of participants. As one participant said, “The group has reminded me that relationships and communication are very important—often more important than the technical aspects of care.”

Having a wellness program helps buffer some of the challenges presented with clinical practice in today’s evolving health care environment. The BMC wellness programs have reinvigorated clinicians with joy and passion in practice and have been enthusiastically received at BMC.

How’s it working in Redwood City, CA?

The wellness programs at Kaiser Permanente of North California in Redwood City were started to improve physician satisfaction and retention. At first, our program consisted solely of an annual physician recognition dinner. As we learned more about what wellness means, we started designing programs supporting physical health, collegiality, community and practice management.

“Wellness is personal” at Permanente, so we try to promote programs with a variety of information and services that meet the needs of all physicians. Some successful programs we’ve implemented include:

MENTORING. Experienced physicians are paired up with new physicians. There is also a “speed dating” lunch program where primary care doctors sit on one side of the table and specialists on the other side. The specialists rotate every five minutes. This approach not only introduces staff who might not otherwise meet, but also promotes collegiality.

HEALTH FESTIVALS. Tables are set up with different services where physicians rotate through and learn about various aspects of their own health. Examples include a blood pressure check, dermatology check for skin cancers and dietary evaluations. Physicians also have an opportunity to sign up for their own preventive health screenings, such as Pap smears and blood tests.

MOVIE DAY. Wellness committee staff rent a movie for the physicians and their families and organize a lunchtime viewing party. This promotes community and a sense of pride in the workplace for the physicians.

WELLNESS THURSDAY LUNCHES. Every Thursday at noon, lunch is provided to staff and various topics are covered including travel, financial management, how to save for college, real estate and home remodeling.
**BIRTHDAY LETTER.** In their birthday month, physicians receive a letter reminding them to see their own provider. Leaders help them block the time in their schedule for that appointment to promote their own health.

**How’s it working in Minneapolis?**

At Hennepin County Medical Center in Minneapolis, physician-parents were often unable to leave on time because their last complex patient was scheduled at 4:30 p.m. In many instances, this patient would not be ready for the provider to see until 4:45, making it extremely challenging for the provider to leave on time to pick up a child from daycare by 5:30. This was creating high stress for these providers. To address this challenge, the end-of-day schedule was re-engineered so the last complex patient was scheduled at 4:00 p.m. instead of 4:30 p.m. The appointment slot at 4:30 p.m. was changed to routine care instead of complex. This simple change helped parents leave work on time.

The general internal medicine department also took steps to improve the physical environment by investing in new carpeting and asking staff to contribute ideas for locally sourced art. The result was transformation in which everyone was invested. Satisfaction in the department increased from 65 percent in 2013 to 83 percent in 2014, while burnout decreased from 39 percent to 17 percent over the same time period.

**How’s it Working in Palo Alto, CA?**

At Stanford University Medical Center, the guiding principle of the Stanford Medical Staff Committee for Professional Satisfaction and Support (SCPSS) is that the professional fulfillment of clinicians is inextricably linked to quality, safety and patient-centeredness. The committee focuses on implementing programs that target these six areas that impact professional fulfillment: personal health, peer support, community building, work-life integration, personal resilience and professional fulfillment and organizational/personal values alignment.

The *Educators-4-Care (E4C)* program pairs five to six medical students annually with a faculty member, who serves as teacher, mentor and colleague for the duration of the student’s time at the school of medicine. A resident peer program supports housestaff after they experience an adverse patient outcome and when they need general support. Chief residents, trained as peer supporters, guide their colleagues through the coping and self-care process. For medical staff, there is also a peer support program with trained physician peer supporters who are available following critical incidents.

A medicine and literature dinner discussions series is a six-month program with facilitated discussions of stories, poems, plays, personal narratives and films. Participants engage in deep conversations about circumstances that brought patients into their care and about patients’ and providers’ diverse experiences of healthcare, illness, trauma and recovery. There is also a mindfulness sub-group to create awareness of mindfulness-based stress reduction and its benefits for physicians and patients.

The committee has a [WellMD website](#) and monthly newsletter with links to self-assessment tests and contact information for groups, classes and volunteering opportunities regarding exercise and fitness, stress and burnout, depression, mindfulness, resilience and work-life balance.

A pilot faculty flexibility program provided career development coaching, with a focus on increasing work-life integration and addressing work-work conflict (defined as the competing demands faced by faculty as they meet multiple institutional missions). This program had two parts: career customization and a support mechanism with a banking system. Preliminary results demonstrated improved work-life fit, more frequent use of vacation time, more cross-coverage for colleagues in need, more time to discuss science with colleagues, more support by Stanford for career development of women faculty and more grants submitted by program participants. The program has continued in some departments post-pilot and the integration of key elements of the pilot into career development strategies is being evaluated.
How’s it working at Adventist Health System?

Over the past decade, Adventist Health System (AHS), comprised of more than forty hospitals in ten states, has pursued a program designed to support the personal and professional well-being of physicians. AHS created four major initiatives, including Physician Support Services, Finding Meaning in Medicine, Schwartz Rounds, and The Coalition for Physician Well-being. While challenging to quantify with accuracy, we are convinced that these initiatives have contributed significantly to this goal and are being increasingly adopted by hospitals and physicians across the system.

**Physician Support Services** (PSS) provides individual counseling and coaching services, along with seminars and retreats. These programs are designed to promote personal growth and enrich relationships. In order to maintain professional dignity and ensure privacy, counseling services are confidential and are not reported to the medical staff office or hospital administration. To date, over one thousand physicians and/or their families across AHS locations have accessed the services of PSS, which translates to more than 10,000 total contacts.

**Finding Meaning in Medicine** (FMM), conceived and developed by Dr. Rachel Naomi Remen, is described as “self-directed, on-going, values and meaning study groups.” In Dr. Remen’s words, these groups help doctors “remember the heart of medicine.” Typically, FMM is initiated by a physician champion who opens their home to invite colleagues over for a casual evening meal and conversation. Alternate venues might include a comfortable conference room or private restaurant. Small groups of five to 15 physician colleagues gather for a shared storytelling experience centered on a predetermined theme. Example themes might include Gratitude, Humility, Teamwork, Loyalty, Surprise or Service, among many others. These groups are scheduled regularly, either on a bi-monthly or quarterly basis.

Physician evaluations after a recent weekend conference that included a **Finding Meaning in Medicine** group session contained the following feedback:

- “Best event of the weekend. I will be taking this home and implementing at our hospital.”
- “Powerful community building.”
- “Very meaningful to build empathy with each other.”
- “This could singularly change the culture of our medical staff for the better.”

For more information, visit [www.meaninginmedicine.org](http://www.meaninginmedicine.org).

**Schwartz Rounds** are sponsored by the Schwartz Center for Compassionate Healthcare which was created in memory of health care attorney Ken Schwartz. Schwartz Rounds are designed to promote compassionate care by bringing together health professionals across disciplines to address and bring attention to the personal, emotional and social aspects of patient care. A small panel of caregivers uses a case presentation approach to provide a brief orientation to a pre-selected case, including sufficient clinical background to frame the topic, followed by facilitated discussion involving the assembled interdisciplinary audience. Issues of privacy and confidentiality are respected. The focus is as much, or more, on caregiver experiences, attitudes and feelings as it is on the patient case. Sample case stories drawn from the local institution might include:

- Death of a young person by overdose
- A patient with frequent readmissions that can be attributed to family and social issues
- A patient with acute onset of progressive dementia
- A patient with traumatic brain injury resulting from a vehicular accident

Now widely adopted in hospitals across the country, **Schwartz Rounds** has been described as a “culture-changing conversation” that contributes to empathy, professional collaboration and teamwork within a practice. Physician comments following a recent Schwartz Rounds event included the words, “powerful,” “amazing,” “moving” and “engaging.”
For more information, visit www.theschwartzcenter.org.

The Coalition for Physician Well-Being is a 501(c)6 tax-exempt association of hospitals and related health care entities that are committed to promoting physician wholeness and resiliency. Through mutual learning, networking, facilitating and consulting, the Coalition seeks to help physicians achieve balanced lives, purposeful practices and meaningful relationships. The ultimate goal is to enhance healthcare culture, thereby improving the safety, quality and humanity of patient care. The Coalition sponsors monthly educational webinars, which are archived for continued access. At its fifth annual meeting in April, 2015, the Coalition introduced the new Medicus Integra designation that was created to recognize hospitals for exemplary dedication to promoting physician well-being.

For more information about the Coalition for Physician Well-Being or the Medicus Integra designation, visit www.forphysicianwellbeing.org.

Get implementation support

The AMA is committed to helping you implement the solutions presented in this module. If you would like to learn about available resources for implementing the strategies presented in this module, please call us at (800) 987-1106 or click here to send a message to StepsForward@ama-assn.org.

To demonstrate completion of this module and claim AMA PRA Category 1 Credits™, please visit: www.stepsforward.org/Burnout

References


Additional References


ABC of learning and teaching in medicine

Teaching large groups

Peter Cantillon

Lecturing or large group teaching is one of the oldest forms of teaching. Whatever their reputation, lectures are an efficient means of transferring knowledge and concepts to large groups. They can be used to stimulate interest, explain concepts, provide core knowledge, and direct student learning.

However, they should not be regarded as an effective way of teaching skills, changing attitudes, or encouraging higher order thinking. Large group formats tend to encourage passive learning. Students receive information but have little opportunity to process or critically appraise the new knowledge offered.

How can lectures be used to maximise learning and provide opportunities for student interaction? This article will supply some of the answers and should help you to deliver better, more interactive lectures.

Getting your bearings

It is important to find out as much as possible about the context of the lecture—that is, where it fits into the course of which it is part.

An understanding of the context will allow you to prepare a lecture that is both appropriate and designed to move students on from where they are.

Helping students to learn in lectures

An important question for any lecturer to consider when planning a teaching session is, “how can I help my students to learn during my lecture?” There are several different techniques you can use to aid student learning in a large group setting.

Helping your students to learn

- Use concrete examples to illustrate abstract principles
- Give handouts of the lecture slides, with space to write notes
- Give handouts with partially completed diagrams and lists for the students to complete during or after the lecture
- Allow for pauses in the delivery to give students time to write notes
- Check for understanding by asking questions or by running a mini quiz

Planning your lecture

It is important to distinguish between the knowledge and concepts that are essential (need to know) and those which, though interesting, are not part of the core message (nice to know).

The aims of the lecture should be clearly defined (“what do I hope to achieve with this lecture?”). These will help to define the teaching methods and the structure. If, for example, the purpose of the lecture is to introduce new knowledge and concepts, then a classic lecture structure might be most appropriate.

On the other hand, if the purpose is to make the students aware of different approaches to a particular clinical problem, a
problem oriented design in which alternative approaches are presented and discussed might be a more appropriate format.

Choosing teaching media

When you have selected the content of the lecture and placed it into a working structure, the next consideration is how to deliver the message. Which teaching media should be used (for example, slides, overheads, handouts, quizzes)? The most appropriate media will differ depending on the venue, class size, and topic.

Choosing the medium for delivering the lecture

- Which teaching media are available at the teaching venue?
- Which teaching media are you familiar with? (It is not always appropriate to experiment with new media)
- Which medium will best illustrate the concepts and themes that you want to teach the students?
- Which medium would encourage students to learn through interaction during your lecture?

Getting started

In the first moments of a lecture it is important that the students are given some sense of place and direction. Thus a brief summary of the previous lecture and an indication of the major themes and learning objectives for the current session provide both you and the students with a relatively easy start. If you are working with a new group it may be useful to indicate the ground rules for the session—for example, “switch off mobile phones,” or “ask questions at any time.”

Encouraging students to interact

Students learn well by “doing.” Yet there is an understandable tendency for students to regard lectures as an opportunity to sit back, be entertained, and “soak up” the learning. However, you can use various methods to encourage students to take a more active part in the learning process.

Students’ attention (and recall) is best at the beginning and end of a lecture. Recall can be improved by changing the format of your lecture part way through. It is also important when planning a lecture to think about activities and exercises that will break up the presentation.

Ask questions

It is useful to ask questions of the group at various stages in the lecture, to check comprehension and promote discussion. Many lecturers are intimidated by the silence following a question and fall into the trap of answering it themselves. Wait for the answers to come. It takes time for students to move from listening to thinking mode. A simple tip is to count slowly to 10 in your head—a question is almost certain to arrive.

Get students to ask you questions

An alternative to getting students to answer questions is to ask them to direct questions at you. A good way of overcoming students’ normal fear of embarrassment is to ask them to prepare questions in groups of two or three. Questions can then be invited from groups at random. When asked a question, you should repeat it out loud to ensure that the whole group is aware of what was asked. Seeking answers to the question from other students, before adding your own views, can increase the level of interaction further.

Handouts

- Handouts can encourage better learning if they allow students more time to listen and think
- Handouts should provide a scaffold on which students can build their understanding of a topic
- Handouts should provide a summary of the major themes while avoiding an exhaustive explanation of each
- Handouts can be used to direct further learning, by including exercises and questions with suggested reading lists

Graph showing effect of students’ interaction on their ability to recall what they have heard in a lecture. Adapted from Bligh, 2000 (see “Recommended reading” box)

“Tell me, and I forget. Show me, and I remember. Involve me, and I understand”  Chinese proverb
**Brainstorming**

Brainstorming is a technique for activating the students' knowledge or current understanding of an issue or theme. The lecturer invites answers to a question or problem from the audience and writes them, without comment, on a board or overhead. After a short period, usually about two or three minutes, the lecturer reviews the list of “answers” with the class. The answers can be used to provide material for the next part of the lecture or to give students an idea of where they are before they move on. By writing answers in a way that can be seen by everyone in the audience, you allow the students to learn from each other.

**Buzz groups**

Buzz groups also encourage interaction. They consist of groups of two to five students working for a few minutes on a question, problem, or exercise set by the lecturer. Buzz group activity is a useful means of getting students to process and use new information to solve problems. At the end of the buzz group session, the teacher can either continue with the lecture or check the results of the exercise by asking one or two groups to present their views. Remember that in an amphitheatre lecture hall, students can sit on their own desks to interact with the students behind them.

**Mini-assessments**

Mini-assessments and exercises are used in lectures to help students to recognise gaps in their learning and to encourage them to use new material in practice. Brief assessments can also allow the lecturer to measure how well the messages are being understood. Students could be asked, for example, to complete a brief, multiple choice questionnaire or a “one-minute” paper. The timing of quizzes and exercises will depend on what is required. An assessment of prior learning would be best at the start of a lecture, whereas an estimate of learning from the current session might be best carried out towards the end of the lecture.

**How to end your lecture**

At the end of a lecture it is important to summarise the key points and direct students toward further learning. You may present the key points on a slide or overhead. Alternatively, you may go through the main headings on a handout. Students are encouraged to learn more about a subject if they are set tasks or exercises that will require them to look further than the lecture notes for answers and ideas. The end of a lecture is also a common time for questions. Students may find the use of a one-minute paper a useful tool to help them to identify concepts and impressions that need clarification.

**Evaluating your lecture**

Practice does make perfect, but the process of developing as a lecturer is greatly helped if some effort is made to evaluate performance. Evaluation involves answering questions such as “how did I do?” or “what did the students learn?” A lecture can be evaluated in different ways. If the students are to be used as a source of feedback, the following methods are useful:

- Ask a sample of the students if you can read their lecture notes—this exercise gives some insight into what students have learned and understood
- Ask for verbal feedback from individual students
- Ask the students to complete a one-minute paper
- Ask the students to complete an evaluation questionnaire.

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**One−minute” paper worksheet**

Name: ___________________________

Date: ___________________________

Lecture title: ______________________

Directions: Take a moment to think about the lecture you have just attended, and then answer the following questions.

1. What was the most important thing you learned in today’s lecture?

2. What question remains uppermost in your mind at the end of today’s lecture?

3. What was the “muddiest point” in today’s lecture?

---

**Example of a one-minute paper**

Please rate the lecture on the following items

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Slightly agree</th>
<th>Slightly disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interesting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy to take notes from</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Well organised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relevant to the course</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Example of an evaluation form focusing on the lecture. Adapted from Brown et al, 2001 (see “Recommended reading” box)**
Clinical review

If you want to evaluate your teaching style and delivery, peers can be a useful source of feedback:
● Ask a colleague to observe part or all of a lecture and provide feedback afterwards. It is important to inform the observer what aspects of the lecturing process you want evaluated—for example, clarity, logical flow, effectiveness of the media used
● Videotape the lecture for private viewing, and arrange a joint viewing with a colleague later.

Lectures are still a common teaching method in both undergraduate and postgraduate medical education. Their continued popularity is due to the fact that they represent an effective and efficient means of teaching new concepts and knowledge. This article has emphasised the importance of good lecture planning and of the inclusion of student interaction to ensure effective learning.

Recommended reading

Lesson of the week
Epistaxis: an overlooked cause of massive haematemesis in cirrhosis
Shawinder S Johal, Andrew S Austin, Stephen D Ryder

The national audit of acute upper gastrointestinal haemorrhage reported an overall incidence of acute upper gastrointestinal haemorrhage in the United Kingdom of 103 cases per 100 000 adults a year. Varices have been identified as the source of blood loss in 8% of patients aged less than 60 years, and mortality among these patients is four times the overall mortality for the age group in patients with haematemesis.1

The most dramatic presentations often occur in patients with chronic liver disease. Variceal bleeding is a life threatening complication of cirrhosis, and survival is closely related to failure to control haemorrhage or early rebleeding, which occurs in as many as 50% of patients.2 In cases of suspected variceal bleeding, immediate treatment with agents such as terlipressin or octreotide is recommended, followed within 12 hours by upper gastrointestinal endoscopy, which is essential for accurate diagnosis and allows variceal sclerotherapy or band ligation.3 Endoscopic diagnosis can be difficult when views are obscured by blood. Nevertheless, a diagnosis of variceal haemorrhage is acceptable when a venous spurt is seen or there is fresh blood in the lower oesophagus in the presence of varices. In about half of cases there is no active bleeding; variceal haemorrhage is indicated by the presence of a “white nipple sign” (a plug of platelet fibrin on a varix) or when varices are the only lesion identified.4 5

We describe two patients with alcoholic liver disease and haematemesis whose bleeding was not controlled by endoscopic treatment. Delayed diagnosis of severe epistaxis led to prolonged haemodynamic instability and further decompensation.

Case reports

Case 1
A 45 year old woman with alcohol induced cirrhosis (Child’s-Pugh class C) and idiopathic thrombocytopenic purpura presented with shock after fresh haematemesis. On admission she had a haemoglobin concentration of 24 g/l, platelets 10 × 10³/l, and prothrombin time 16.0 s (control 10.0 s). She was resuscitated with transfusion of whole blood, fresh frozen plasma, and platelets. Variceal bleeding was suspected, and she was given an infusion of octreotide.

Gastroscopy showed a large volume of fresh blood restricting the view of the oesophagus and stomach. No source of bleeding was identified. The patient’s history indicated that variceal bleeding was the most likely cause of blood loss, and a Sengstaken-Blakemore tube was inserted.
In today’s cross-cultural society, and diversity in the general population expected to grow in future years, you may experience an increasing need for language interpreters to help create an optimal experience for you and your limited English proficient speaking patients. We hope you find the following tips to be helpful in your interactions with language interpreters:

**Assessing which type of interpreter services to use***
- Telephone interpreter services are easily accessed and available for short conversations or unusual language requests.
- Face-to-face interpreter services provide the best communication for sensitive, legal, or lengthy communications.
- Trained bilingual staff provides consistent patient interactions for a large number of patients.
- Minors and family members who patients wish to use as interpreters are discouraged for reliable, accurate patient communication.

**Working with an interpreter***
- Acknowledge the interpreter as a communications professional.
- Briefly introduce yourself to the interpreter (name and nature of the call or visit), and describe the type of information you are planning to talk about with your patient.
- Give the interpreter the opportunity to introduce himself or herself to the patient.
- Recognize the interpreter is the medium, not the source, of the message and that he or she is not responsible for what the patient says or doesn’t say.
The interpreter session*

- Allow enough time for the interpretation session.
- Speak in the first person directly to (or facing) your patient, instead of speaking to the interpreter.
- Speak clearly, at an even pace, and pause occasionally to ask the interpreter if he or she understands the information you are providing and the questions you are asking.
- Remember, you do not need to speak especially slowly. This actually makes a competent interpreter’s job more difficult.
- Avoid interrupting during interpretation. In some languages, it may take longer to explain a word or a concept.
- Read body language in the cultural context. Watch the patient’s eyes, facial expressions, and body language. Look for signs of comprehension, confusion, agreement, or disagreement.

Once you have identified your patient’s preferred language, it may be helpful to document the language on paper or in electronic medical records. Posting colored stickers on the patient’s chart to flag when an interpreter is needed (e.g., orange for Spanish, yellow for Vietnamese, green for Russian) may also be helpful for easy reference.

New Mexico and California laws

New Mexico and California state laws require health plans to provide language assistance program services to eligible health plan enrollees with limited English proficiency. For more details on these services, please access your state-specific reference guide(s) at CignaforHCP.com > Resources > Reference Guides > Medical Reference Guides > Health Care Professional Reference Guides. You must be a registered user to access this site. If you are not registered for the website, click on “Register Now” to enroll. If you prefer to receive a paper copy or CD-ROM, call 877.581.8912.

Interpreters Save Lives video

You may find it helpful to view Interpreters Save Lives, a public service announcement available on our cultural competency training and resources website.

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* Adapted from Industry Collaboration Effort (ICE) Tips for Working with Interpreters.

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