

SHIFTWORK INTERNATIONAL NEWSLETTER

The official newsletter of the *Scientific Committee on Shiftwork* of the *International Commission on Occupational Health* and the *Working Time Society*

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Editorial

For many in the northern hemisphere, this is the time for holidays, relaxation and a brief escape from workplace. As experts on working time, S.I.N. readers know just how important it is to get away from work! For those who cannot escape it completely, we hope reading this issue of S.I.N. offers a welcome diversion from more onerous tasks.

As you all know, the *17th International Symposium on Shiftwork and Working Time* is rapidly approaching! The conference organisers (Ben Jansen, Coen van Limborgh, Monique Koopman, Arianne Witmond, Gerard Kerkhof and Ludovic van Amelsvoort) have undoubtedly had little relaxation time this summer while making all the last-minute arrangements. A final update on the symposium appears later in this issue. For those who intend to go, but have not yet registered, there is a timely reminder that the deadline for registrations is August 18.

This issue of S.I.N. continues the gradual development that we have been pursuing over the last few issues. For the first time we have a response to a *Viewpoint* item. Dr Adam Fletcher considers Prof. Don Tepas' challenging piece on working time exposure standards. The potential development of exposure standards is an important issue that can be expected to generate robust debate in Hoofddorp and thereafter.

Of course, the success of *Viewpoint* and *Research Update* relies largely upon your input. These columns are intended to encourage greater reader participation in S.I.N. and to facilitate direct communication between readers. We depend heavily upon you to identify the topics and issues requiring discussion and debate. With this in mind, please consider contributing short articles raising topical issues or describing new projects and research developments. We are also very happy to receive announcements of upcoming scientific meetings, details of conference proceedings and news about members, research and practice.

See you in Hoofddorp!

The Editors

President's Report

Dear Members and Friends

The *XVIIth International Symposium on Shiftwork and Working Time* is rapidly approaching. Ben Jansen and his colleagues are working hard to make it an exceptional experience. The large number of abstracts received, and the diverse range of topics and disciplines they encompass, confirms once more the great interest in our biennial meeting. This interest reflects our members' active commitment to extending knowledge and exchanging experiences, methodologies, results and intervention strategies.

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The Symposium will also offer an opportunity to re-define the aims and activities of our Committees. As you know, six Committees were established some years ago: Finance, Membership, Honours, Nomenclature, Publication, and Election. They are chaired by Johannes Gartner, Frida Marina Fisher, Peter Knauth, Friedhelm Nachreiner, Mikko Härmä and Peter Smith respectively. Each committee has 5-7 members, representing the pool of volunteers available at the time they were set up. The aim was to encourage active participation from as many members as possible and to build up our newborn Society in a dynamic and participatory way. Like all beginners, the committees faced problems that, in some cases at least, made their activities very difficult. Moreover, some members have recently retired, taken on other responsibilities within the Society, or had to step aside for personal or work reasons. It is therefore necessary to rejuvenate and revitalise the committees with new members who are willing to contribute to the development of our Society. I am therefore asking all of you to consider joining one of our Committees. You will have an opportunity to volunteer in Hoofddorp, where the chair of each committee is going to report on the current status of the committee and present some proposals for the future. The Board is also considering the possibility of creating a new committee to address the particular needs and expectations of early career researchers, an issue that has been raised informally at the last two Symposia.

I am very pleased to announce that the Board has recently decided to hold the next *International Symposium on Shiftwork and Working Time* in Queensland, Australia, late in August 2007. The proposal was put forward by Lee DiMilia (Chair), Philip Bohle, Shantha Rajaratnam and Rebecca Loudoun. The choice was certainly not easy, as the other proposal, by Diane Boivin and her co-workers in Canada, was interesting and appealing too. Among the various considerations supporting the two proposals, those slightly in favour of the Australian one were the desirability of geopolitical rotation (the last symposium was in the Americas), the opportunity to hold the Symposium just before the conference of the World Federation of Sleep, Research Societies in Queensland (many people may be able to attend both), and the potential to recruit new scientists from Asian countries (e.g. China, India, Indonesia). However, in view of the attractiveness of the Canadian proposal, the Board decided to give it priority for the 19th Symposium in 2009.

Members of the Board recently participated in a conference, entitled "*Theory & Practice of Shiftwork*", held in Krakow (Poland) from June 17 to 19. It was the opening event of the *Research-Educational Centre for*

Shiftwork and Health, a Centre of Excellence established by the Polish State Committee for Scientific Research. It is coordinated by our member, Janusz Pokorski, from the Department of Ergonomics and Effort Physiology at the Jagellonian University of Krakow. The aim is to disseminate information about the problems connected with shift and night work to employers, trade unions, institutions and organisations responsible for labour policy, working conditions and workers' health. It will provide guidelines, recommendations and scientific support to assist operational and organisational decisions and the development of regulation. I believe that the Centre provides a good model for the transfer of scientific knowledge into practice and for addressing issues such as the one raised by Don Tepas in his stimulating *Viewpoint* article ("*Should the Working Time Society recommend working time exposure limits?*") published in the last issue of SIN. The question of working time exposure limits is very topical in Europe. The European Directive 93/104 on working times, which has been differently implemented in the 15 member countries (and is to be implemented in the 10 countries that have just joined the EU), is now being revised. Of particular interest are the extension of maximum working hours and the (de)regulation of some aspects of working time organisation, such as night work and on-call work, and the "opt-out" clause (for voluntary agreements with individual workers).

Finally, I would like to remind you that the 28th International Congress of the International Commission on Occupational Health (ICOH) will be held from 11 to 16 June, 2006, in Milano (Italy). The theme will be "*Renewing a Century of Commitment to a Healthy, Safe and Productive Working Life*". During the Conference, usually attended by 3000-4000 participants, we are going to organise at least one mini-symposium on shiftwork and working time, as well as oral and poster sessions. The deadline for abstracts is September 20, 2005. Shiftwork researchers are strongly encouraged to submit individual papers for this conference. You can find detailed information at the website <http://www.ICOH2006.it>.

A satellite meeting, entitled "*Shiftwork and Ageing in Health Care Workers*" will be held in Venice on June 9 and 10, 2006. It will be organised by our Committee and Society with the ICOH Committees on "Ageing" and "Health care workers". The full announcement will be ready by September 2005. If you are interested please contact me (giovanni.costa@univr.it) for preliminary information.

See you very soon in Hoofddorp!

Giovanni Costa

VIEWPOINT

Should the *Working Time Society* Recommend Working Time Exposure Limits?

In the last issue (Volume 21, Number 2), Professor Don Tepas offered his views on the role the Society could take in developing and recommending working time exposure limits ("Should the Working Time Society Recommend Working Time Exposure Limits?")

In this issue, Dr Adam Fletcher responds to Prof. Tepas' observations:

In the last issue Prof. Don Tepas suggested that there is merit in the idea of developing exposure limits for working hours. Prof. Tepas also suggested that the *Working Time Society* could be a leader in such a development. The general aim of this response is to contribute to balanced, informed discussion of these two propositions. The specific aim is to present details of some perceived opportunities, and significant challenges, associated with any potential actions.

Exposure limits for chemical agents have been in wide use since the early 1940s. Exposure limits for many other agent classes such as noise, temperature, vibration, radiation and biological matter also now exist. The vast majority of exposure limits were developed for use with traditional 8-hour daytime shifts. However, strong evidence of 24-hour rhythms in, for example, the absorption, distribution, metabolism and elimination of many chemical agents demonstrates that fundamental factors remain unaccounted for.

There is an acknowledged demand for objective reassessment of chemical exposure limits for extended daytime shifts and 24-hour shiftwork. Whether a 24-hour rhythm of susceptibility exists for other specific agents, including vibration and temperature, is still equivocal.

The fact that time of day is a key factor related to some existing exposure limits provides a starting point from which to review the first of Prof. Tepas' suggestions - that exposure limits are developed for working hours. The initial step toward understanding how to progress with such a suggestion is to detail the major factors that play a role in the relationship between working hours and safety.

Significant factors related to working time exposure include:

- Time of day
- The nature of the work task(s) including time pressure and physical demands
- Shift length(s)
- Amount and timing of prior sleep

Other factors that may warrant further discussion are the impacts of stimulants such as caffeine, the length of time on task between breaks during shift, sleep disorders and individual differences. To be fair, existing exposure limits do not consider individual differences but there is little argument that they can play a significant role.

Perhaps not surprising is how similar this list of factors is to the major components of biomathematical models of sleepiness, performance or fatigue. Existing models have been attempting to create sets of exposure rules for working time, or at least relative indicators of performance capacity. Unfortunately, more than 20 years of mathematical, statistical and operational efforts have not collectively been sufficient to create accurate, systematic predictions that account for all of the major components listed above.

Furthermore, the other listed factors, and especially individual differences, continue to be an elusive source of variance in models. Development of effective working time exposure limits, at least from such a broad perspective, does not appear to be plausible at present. More simplified, data-driven models have begun to emerge and may ultimately be more practical than the all-encompassing mathematical models.

It would also be possible to consider a more basic approach, in parallel to the further development of biomathematical models. Specifically, it might be possible to identify key parameters to manage proactively within specific sets of circumstances. In this vein, Prof. Tepas makes a sound point when he suggests breaking down the work hours agent into separate parts, such as permanent night work, to formulate specific recommendations or standards.

Some might argue, however, that numerous guidelines for the scheduling of work hours exist already and are even often agreed upon [and this is no mean feat for scientists]. Whether or not they could be edited into a format that would attain 'Society consen-

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sus' is open to further discussion. A starting point for such an effort, if considered valuable, would be to review existing exposure guidelines for hours of work such as the EU Working Time Directive.

Although the primary drivers for the EU Directive were probably employment rates and broader social policy, few would disagree that a secondary effect was reducing employees' exposure to working time. Thus, although all of the possible working time factors are not considered by the EU Directive, it is broadly considered to be beneficial to use *absolute* upper exposure limits; even if they are only valid at the group level within specific constraints.

To progress the discussion of more specific, individual level limits is beyond the scope of this response. However, it is likely that any solutions will have to account for the complex homeostatic drivers of 24-hour rhythms and other factors that contribute to non-linear relationships between exposure and potential harm. Given the temporal nature of the likely factors, and the expertise within the *Working Time Society*, there may be merit in progressing the debate. At the very least, further discussion could identify key research questions left unanswered and statistical approaches that would help tease out the complexities of working time exposure.

If there is sufficient interest in pursuing the working time exposure limits question further, and there may not be given the complexities, then there will also be other factors to consider. These will include the potentially positive and negative consequences of the *Working Time Society* being involved in government and industry consultation and media debate. For example, in a time of increasing litigation, it would be prudent to consider any legal exposure risk to the *Society* of making consensus working time limit statements at all. There are also likely to be time and financial considerations relating to evaluating existing guidelines, consulting with major stakeholders, drafting iterations of documents as well as engaging regulatory bodies and the media.

There are many avenues of debate and development that are worthy of the *Working Time Society's* limited resources. Given the known complexities, however, questions as large as working time exposure limits may well be best answered in manageable, systematic parts.

As long as informed debate continues, and any possible risks are understood, then the *Society* will have the best opportunity to contribute to meaningful solutions for employees and their families as well as

the businesses they work for.

Adam Fletcher, Ph.D.

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Don Tepas offered this brief reply:

Adam, I thank you for your excellent comments in response to my suggestion that the Working Time Society recommend working time exposure limits. Yes, the impact of a work schedule is multidimensional, interactive, and very complex. I generally agree with your statement that "...more than 20 years of mathematical, statistical and operational efforts have not collectively been sufficient to create accurate, systematic predictions that account for all of the major components..."

Please note that working time exposure limits (as I see them) are not about accurate, systematic prediction. They are crude expert recommendations, not precise predictors. These recommendations could be changed, as driven by new research and practice. They need not be presented as models. In the future, they would (I predict) be replaced by precise, data-based, bio-social-mathematical models.

The EU Working Time Directive is a government formulation, which may or may not be good. In the USA and many developing countries there are few government working time directives or laws. If the WTS were to lead and develop some recommended exposure limits, they would be science-based, and they would be easier to change when warranted. Are we ready to do this? Are imprecise non-government recommendations better than no limits at all?

Donald I. Tepas

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Do you have something to add to this debate? Would you like to offer a view on another topic related to working hours? If so, please consider contributing to Viewpoint in the next issue of S.I.N. It is advisable to contact the editors (p.bohle@unsw.edu.au) before preparing a submission. We can accept submissions for the next issue until early May 2006 (the December 2005 issue will be devoted to the Hoofddorp symposium).



**17th INTERNATIONAL SYMPOSIUM
ON SHIFTWORK AND WORKING TIME**
18-22 September 2005 - Hoofddorp, The Netherlands

Update

The 17th International Symposium on Shiftwork and Working Time is getting closer and the symposium program is nearly finalized. The National Organizing Committee aims to make this symposium a very interesting *scientific* event. This means that, while sticking to many good traditions, we will introduce some new elements. For instance, there will be parallel sessions at certain points in the symposium. These sessions will open with introductory papers and these introductions will be scheduled in a staggered way. Poster presentations will also have a prominent position in the program. A new item, the 'column', will be written and presented by an expert in the field. Special attention will also be paid to young researchers in several ways. There will also be social and scientific activities organized around the theme of the symposium: 'Balancing interests'.

The National Organizing Committee is very happy to be supported in its organizing activities by many people. Several 'Working Committees' inside ATOS are assigned to specific tasks and responsibilities and Giovanni Costa, President of the Working Time Society, also visited Amsterdam to discuss the program in detail. The most important preparations of all, of course, are those being done by the many participants who are working on their contributions to the symposium - we received a total of 145 abstracts for presentations! The orals will be clustered in special theme sessions, while posters will be shown throughout the symposium. The schedule of the oral presentations will soon be published on the symposium website. Detailed guidelines for oral and poster presentations are published there too. Registration for conference attendance is possible at the website (www.shiftwork2005.atos.nl) until 18 August.

We are looking forward to the 17th symposium and hope to welcome you to the Netherlands on September 18!
Ben Jansen, Coen van Limborgh, Monique Koopman, Arianne Witmond, Gerard Kerkhof, Ludovic van Amelsvoort
National Organizing Committee

Remember: The final deadline for registration is **18 August 2005**.

Information

For further information see www.shiftwork2005.atos.nl or contact the Organizing Committee by e-mail (shiftwork2005@atos.nl).

RESEARCH UPDATE

In the last issue of SIN, Dr Lee DiMilia described some interesting work he has been doing on the factor structure and other psychometric properties of the Circadian Type Inventory.

We hope Research Update will become a regular column in S.I.N. If you have some ongoing research that you feel may be of interest to S.I.N. readers, please contact the editors about briefly describing it in a future Research Update (p.bohle@unsw.edu.au). Submissions should be 500 words or less.

Research students are particularly encouraged to report on their research - and seek feedback or assistance from readers, if they wish.

RECENT CONFERENCE ON SHIFTWORK

THEORY & PRACTICE OF SHIFTWORK

RESEARCH-EDUCATIONAL CENTRE FOR SHIFTWORK AND HEALTH

Krakow, Poland

June 17-19th 2005

In 2004 the State Committee for Scientific Research has given the Department of Ergonomics and Effort Physiology of the Jagiellonian University Medical College the status of the Centre of Excellence "Research-Educational Centre for Shiftwork and Health". It is the unique opportunity to promote the problems of the night and shiftwork among employers, trade unions, organizations responsible for labour policy, surveillance of work conditions and workers health, and legal aspects. The conference have to provide representatives of various sectors with the knowledge about importance of the time factor in organization of human activity (with the special reference to the night and shiftwork), and what they could expect and demand from the centre in order to get the assistance in solving of those problems.

Friday, June 17th

18.00 – round table discussion between International Scientific Board and the Centre staff

- idea and mission of the Centre
- principles of future activity
- preparations for the meeting June 18th
- consensus (agreements) on night- and shift-work issues

Saturday, June 18th

Participants: representatives of trade unions, employers, occupational health service, State Labour Inspection, State Sanitary Inspection, institutes of occupational health (Lodz, Sosnowiec, Warszawa), staff of the centre

10.30 – Opening:

- Dean of Faculty of Health Protection, Professor Antoni Czupryna
- President of the Committee on Ergonomics of the Polish Academy of Sciences, Professor Tadeusz Marek

10.40 – Session 1 (Chairs: Prof. Teresa Makowiec-Dabrowska, Prof. Tadeusz Marek)

- Janusz Pokorski – "Research-Educational Centre for Shiftwork and Health – Development, aims and activity"
- Giovanni Costa, Janusz Pokorski – "Shiftworkers' health – Problems, surveillance, prevention"
- Friedhelm Nachreiner – "Health, safety, and psychosocial effects of non-standard working hours"
- Juergen Tempel – "Work ability of shiftworkers"

13.30 – Session 2 (Chairs: Prof. Giovanni Costa, Dr Janusz Pokorski)

- Johannes Gaertner – "Modern shiftwork schedules"
- Ben Jansen – "Intervention strategies and counselling for shiftworkers and shiftworking organizations"

15.20 - general discussion

Sunday, June 19th

10.00 – meeting of the International Scientific Board

- consensus on in vital problems concerning night and shiftwork

- implications for future activities
- plans for 2005-2007

List of "Hot topics" for discussion and "consensus":

1. Contraindications for night- and shift-work:

- medical
- psychological
- others (social?)

2. Principles for medical surveillance of shiftworkers:

- frequency
- content
- use of WAI or other tools for detection of early signs of intolerance syndrome
- specific diagnostic procedures?

3. Contraindications for night- and shiftwork:

- medical
- psychological
- others (social?)

4. Selection (positive, negative) for night- and shiftwork:

- medical
- psychological
- others (social?)

5. Do absolute contraindications exist?

6. Medical approach to treatment and prevention of intolerance syndrome

- pharmacotherapy (preventive: chronic, causal; therapeutic)
- melatonin, BL, modafinil, lighting and others
- dietary
- rotation

7. Biocompatible shift systems – principles (20 or more)

8. Shiftwork (and night work)-related cancers?

9. Napping at work – recommendations

- length, time
- facilities

10. Special measures for maintenance of vigilance:

- lighting
- napping
- pharmacology
- coffee and food

11. Lighting recommendations

- red light, intensity

12. Work time for:

- night workers, shiftworkers
- days (6, 8, 12 or 16 hours?)
- weeks
- months, years

13. Retirement age:

- males
- females

14. Recommended maximum period in shiftwork (before subsequent transfer to daywork)

15. Timing of shifts:

- M: starting at 07.00 or later?
- N: starting at 23.00 and ending at before 06.00 or later?

For further information, contact Dr Janusz Pokorski (e-mail: mmpokors@cyf-kr.edu.pl)

SUBSCRIPTIONS TO S.I.N.

The Newsletter is published twice annually. Subscriptions may be made in either of two ways:

1. by participating in the *International Symposium on Night and Shiftwork* and paying a two-year subscription as part of the symposium registration.
2. by transferring \$US35 (for two years) to the editors' account (direct transfer is necessary because bank drafts for \$35 are not accepted by the bank):

Name: Shiftwork International Newsletter/
Tsuyoshi Kawakami

Account No.: 100109

Bank: Sumitomo Mitsui Bank

Branch: Seijo Branch

Address: 2-34-14, Seijo, Setagaya-ku, Tokyo
157-0066, Japan

Unfortunately we cannot cash cheques for \$US35, due to the commission charged by the bank. We apologise for this inconvenience.

You may request a free membership if you have financial hardship or difficulty in obtaining foreign currency.

All accounts in Japan have been registered and kept on the mailing list without additional charge.