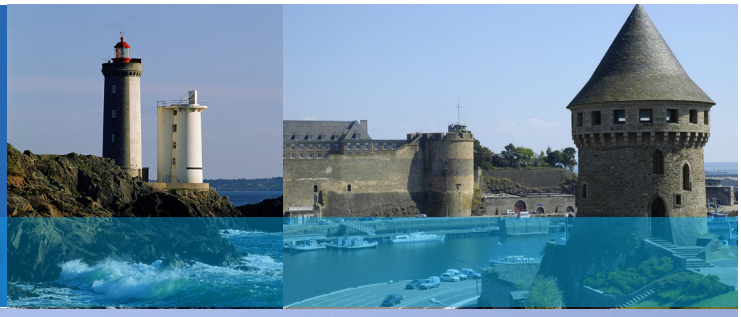
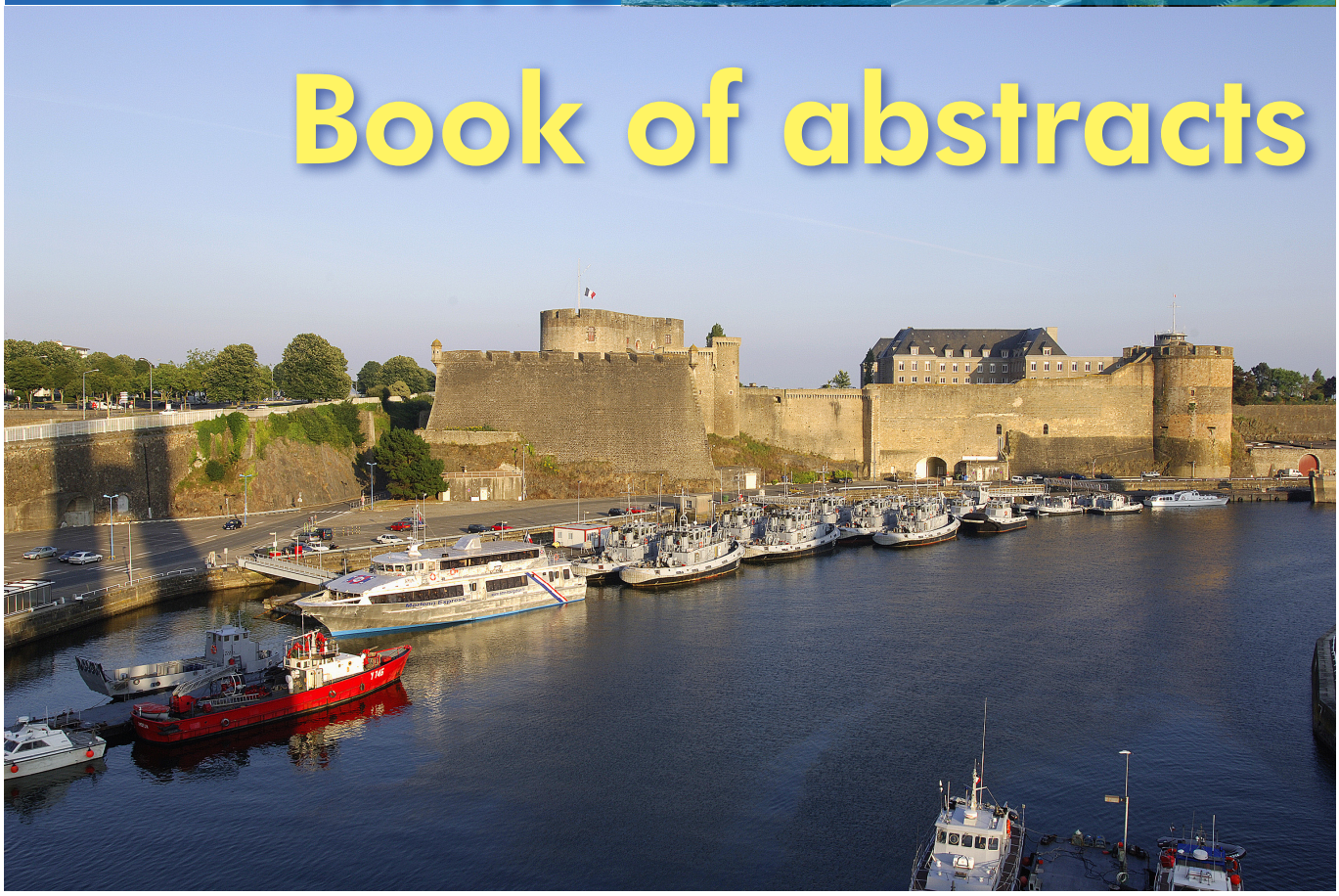
THE INTERNATIONAL SYMPOSIUM ON MARITIME HEALTH

ISMH 12



Book of abstracts



Sea, Health and Beyond

12th INTERNATIONAL SYMPOSIUM ON MARITIME HEALTH

Brest, France - 4 > 7 June 2013

7th Spanish-French Congress of Maritime Health

CIHFMM Brest - 2013 ISMH

Content

Welcome to ISMH 12

The French Society of Maritime Medicine has been chosen as the organiser of the 12th International Symposium on Maritime Health, which will be held in 2013, in the port of Brest (France).

Historically, France is a great maritime nation, and Brest is one of her most prestigious ports. The great explorers Bougainville, La Pérouse, Kerguelen, La Fayette and many other world renowned seafarers set sail from this port. It was at Brest in 1731 that a school of naval medicine was set up, which has acquired a name during its 330 years of existence for being in the forefront of anatomy, surgery and naval medicine. One of the most illustrious students was Calmette.

Today, the port of Brest is a major centre for naval shipbuilding, and it was here that the most advanced nuclear powered aircraft carrier Charles de Gaulle was built. It is also the largest French port for repair and maintenance of civilian ships. The town has recently benefited from a brand new international airport, and is the home of the largest centre of oceanographic research in France, Ifremer.

In the far west of Brittany (Brest being the capital of the area) one finds the greatest concentration in France of fishing ports, both small boats and industrial trawlers. It is a region of seafarers where pleasure boating is also very important, despite the currents, tides and tricky access, since the beauty of the rocky coastline is recognised world wide. The west coast of Brittany is one of the most important tourist regions of our country, which itself is one of the greatest tourist destinations in the world. Marine traffic is heavy, since it is the entry port for the Channel which leads to the great ports of northern Europe.

Brest is the French town with the greatest involvement in maritime medicine. Since 1998, the university has offered a diploma course in maritime medicine and has trained numerous doctors from France and Francophone countries in occupational maritime medicine and port health, medicine on board, and maritime emergency medicine. The university has thus naturally become the social centre of the French Society of Maritime Medicine (SFMM).

The team at Brest is already poised to prepare the 12th ISMH in the very best environment, and we look forward to offering you a wonderful stay with us.

Dr Dominique Jégaden
SFMM President, ISMH12 Chairman

Bienvenue au 7e Congrès Hispano-Francophone de Médecine Maritime

Quelle joie et surtout quel honneur sont faits à la ville de Brest, à la France que d'accueillir la 12e édition du Symposium International de Santé Maritime. L'Océan Atlantique pour horizon, les échanges scientifiques seront sans nul doute, des plus fructueux et pourvoyeurs de données internationales pour la promotion de la santé maritime mondiale.

Quelle chance également qu'un pays latin ait été choisi pour organiser cet événement car au sein de ce Symposium, pourra ainsi se dérouler le VIIe Congrès International Hispano-Francophone de Médecine Maritime. A ce titre, les langues latines (l'espagnol et le français) pourront, elles aussi, s'exprimer au sein de cette réunion planétaire.

C'est le 6 juin 2013 au Centre d'Instruction Naval de Brest que nous aurons l'occasion d'écouter les acteurs de la médecine maritime hispano-francophone qui souhaiteraient communiquer dans une autre langue que l'anglais, langue officielle du 12e Symposium International.

2 thématiques seront abordées le matin :

- la convention du Travail Maritime 2006 et son application pratique dans la surveillance de la santé des gens de mer
- et le handicap dans le monde maritime, entre insertion professionnelle et aptitude difficile ;

L'après-midi, nous laisserons la place à des communications libres et des ateliers de travail pratiques.

En espérant vous voir nombreux à franchir les mers et les océans du monde pour suivre ces évènements scientifiques, nous vous souhaitons à tous d'excellentes rencontres maritimes.

Dr Jégaden et Dr Loddé

Bienvenida al 7° Congreso Hispano-Francófono de Medicina Marítima

La ciudad de Brest se regocija y tiene el honor de acoger la 12ava. Edición del Simposio Internacional de Medicina Marítima. Con el océano Atlántico como horizonte, los intercambios científicos serán, sin duda, los más fructuosos con miras a los proveedores de datos internacionales para la promoción de la salud marítima mundial.

Ha sido también una suerte que un país latino haya sido elegido para organizar este evento de Medicina Marítima (el 7° Congreso Hispano-Francófono) en el seno de este Simposio Internacional. De este modo los idiomas latinas (español y francés) tendrán voz en el seno de esta reunión planetaria, de forma satélite.

Tendrá lugar, el 6 de junio de 2013, en el Centro de Instrucción Naval de Brest, allí tendremos ocasión de escuchar a los protagonistas de la medicina marítima hispanofrancófona que desean comunicarse en un idioma distinta al inglés, aunque esta sea el idioma oficial del Simposio.

Por la mañana se abordarán dos temáticas:

- El Convenio del Trabajo Marítimo de 2006 y su aplicación práctica en la vigilancia de la salud de los trabajadores del mar.
- Las discapacidades en el mundo marítimo, entre inserción profesional y aptitud difícil.

Por la tarde tendrán lugar las comunicaciones libres y los talleres de trabajo prácticos.

Les deseamos los mejores encuentros marítimos a la espera de que muchos crucen los mares y océanos del mundo para seguir estos eventos científicos.

Dr Jégaden y Dr Loddé

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Dr Thanawat Supanitayanon – Thailand

Program

Tuesday 4 June 2013

Venue: Hôtel de Ville Brest / Brest Town Hall

17.00-18.00 **Greeting registered people**

18.00-18.45 **Opening**

Welcome to 12th ISMH 2013

François Cuillandre or his assistant, Mayor of Brest

Dominique Jegaden, president French Society of Maritime Medicine, chairman of ISMH12

Suresh Idnani, president, International Maritime Health Association

18.45-20.00 **Partners and friendship institutions**

Dani APPAVE , former delegate of ILO

Tom HOLMER, former delegate of ITF

18.45-19.10 Conference 1

19.10-19.35 Conference 2

19.40-21.00 **Get together - Standing buffet**

Traditional Music of Brittany

Wednesday 5 June 2013

Venue: Naval Training Center (CIN) Brest

08.00-09.00 Greeting registered people

Room: Amphitheatre Molière

Plenary Session 1 09.00-10.30

Maritime occupational health (Port and maritime toxicology)

Chair: L. Canals, Spain
D. Jegaden, France

09.00 (15) Fumigants and VOCs in Ocean freight containers – identification, exposure and prevention.
U. Svedberg, G. Johanson

09.20 (41) Safe transportation of dangerous and fumigate cargoes under ice conditions of the Azov sea.
Y. Belobrov, L. Shafran, L. Basalayeva, K. Liashenko, M. Zamryborsch

09.40 (170) Pilot study of green house gas emission from shipping for rule making, and decision support for voyage optimization and fleet management.
O. Sulaiman, WB. Wan Nik, MF. Fadhli, M. Bergmann, T. Raj, ASA. Kader, NA. Izzati

10.00 (147) Dock, warehouse workers and controlling bodies should be monitored for fumigants and toxic industrial chemicals off-gassing from globally transported products.
L. Budnik, S. Kloth, S. Fahrenholtz, M. Bratveit, X. Baur

Room: Salle TV 3

Parallel Session 1 09.00-10.30

Specific health problems for maritime leisure and professional sailing

Chair: S. Idnani, India
JC. Fimbault, France

09.00 (31) Management of drowing victims in the Mediterranean value of non-invasive ventilation.
JP. Auffray, F. Bouzana, M. Gainnier, P. Michelet

09.20 (159) Healthy ship: an innovative approach for improving medical care of sailing seafarers.
F. Amenta, R. Degli Angioli, A. Saturnino, F. Sibilio

09.40 (91) Medical conditions requiring emergency evacuation from a tall sailing ship cruise liner.
P. Camal, G. Boucaru, B. Victoire, T. Sauvage, JP. Crest, JP. Auffray

10.00 (85) Medical training for professional sailors.
M. Coudreuse, O. Ballerdi, T. Lassiège, P. Labes, J. Sechet, T. Mokni

10.30-11.00 Coffee break and Poster Session 1

Room: Amphitheatre Molière

Plenary Session 2 11.00-12.30

Maritime Dermatology

Chair: L. Misery, France
K. Boniface, USA

11.00 (3) Teledermatology at sea.
A. Burdick

11.20 (138) The skin of skippers before and after a transatlantic race.
L. Misery, C. Mahé, L. Jacolot, B. Loddé, T. Ionescu

11.40 (175) Skin reactions after stings and bites of marine animals : a recent review.
K. Boniface

12.00 (90) Occupational contact dermatitis from protein in sea products : who is most affected: the fisherman or the chef?
B. Loddé, AM. Roguedas-Contios, D. Jegaden, R. Pougnet, JD. Dewitte, L. Misery

Room: Salle TV 3

Parallel Session 2 11.00-12.30

Piracy at sea

Chair: N. Nikolic, Croatia
JA. Bronstein, France

11.00 (5) Medical aspects of Piracy.
K. Seidenstuecker, V. Hartmann.

11.20 (111) "We are like animals" A case study of coping strategies in an authentic pirate hijacking situation.
L. Froholdt

11.40 (160) Psychological consequences in victims of maritime piracy: evaluation of experiences of kidnapped seafarers and their families.
F. Amenta, AR. Ziello, R. Degli Angioli

12.00 (154) Piracy-9 days in captivity. The true story.
I. Denisenko

12.35-13.45 Lunch in the Richelieu room

Room: Amphitheatre Molière

Plenary Session 3 13.50-15.30

Hyperbaric and underwater medicine

Chair: M. Coulange, France
G. Cochard, France
N. Son, Vietnam

13.50 (140) Investigation of the diving reflex using an ice bag – comparison of free breathing and no breathing.
T. Kikuchi, C. Koichi, F. Koichi, S. Yuji

14.05 (33) Effect of a single open sea air scuba dive on human micro and macro vascularisation.
K. Lambrechts, JM. Pontier, C. Balestra, A. Mazur, M. Theron, Q. Wiang, J. Mansourati, F. Guerero

14.20 (59) Changes in regional cerebral and peripheral blood volume during breath-hold diving in humans.
K. Fujimoto, Y. Sano

14.35 (86) Acute pulmonary edema in immersion can be rapidly life threatening: what consequences for divers and physicians.
G. Cochard, A. Henckes, G. Gladu, Y. Ozier

14.50 (67) Initial management of immersion pulmonary edema.
M. Coulange, A. Desplantes, B. Barberon, A. Barthelemy, N. Attard, M. Alazia, JP. Auffray

15.05 (53) Medical monitoring onboard diving vessels.
S. Scott, D. King

Room: Salle TV 3

Parallel Session 3 13.50-15.30

Maritime occupational health

Chair: A. Ergle, Latvia
D. Lucas, France

13.50 (35) Possibilities of international comparisons of maritime occupational accidents statistics.
P. Räisänen

14.10 (42) Ukranian seafarer's morbidity structure.
B. Panov, S. Balaban, D. Samysko

14.30 (47) Prophylactic focus of medical and sanitary aid to seafarers
A. Gozhenko, V. Lisobey, N. Badiuk, N. Yefremenko

14.50 (76) Blockading Brest: scurvy and success in British naval blockades of Brest during the period 1750 to 1820.
T. Carte

15.10 (39) Deployment of the Mediterranean maritime medical response unit : impact of training rehearsal.
J. Stephan, C. Deniel, AL. Pradel, C. Du Retail, E. Delmond, M. Belletante, D. Meyran, P. Benner, F. Topin

15.30-15.50 Coffee break and Poster Session 1

Room: Amphitheatre Molière

Plenary Session 4 15.50-17.00

Emergencies at sea

Chair: JP. Auffray, France
L. Viruly, Netherlands

15.50 (157) Epidemiology of health evacuations in high sea by helicopter of the French Navy for the benefit of sea fishermen
C. Cerez, A. Vinsonneau, A. Michel

16.10 (136) Factors influencing survival in case of shipwreck and other maritime disasters in the Danish merchant and fishing fleet
HL. Hansen

16.30 (72) Contingency plan for managing exceptional medical risk at sea
B. Sicard, F. Marouze, P. Borel, F. Amadei

Room: Salle TV 3

Parallel Session 4 15.50-17.00

Seafaring medical fitness, seafarer welfare

Chair: D. Jegaden, France
R. Verbist, Belgium

15.50 (83) The weight of Icelandic seafarers.
A. Skuladottir

16.05 (18) The metabolic syndrome in Danish seafarers.
SF MØller Pedersen, J. Jepsen

16.20 (63) An initial study of repatriation in the Philippines.
ML. Malaca-Sanchez, D. Velasco, A. Magno, A. Cruz, E. Rapirap

16.35 (117) The need for a fitness test for offshore workers.
KP. Faesecke, V. Harth, A. Preisser

From 18.45 Get together, Cruise and Océanopolis buffet

Poster Session 1

10.30-11.00 and 15.30-15.50

P.1.142 - Hygienic assessment of water supply and water disposal in the port of Odessa.
NF. Petrenko, NN. Golubiatnikov, AV. Mokiyenko, OB. Zvarych

P.1.143 - Water transport and sea pollution.
NF. Petrenko, NN. Golubiatnikov, AV. Boldeskul

P.1.74 - Study of the pathologies at the origin of sick leaves of more than 30 days in a population of workers of the naval repair in 2009 and 2010.
D. Lucas, B. Loddé, R. Pougnet, JD. Dewitte, JA. Bronstein, D. Jegaden

P.1.19 - Predictors of sexual propensity of the maritime students of DAVAO city.
N. Martinez, D. Velasco

P.1.120 - Naval structures and ergonomics. Occupational health and safety improvement.
JM. Garcia

P.1.24 - Selenium containing lycium barbarum polysaccharides antioxidant research.
L. Liu, Y. Tang

P.1.87 - Effect of trunk/back exercise on Prevention and improvement of musculoskeletal complaints in ship crew members.
N. Gyoda, T. Ogi, Y. Sano

P.1.54 - NMR Metabonomics analysis of helicopter aviators in maritime environment.
W. Zhu

P.1.89 - Skin infection by Staphylococcus aureus in a fisherman : difficulty in continuing work on board.
B. Loddé, R. Pougnet, AM. Roguedas-Contios, Y. Eusen, D. Jegaden, JD. Dewitte, L. Misery

P.1.104 - Effects of CO2 tolerance table breath hold training.
H. Tomago, K. Chiashi, T. Kogo

P.1.12 - Evolution of the ventilatory function of professional divers.
R. Pougnet, A. Henckes, P. Mialon, D. Lucas, L. Pougnet, R. Garlantezec, B. Loddé, JD. Dewitte

P.1.13 - Risk factors for cardiovascular disease among sailors.
R. Pougnet, L. Pougnet, B. Loddé, D. Lucas, D. Jegaden, JA. Bronstein, JD. Dewitte

P.1.14 - Cardiovascular risk factors of professional divers
R. Pougnet, L. Pougnet, B. Loddé, A. Henckes, D. Lucas, D. Jegaden, JD. Dewitte

P.1.23 - The predicted risk of diabetes for professional divers
R. Pougnet, L. Pougnet, B. Loddé, G. Verdier, A. Henckes, D. Lucas, D. Jegaden, JD. Dewitte

P.1.25 - Accidents in hyperbaric chambers
R. Pougnet, A. Henckes, L. Pougnet, G. Cochard, B. Loddé, D. Lucas, D. Jegaden, JD. Dewitte

P.1.68 - Initial management of pulmonary barotrauma in scuba divers.
M. Coulange, A. Desplantes, B. Barberon, A. Barthelemy, N. Attard, M. Alazia, JP. Auffray

P.1.70 - Advances in pre-hospital management of diving accidents in the Mediterranean area from 1991 to 2008.
M. Coulange, A. Desplantes, R. Toesca, C. Castelin, P. Legrand, P. Benner, B. Barberon, A. Barthelemy, JJ Raymond, JP. Auffray

P.1.66 - Analysis of causes of fatal scuba diving accidents and preventive measures.
M. Coulange, J. Desfeux, P. Perich, C. Bartoli, PE. Laurent, G. Gorincourt, MD Piercecchi, JP. Auffray, G. Léonetti

P.1.56 - The Research Progress of Diving Medicine in P.R of China.
F. Yiqun, B. Xiaochen, MM. Ci Li, Y. Hengrong, M. Jun, W. Yan

P.1.80 - Epidemiology of diving accidents in the region of Marseille from 2000 to 2009.
M. Coulange, N. Métifiot-Windson, A. Desplantes, B. Barberon, E. Thomas, R. Toesca, A. Barthelemy, JP. Auffray

P.1.105 - Diving patterns of breath-hold divers.
K. Chiashi, K. Fujimoto, T. Toya

P.1.108 - Diver's neurobehavioral performance under 4.7 Mpa : a real time monitoring.
ZQ. Huang

P.1.106 - Relationships between breath-hold time and lung functions: the effect of breath-hold training for three months.
K. Tsutaki, N. Shibata, K. Chiashi, K. Fujimoto

P.1.50 - Optimization of conventional diving decompression scheme in complex conditions.
W. Shifeng, W. Shengkang, LV. Chuanlu

P.1.65 - Disease Spectral Distribution for the Women aboard Chinese Naval Ships.
B. Jiango, T. Yonghua, C. Bohua

P.1.46 - Electromagnetic irradiation in sea ports.
V. Yevstafiyev

P.1.179 - Researching the reality of working conditions, diving accidents, and proposed first aids measures and prevention of diving accidents for diving fishermen in the Co to and Bach Long Vy Vietnam fishery.
NT. Son, TT. Quynh Chi, P. Van Non

P.1.180 - The effective evaluation of HBO in the treatment of insomnia at Institute of Medicine Maritime Vietnam (Vinimam).
NV. Thanh, NT. Son

P.1.155 - Violations of cardiovascular system function at the workers of maritime transport.
AM. Ignatyev, NA. Matsegora, KA. Yarmula

Thursday 6 June 2013

Venue: Naval Training Center (CIN) Brest

07.30-08.00 Greeting registered people

Room: Amphitheatre Molière

Plenary Session 5 08.00-10.00

Cruise medicine

Chair: E. Dahl, Norway
BF. Scheppers, Germany

08.00 (2) Qualification of ship doctors : a German approach.
K. Seidenstuecker

08.20 (32) Management of physical and emotional trauma in French victims of the Costa Concordia shipwreck.
R. Toesca, M. Marchand, J. Bessereau, P. Benner, PM. Brun, P. Garry, D. Meyran, A. Puget, JP. Auffray

8.40 (150) Whole Blood Transfusion on Cruise Ships, 3 years data.
S. Williams

09.00 (151) Management of Cardiac Arrest on Cruise Ships;3 years of data.
A Diskin, S. Williams, J. Jackson

09.20 (146) Oxygen depleting cargos : revised IMO recommendations when entering enclosed spaces.
U. Svedberg, G. Johanson

09.40 (69) Cruise ship crew referrals to medical specialists in ports with nationalized health systems.
E. Dahl

Room: Salle TV 3

7th Spanish-French Congress of Maritime Health (CIHFMM)

Parallel Session 5 08.00-10.00

Disability and maritime occupation
Ability and Disability: conflict or adaptation?

Chair: D. Jegaden, France
P. Nogueroles de la Sierra, Spain

08.00 (131) Boredom Proneness studying tool in a way to determine fitness for seafarers before embarkment.
D. Jegaden, M. Rio

08.20 (156) Regarding 4 cases of disability from their initial fitness evaluation to seafaring and their follow up.
ML. Canals, M. Soldevilla, I. Denisenko

08.40 (97) Regarding 2 cases of cardiovascular : fitness evaluation to seafaring.
H. Yendis, M. Rincones, M. Soldevilla, MM. Rodriguez, ML. Canals

1st session of free topic

09.00 (171) In water recompression therapy in remote areas : a new protocol developed for the Clipperton atoll expedition and applied to fisher-divers in Vietnam area.
J-M. Pontier, J-E. Blatteau

09.20 (164) Prevention and treatment of decompression illness using in-water recompression: relevance of a training program for fisherman divers in Vietnam.
J-E. Blatteau, JM. Pontier

09.40 (176) Asbestos in French Navy: occupationnal exposure matrix.
A. Maille, N. Paleiron, F. Grassin, M. André

Room: Salle TV 4

Parallel Session 6 08.00-10.00

Human factor in maritime accidents

Chair: A. Ergle, Latvia
J. Abesamis, Filipines

08.00 (153) The human factors in maritime disasters.
Al. Lupanov, SV. Chermianin, KV. Logunov, IA. Lupanov

08.20 (55) Accidents on ships in the danish international ship register
B. Ádam, HB. Rasmussen

08.40 (168) Is a strong common frame of reference predictive of a good team performance?
JP. Clostermann, C.Chauvin

09.00 (29) Towards zero vision The possibilities and challenges for accident prevention in the Danish oil and gas industry.
HB. Rasmussen

09.20 (135) Health care for Ocean racing departures : a partnership between lifeguard society and emergency unit.
A. Lechevrel, A. André, V. Kuckzer, E. Legeard, C. Hudelo, F. Berthier

09.40 *Innovation by Innova©*

10.00-10.30 Coffee break and Poster Session 2

Room: Amphitheatre Molière

Plenary Session 6 10.30-12.00

Seafaring medical fitness, seafarer welfare

Chair: I. Mathison, UK
T. Husby, Norway

10.30 Health of Seafarers. Social and Economic Aspects; the ITF Perspective.
J. Mac Leod

10.50 (28) Integration of Health And Welfare Services - IMHA & ICSW.
S. Idnani, C. Idnani, N. Idnani

Room: Salle TV 3

Parallel Session 7 10.30-12.00

Maritime Labour Convention, practical application: Roundtable

Chair: P. Berciaud, France
ML. Canals, Espagne

Room: Salle TV 4

Workshop 1 10.30-12.00

Stress, mental health and psychosocial factors in the marine environment
MENHOB Project

Chair: M. Jezewska, Poland

11.10 (137) Repatriation rates in Filipino seafarers : a 3 years's study of 3882 cases. *AR. Abaya, S. Roldan, JC. Ongchangco, K. Tabuton, RM. Ronquillo, RF. Sarmiento* *11.30 (82) Immunization schedule for Filipino seafarers 2013 : A MARCDOC initiative.* *C. Mendoza, MM. Calimag, MR. Bergantin, M. Alcaraz, JB. Abesamis, S. Ching, P. Teves, S. Salvador, T. Gonzales* 11.50 Conclusion of the session. *T. Husby*		

12.00-13.25 Lunch in the Richelieu room

Room: Amphitheatre Molière	Room: Salle TV 3
Plenary Session 7 13.30-15.30 Free topic *Chair: R. Sucre, Panama* *A. El Kouhen, Marocco* 13.30 (172) Progression of the attended morbidity in the Spanish radio-medical advice centre from 2009 to 2012. *A. Burgos, R. Burgos, F. Gomez, ML Canals* 13.50 (88) Study of cannabis and cocaine intake in a population of 1000 fishermen from Aquitaine and Charente-Maritime regions (France). *T. Lassiège* 14.10 (165) Is it possible to explain the high incidence rate of work-related accidents at sea ? A recent review. *T. Sauvage, G. Gionta* 14.30 (148) Comparative study of healthy lifestyles in fishermen of the coast of Tangier (Morocco) and the coast of Catalonia (Spain). *H. Estopa, T. Ghailan, RM. Alcolea, ML. Canals, B. Harroum, I. Mourabiti* 14.50 (149) Comparative study of lifestyles and some unhealthy habits in coastal fishermen of the Tangier region coast (Morocco) and the coast of Catalonia (Spain) *T. Ghailan, H. Estopa, RM. Alcolea, ML. Canals, M. Marrakchi, B. Harroum.* 15.10 Discussion	Workshop 2 13.30-15.30 Seafaring medical fitness, seafarer welfare IMHA Quality *Chair: S. Bell, UK* *S. Idnani, India* 13.30 (177) What is the evidence for the benefit of quality assurance and accreditation in maritime health. *S. Bell* 13.50 (122) Evidence base risk assessment in clinical decision taking as a part of seafarer's medical examinations. *AM. Horneland* 14.10 (178) Lessons learned for the introduction of a quality assurance scheme for the medical service on cruise ships. *S. Bell* 14.30 (93) The contributions of standards, competence and quality assurance to clinical decision taking on seafarer fitness. *T. Carter* 14.50 Fitness of seafarers – quality standards. *T. Husby* 15.10 Discussion

16.00-18.00 General Assembly IMHA
Venue: Chamber of Commerce - CCI

19.00 Gala Dinner in Le Quartz

Poster Session 2

Thursday 6th June 10.00-10.30 and Friday 7th June 10.30-11.00

P.2.161 - Food hygiene awareness on board a tanker fleet.
I. Grappasonni, S. Scuri, D. Marconi, F. Petrelli, F. Mazzucchi, F. Amenta

P.2.99 - Treatment of water at an independent voyage.
NS. Baduck

P.2.119 - Laboratory Requirements for Health Assessments in the Philippines: A basis for Modification/ Advancement.
M. Safar, D. Velasco

P.2.139 - The study on WIB training for fishery.
S. Hisamune, K. Fukushu, H. Mathumoto, N. Kimura

P.2.95 - Prevalence and characteristics of admissions due to urolithiasis at the amosup-seamen's hospital, manila.
RJ. Erese, RS. Javier, CF. Oca

P.2.6 - Limiting lowback injuries in Filipino seafarers: the role of the functional capacity exam in the pre-employment medical exam.
A. Abaya, M. Enriquez, P. Landrito, JC. Ongchangco, RM. Ronquillo, RF. Sarmiento

P.2.57 - Cooperative learning of medical care training for seafarers at the University of Basque Country (Spain).
A. Castaños, R. Garcia

P.2.8 - Sources of psychological stress with seamen and suggestive preventive measures.
M. Vranes-Grujicic

P.2.102 - Who benefits from group-based health promotion? a pilot study among finnish seafarers
H. Saarni, S. Visuri

P.2.174 - Interventions on hospital ships in humanitarian acts.
A. Burgos, R. Burgos, A. Perez, E. Regalado, P. Nogueroles, ML. Canals

P.2.145 - Investigation of a cluster of scurvy cases in the crew of a fishing company : Fujan province China. *W. Sheng-Gen, O. Jian-Ming, Z. Li-Jie, GA. Conway*

P.2.38 - Telemedicine services in martime transport and health seafarers.
VA. Zavadsky, VS. Belokrinitsky, VV. Grishchenko, AA. Malgota

P.2.118 - Regulatory government examinations and training of maritime personnel - implications in health: Philippines experience.
DA. Velasco, CM. Capuno, N. Martinez

P.2.81 - Epidemiology of water sport pathology on south west Brittany.
JC. Fimbault, H. Guillemot, C. Petit

P.2.51 - Preparation and medical follow-up for a single-handed transatlantic rowing race.
M. Carron, M. Coulange, C. Dupuy, B. Barberon, A. Roullaud, A. Desplantes, JP. Auffray

P.2.60 - Ergonomics and evolution of Philippine maritime vessels.
JM. Garcia, DA. Velasco

P.2.49 - For prevention of "fatal and injury accidents related to on-board works"
M. Ishii, M. Morikawa, T. Yoshioka, T. Takahashi, M. Takaki, S. Urushidani

P.2.162 - Tobacco smoking habits on board merchant ships.
II. Grappasonni, E. Bergamini, S. D'Amico, F. Mazzucchi, M.A. Samad, S. Soldo, D.S. Taiano, F. Amenta

P.2.61 - Marine schools of southeastern philippines: health curricular matters.
V. Deloso, DA. Velasco

P.2.62 - Problématique de la sécurité sociale des dockers à la société Béninoise de manutention portuaire, à Cotonou.
A. Ayelo, B. Aguemon, A. Hinson, P. Medjigbodo, L. Fourn, B. Fayomi

P.2.124 - The sanitary impact of seismic exploration and drilling of offshore wells.
D. Ntite

P.2.78 - The state of Sea Bathing after the Great East Japan Earthquake.
H. Matsumoto, N. Sato, T. Tetsu, K. Otsu

P.2.79 - The state of Surfing in disaster affected areas after the Great East Japan Earthquake.
N. Sato, T. Tetsu, K. Otsu, H. Matsumoto

P.2.173 - History of the pharmacist and the medical chest in Spanish ships.
A. Burgos, I. Perez, R. Burgos, E. Regalado, A. Guttierez, A. Hardisson

P.2.26 - Pathogenic organisms in seawater.
L. Pougnet, I. Allio, R. Pougnet

P.2.27 - New progress in Chinese navy medicine.
J. Zhang, L. Liu

P.2.110 - Are seafarers fit for exceptional emergency situations on board ship ?
P. Miilunpalo, H. Lindholm, S. Visuri, S. Lusa

P.2.52 - Protective effect of n-acetylcysteine on formaldehyde-induced damage in human bronchial epithelial cells.
M. Wang, S. Chen, H. Pan, J. Ba, Y. Tao

P.2.103 - Effect of alcohol on body core temperature and periphral circulation during 30°C water immersion.
S. Kobayashi, T. Sugino, K. Chiashi, Y. Sano

P.2.128 - The transformation of the maritime education in the midst of Filipines innovation in the basic education.
I. Martinez, D. Velasco

P.2.132 - Abandonment of seafarers in foreign ports.
A. Castaños, R. Garcia, I. Irastorza

Friday 7 June 2013

Venue: Naval Training Center (CIN) Brest

08.30-09.00 Greeting registered people

Room: Amphitheatre Molière

Plenary Session 8 09.00-10.30

Stress, mental health and psychosocial factors in the marine environment

Chair: M. Jezewska, Poland
I. Denisenko, Russia

09.00 (43) Professional activity and development of seafarers personal features.
D. Garushkin, E. Psiadlo, B. Panov, T. Yefremenko

09.20 (144) The different effects of the physical and mental impact of ocean navigation on French oceanographers according to gender.
M. Rio, A. Chalm, D. Jegaden

09.40 (158) Assessment of stress of seafarers on board merchant ships.
F. Amenta, A. Carotenuto, I. Molino, AM. Fasanaro, R. Degli Angioli, A. Saturnino, F. Sibilio

10.00 (100) Positron emission tomography imaging in the early diagnosis of cognitive impairment.
AI. Lupanov

Room: Salle TV 3

Parallel Session 8 09.00-10.30

Offshore medicine

Chair: D. Ntite
S. Bell, UK

9.00 (4) Guide For Cold Water Survival.
J. Kohfahl

9.20 (40) Telemedicine for remote medical support in the energy sector.
S. Scott, D. King, S. Forbes

Port toxicology

09.40 (45) Biochemical markers and estimation of repairing dock workers' state of health at their contact with heavy metals.
E. Pykhteyeva

10.00 (73) Assessment of chrome and nickel exposure during chemical tank reparation.
D. Lucas, B. Loddé, R. Pougnet, JD. Dewitte, JA. Bronstein, D. Jegaden

Room: Salle TV 4

Parallel Session 9 9.00-10.30

Training in maritime medicine

Chair: ML. Canals, Spain
T. Carter, UK

09.00 (98) International postgraduate courses in maritime medicine, a challenge to joint universities.
ML. Canals, P. Nogueroles, F. Rodriguez, MR. Fenoll, D. Jegaden, MM. Rodriguez

09.20 (123) Evaluation of basic training of petroleum doctors in accordance with Norwegian requirements for training.
AM. Horneland

09.40 (75) The NCMM/IMHA textbook of maritime medicine. Second edition.
T. Carter, A. Schreiner

10.30-11.00 Coffee break and Poster Session 2

Room: Amphitheatre Molière

Plenary Session 9 11.00-12.30

Maritime telemedicine

Chair: AJ. Ulven, Norway
L. Viruly, Netherlands

11.00 (113) The Business case for Telemedicine.
C. Henny, K. Hartington, S. Scott, A. Tveten, ML. Canals

11.20 (11) Improving of telemedicine consultation of seafarers by software Siam.
V. Kharchenko

11.40 (84) Swedish radiomedical - passenger cases, 2007, 2009, 2011, 2012 a descriptive study.
K. Westlund, S. Attvall, L. Blohm

Room: Salle TV 3

Parallel Session 10 11.00-12.30

Stress, mental health and psychosocial factors in the marine environment

Chair: BF. Scheppers, Germany
C. Idnani, India

11.00 (48) Voyages time duration and psychophysiologic characteristics of seafarers.
A. Puzanova

11.20 (71) Quality of life of polish seafarers.
M. Jezewska, S. Leszczy, M. Grubman-Nowak.

11.40 (167) Stress in Indian seafarers : from myth to reality.
C. Idnani, N. Idnani

12.00 (130) Means to fight piracy psychological effect on the crew.
C. Vallois, M. Coulange

Room: Salle TV 4

Workshop 3 11.00-12.30

Chemical Burns

Chair: JD. Dewitte, France
N. Nikolic, Croatia

Managing chemical burns on board. What can be done ?

12.35-13.35 Lunch in the Richelieu room

Room: Amphitheatre Molière	Room: Salle TV 3	Room: Salle TV 4
Plenary Session 10 13.40-14.50 Training in maritime medicine *Chair: ML. Canals, Spain* *B. Loddé, France* 13.40 (22) Maritime Learning Network. *JD. Dewitte, B. Loddé, R. Pougnet, L. Pougnet, D. Lucas, D. Jegaden* 14.00 (34) On the doorstep to the Maritime Labour Convention – How does it involve the maritime parties? *K. Jensen, T. Leth* 14.20 (30) Medical training for sea rescue operations: experience in southern France. *M. Coulange, P. Benner, JM. Sague, T. Sauvage, B. Barberon, A. Puidupin, JP. Auffray* 14.40 (181)Guild "Boka Navy "Health and Welfare from Medieval Times. *N. Nikolić, S. Mišković*	Parallel Session 11 13.40-14.50 Maritime Telemedicine *Chair: F. Amenta, Italy* *AM. Horneland, Norway* 13.40 (94) A consensus on the development of maritime telemedical advisory services (TMAS). *T. Carter, A. Tveten* 14.00 (112) Demonstration of videoconsultation with Radio Medico Norway. *A. Tveten* 14.20 (114 + 115) Two way video in remote health care at sea. Consensus on the added value and a solution including specialist advice. *AJ. Ulven* 14.40 (129) Developping "standard operation procedures" for TMAS. A feasibility study. *L. Viruly, MB. Hamming*	Workshop 4 13.40-15.00 13.40 (9) Revolution on board: Point-of-Care (POC) laboratory for rapid diagnosis of infectious diseases. *M. Samad, M. Bouricha, MA. Samad, PY. Levy, P. Parola, M. Drancourt, D. Raoult* 14.10 (58) New concept for medical support of the maritime counter terrorism and counter piracy operations of the French navy. A. Puidupin, O. Dubourg, J. Stephan, N. Cazes, P. Balandraud

15.00 Conclusion of the Symposium and passing the flag to Norway

16.30-18.30 Post-Symposium Session — Venue: Brest University of Medicine, Room TD 2/3
Research in maritime health
Chair: ML. Canals

Practical information

SYMPOSIUM VENUE

ISMH 12 takes place at the CIN, the Naval Training Center of Brest.

ACCESS TO THE CIN

The CIN is located in the Brest harbour and hosted in the post World War naval school buildings, at 4.5 kms from the city center.

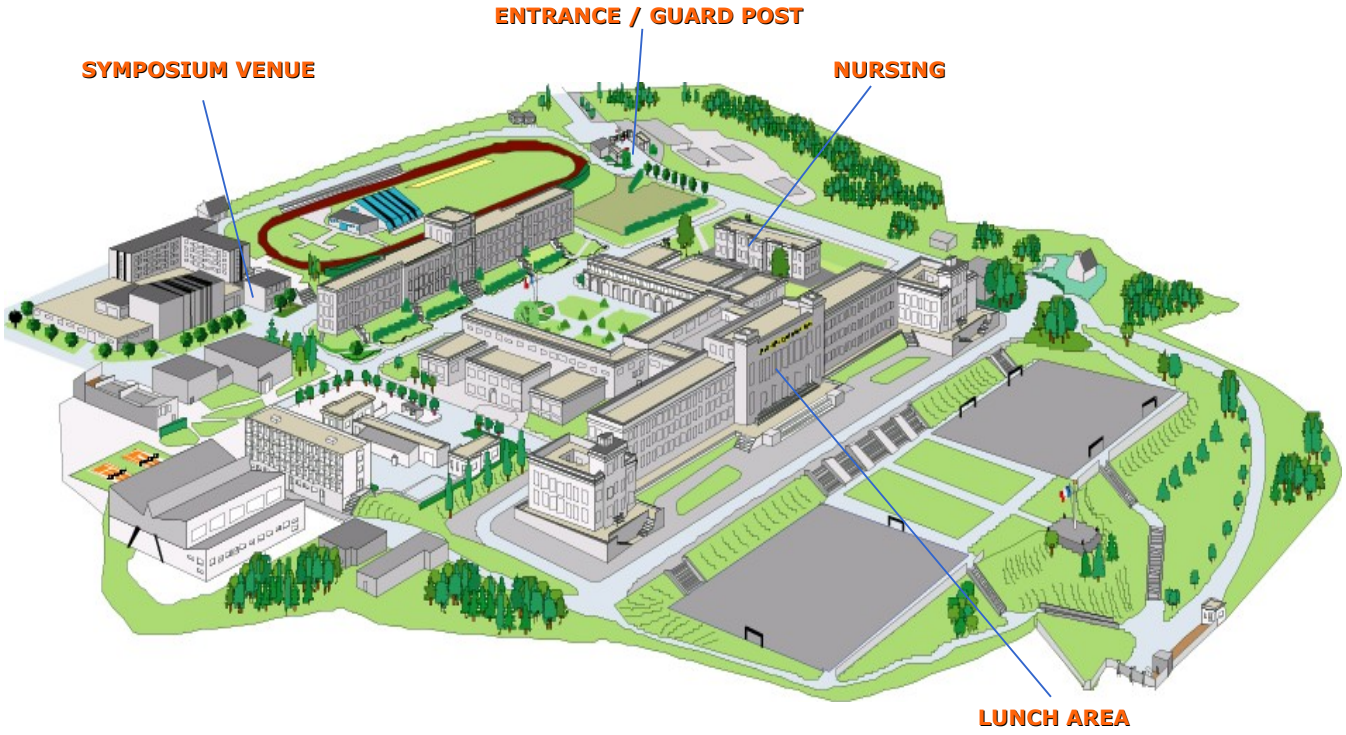
- A free shuttle transfer will be set up between Brest city center and the CIN.
- Inside the bus, someone will check that each user of the shuttle is registered to the Symposium. If someone cannot be found on the list of registered people, this person will have to get off the bus and present himself to the guard post, in order to gain an access authorisation to the CIN site.
- If you are planning to come on your own at the CIN, you must present your identity card or passport to the guard post at the entrance of the military site.
- You will not be allowed to park your car inside the CIN. There are car parks close to the CIN entrance.
- Be aware there are no eating facilities around the Symposium venue. If you do not plan to have lunch inside the CIN., you will have to use public transports or your own means of transport.

INSIDE THE CIN

You are requested to wear your badge at all times.

You must stay in areas which hosts the Symposium and lunches.

Taking pictures is allowed only in these areas.



CIN (Centre d'Instruction Naval)
Avenue de l'école navale – 29200 BREST – FRANCE

FREE SHUTTLE TRANSFER

BETWEEN BREST TOWN CENTER & THE CIN

Meeting points

Direction CIN: next to the Hotel Océania, at the corner of Siam street and Algésiras street

Direction Brest city center: in the Naval Training Center (CIN), in front of the building hosting the Symposium

Journey estimated time: 40 minutes

Meeting time

Wednesday 5th June

Direction CIN: 7:20

Direction Brest city center: 17:45

Thursday 6th June

Direction CIN: 7:00

Direction Brest city center: 15:45

Friday 7th June

Direction CIN: 7:30

Direction Brest city center: 16:00

FROM THE CIN TO BREST AIRPORT

Friday 7th June

Meeting point: in the Naval Training Center (CIN), in front of the building hosting the Symposium

Meeting time: 16:00

Journey estimated time: 40 minutes

Luggages are allowed in the shuttle. You will have to put them yourself in the bunker of the bus.
You will arrive in front of the departure hall.

For all buses signboards will indicate the direction on the windshield.

There is no other shuttle service at any other time of the day.

DINNERS

CRUISE & OCEANOPOLIS BUFFET

Wednesday 5th June

Shuttle departure - From Brest city center to the marina

- Meeting time: 18:15
- Meeting point: next to the Hotel Océania, at the corner of Siam street and Algésiras street

Boarding

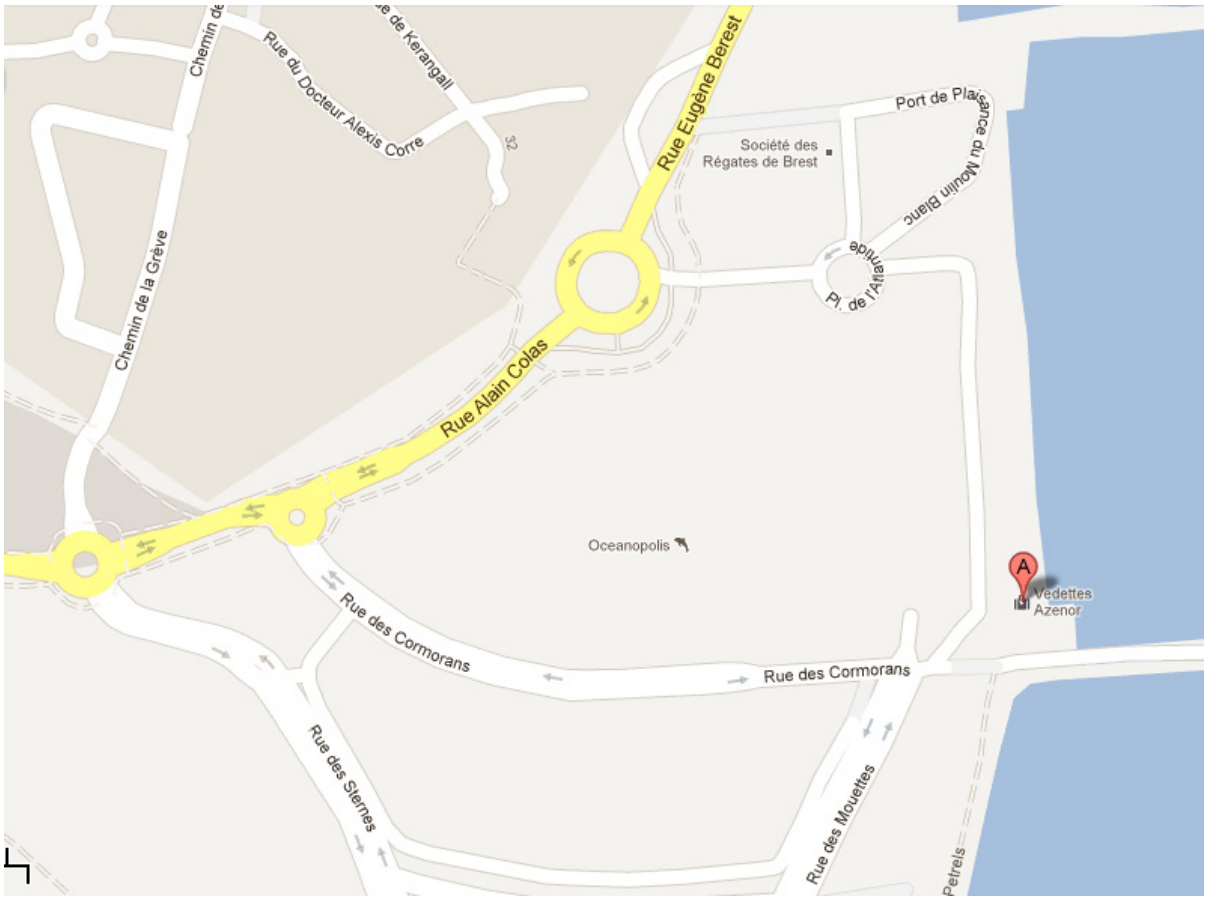
- Boarding time: 18:45
- Meeting point: marina « Moulin Blanc », in front of the Océanopolis entry

Shuttle return - From the marina to Brest city center

- Meeting time: 23:15
- Meeting point: roundabout in front of the Océanopolis, 500 meters from marina « Moulin Blanc »

Highlights

- Cruise : the original guided tour will be run by the Zohar ship with a visit of the Spanish point, the Gully, Round Island and all the ports of Brest
- Océanopolis: visit of aquariums and discovering of the wide diversity of marine organisms
- Buffet: gourmet buffet in front of aquariums



DINNERS

GALA DINNER
Thursday 6th June

Starting time: 19:00

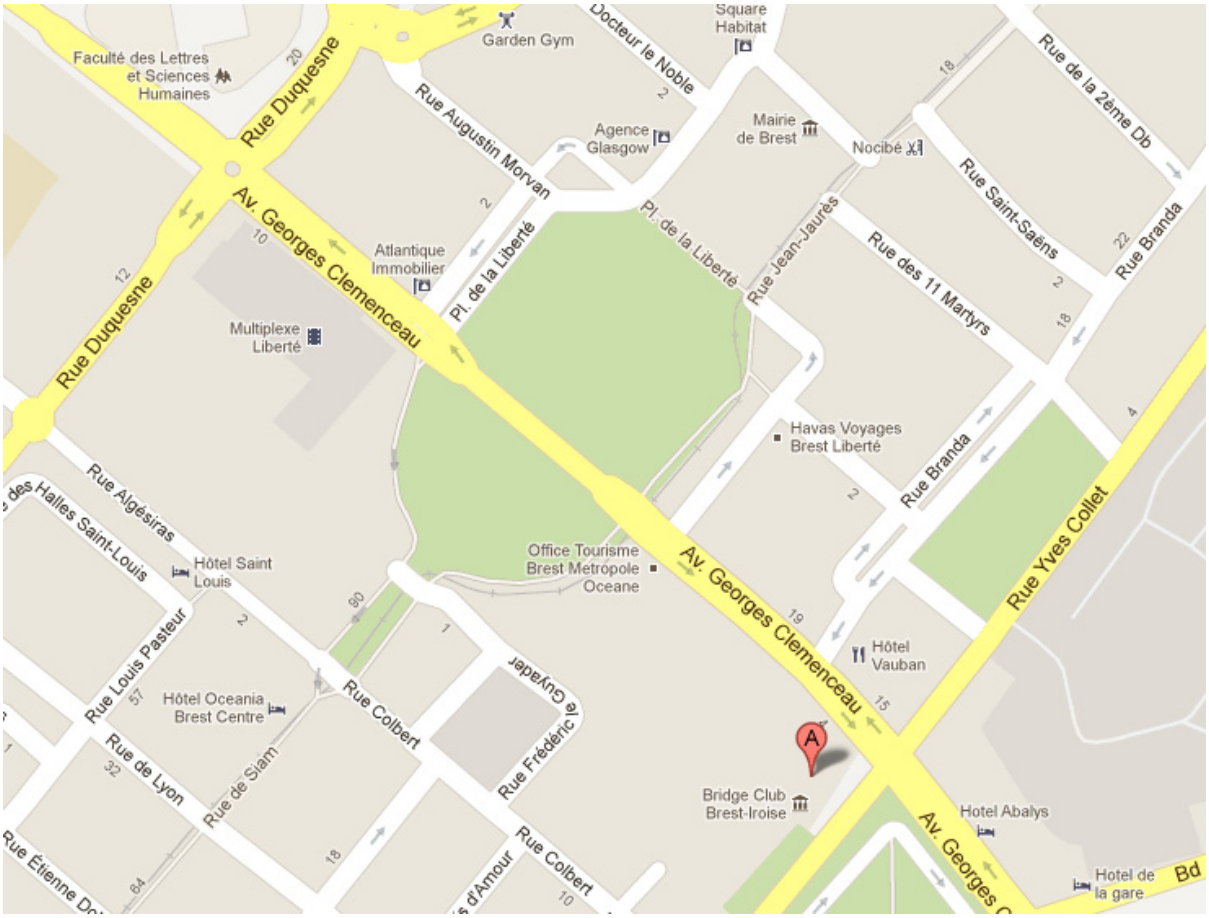
Venue: Le Quartz (Congress Centre and National Theatre), in the Meridian room.

Address: Square Beethoven, 60 Rue du Château, 29210 Brest

5 minutes walk from the square « Place de la Liberté »

Highlights

- Wine tasting offered by the "Cave de Bacchus"
- Meal demonstrating the best of the French culinary tradition
- Musical accompaniment of the group "Indigo"
- Invitation to continue the evening on the dance floor



ISMH 12
ABSTRACTS

Plenary Session 1

Maritime occupational health
(Port and maritime toxicology)

FUMIGANTS AND VOCs IN OCEAN FREIGHT CONTAINERS - IDENTIFICATION, EXPOSURE & PREVENTION -

URBAN SVEDBERG[1*], GUNNAR JOHANSON[2]

[1] Dept of Occupational & Environmental Medicine, Sundsvall Hospital, Sundsvall, Sweden.
[2] Work Environment Toxicology, Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden
*Submitting author : urban.svedberg@lvn.se

Topic: Maritime occupational health
Preferred type of presentation: Oral
Keyword(s): Container, occupational exposure, chemicals, fumigants, tracer gas

Objectives

More than 500 million ocean freight container units are shipped annually between countries and continents. Residual levels of fumigants as well as solvents and other volatile organic compounds (VOCs) emanating from the goods constitute safety risks which may affect unprepared workers upon entering the container. The present studies cover the aspects of identification of risk containers, assessment of workers' exposure and evaluation of preventive ventilation methods.

Methods

Air samples from 101 randomly selected incoming containers in the Port of Gothenburg, Sweden were analyzed on-site using FTIR spectroscopy. Personal exposure was assessed during stripping of import containers at two distribution warehouses. Different preventive ventilation methods were evaluated by the use of an experimental tracer gas method.

Results

Seven percent of the import containers had arrival concentrations of volatile compounds above or well above the Swedish 8-hour occupational exposure limits. Trace amounts of the fumigant carbonyl sulfide were found in one container (1 ppm). The concentrations in the breathing zone during stripping of naturally ventilated containers ranged between 1 and 7 % of that measured in the unopened container (n=6). Extraction ventilation applied at the front end of the container provided the fastest and safest method of securing a risk container.

Conclusions

Strategies for the identification and safe handling of ocean freight containers should be established on national and enterprise levels. Those who enter containers should have access to instrumentation for measuring contaminants and equipment for applying forced ventilation if necessary. The container design should be changed to facilitate air sampling and extraction ventilation.

The studies were financed by AFA Insurance and Västernorrland County Council.

SAFE TRANSPORTATION OF DANGEROUS AND FUMIGATE CARGOES UNDER ICE CONDITIONS OF THE AZOV SEA.

BELOBROV YE., SHAFRAN L., BASALAYEVA L., LIASHENKO K.., ZAMRYBORSCH M.
State Enterprise Ukrainian Research Institute for Medicine of Transport, Odessa, Ukraine.

Introduction. Transportation of dangerous cargoes (oil products, liquified gases, silicious iron, fumigate products) under ice conditions in the Azov Sea is extremely dangerous and connected with the vessels icing, pressure of ship's hull with haycocks and penetration of water**.** Rapid depressurization and water entry into holds results in emission of explosion-dangerous and poisonous vapors and gases (petrol, methane, propane-butane, phosphine, etc.) and threatens health and life of merchant and search-and-rescue vessels crews. **Objective.** To develop hygienic regulations for safe transportation of dangerous cargoes under the specific ice conditions. Methods. Emergencies on board of ice bound ships with dangerous cargoes have been learnt statistically. In model experiments qualities and quantities, mechanism of formation, migration of fugitive and poisonous fumes and gases have been analyzed by gas chromatography, chromato-gas-spectrometria, and electrochemical analysis of air samples. Results. Pressure with ice floes and haycocks resulted in loss of sealing, emission of highly toxic gases (phosphines), cargoes dangerous migration along deck and sometimes hit of the topside. Dangerous hit of outboard water in holds with silicious iron causes rapid reaction with posphine emission into the space above cargo. Chromato-gas-spectrometria did not register emission of phosphine due to inner molecular water in phosphine-containing cargoes at low and negative temperatures. Conslusions. The data obtained were used in the "Practical recommendations of safe transportation of dangerous and fumigated cargoes under ice conditions"

PILOT STUDY OF GREEN HOUSE GAS EMISION FROM SHIPPING FOR RULE MAKING, AND DECISION SUPPORT FOR VOYAGE OPTIMISATION AND FLEET MANAGEMENT

1O. O. Sulaiman, 1W.B. Wan Nik, 1M.F. Fadhli, 2M. Bergmann, 3T. Raj, 4A.S.A. Kader, 1N. A. IZZATI
O.sulaiman@gmail.com
1University Malaysia Terengganu, Malaysia
2. Jepessen
3. Lloyd Register
University Technology Malaysia

Air pollution and its impact are being debated all over the world. The sources of air pollution vary starting from the individual pollutants to huge industry activities. Maritime industry responsible in this issue since there are many types of maritime transports sailing at the sea. The Green House Gas (GHG) emissions from maritime transport are required to be reduced because it is expected to increase if no mitigations are taken. This work investigate pilot study the GHG emission from maritime transports using the Discovery II, a boat belongs to University Malaysia of Terengganu for the quantification experiment and the case oil tanker for analytical work that compare different calculation methods. The different methods investigated to determine the amount of gas emissions for maritime transports. The pilot study was conducted to determine the types and the concentration of gases emitted from the boat (Discovery II) exhaust by using the Gas detector IQ-1000. Based on the pilot study, two types of gases are successfully detected by the equipment which is Carbon Dioxide (CO_2) and Nitrogen Dioxide (NO_2). For the oil tanker, the analytical method is used to determine the amount of green House Gases (GHGs) emitted in three different voyages. The emission estimation formula of Marine Emission Inventory Tool (MEIT) is used to calculate the GHG emissions from oil tanker. The comparison between emission estimation calculation and Energy Efficiency Design Index (EEDI) is discussed in this paper. The EEDI of three different oil tankers is also been calculated as a reference in the future. This paper also discussed the guidelines of using Energy Efficiency Design Index (EEDI), Energy Efficiency Operational Indicator (EEOI) and Ship Energy Efficiency Management Plan (SEEMP).

Dock and warehouse workers should be monitored for fumigants and toxic industrial chemicals off-gassing from globally transported products.

Lygia T. Budnik[1.], Svea Fahrenholtz[1], Stefan Kloth[1.], Magne Bråtveit[2], Xaver Baur[2,3].

[1.] Institute for Occupational and Maritime Medicine, Division of Occupational toxicology and Immunology,
Department of Occupational Health, School of Medicine, University of Hamburg, Hamburg, Germany
[2] Norwegian Center of Maritime Medicine, Haukeland University Hospital, Bergen, Norway.
[3] Institute for Occupational Medicine, Campus Benjamin Franklin, Charité-School of Medicine, Berlin, Germany.

Introduction: The export of manufacturing production resulted in substantial increase in international trade. Increasing number of container tainted with industrial chemicals like fumigations (i.e. methyl bromide[1] or other halo-alkanes) may endanger staff of controlling agencies, inspectorates, police, customs, dock and ware house workers.
Methods: 4000 container air samples were analyzed (2007-2012) for the presence of fumigants and toxic industrial chemicals[2]. We recruited 164 subjects with presumed intoxication to fumigants (plus 30 controls). The exposure assessment was performed with human biomonitoring (screening for methyl bromide, ethylene dichloride, dichloromethane, other halo-alkanes), a standardized questionnaire and comprehensive expert clinical investigation[3].
Results: Our investigations performed in Hamburg and Rotterdam (2007-2012) [2], showed that additionally to the declared hazardous cargoes, more than 20% of the containers are contaminated with various industrial chemicals not declared as “dangerous” . Analyses revealed exposures to halo-alkanes above the non-cancer reference doses (RfD), but (mostly) lower than the occupational exposure limits. 86 individuals with confirmed exposure to halo-alkane-pesticides, we grouped further according to presence of biomarker of exposure. Exposure was associated with elevated serum levels of circulating mitochondrial DNA[4] increasing significantly with the time post exposure[4].
Conclusions: In an emergency, appropriate protection measures can be undertaken only if the type of chemical that has been released is known precisely. Personal air samples should be taken along the supply chain, e.g. when unloading the containers for reloading at harbor ports and human-biomonitoring should be performed for vulnerable groups.

1. LT Budnik, S. Kloth, M. Velasco-Garrido, X Baur (2012) Prostate cancer and toxicity from critical use exemptions of methyl bromide: environmental protection helps protect against human health risks. Environ Health 11: 5-18.
2. LT Budnik, S. Fahrenholtz S, Kloth S, Baur X (2010) Halogenated hydrocarbon pesticides and other volatile organic contaminants provide analytical challenges in global trading. Journal of environmental monitoring 12: 936-942.
3. Preisser AM, Budnik LT, Hampel E, Baur X (2011) Surprises perilous: Toxic health hazards for employees unloading fumigated shipping containers. Sci Total Environ 409: 3106-3113.
4. LT. Budnik, S. Kloth, X. Baur, AM. Preisser, H. Schwarzenbach. (2013) Circulating mitochondrial DNA as biomarker linking environmental chemical exposure to early preclinical lesions, PLoS One, in press

ISMH 12
ABSTRACTS

Parallel Session 1

Specific health problems
for maritime leisure and professional sailing

MANAGEMENT OF DROWNING VICTIMS IN THE MEDITERRANEAN. VALUE OF NON-INVASIVE VENTILATION

Bouzana F [1], Gainnier M [1], Michelet P [1], Auffray JP[1].

1 Department of emergency medicine and critical care -SAMU 13; Marseilles, France.

*Submitting author: jean-pierre.auffray@ap-hm.fr

Topic: Specific health problems for maritime leisure and professional sailing

Preferred type of presentation: Poster

Keyword(s): Drowning, non invasive ventilation

The purpose of this study was to compile the records of drowning victims admitted to intensive care units located around the Mediterranean during the period from 2008 to 2012 and analyze outcomes in function of the respiratory assistance technique used.

A series of 126 patients including 71 men and 55 women with a mean age of 58 ± 21 years were compiled. In 88% of cases, the drowning accident occurred in seawater. Patients were divided into two groups, i.e., with or without cardiopulmonary arrest (CPA) at the time of resuscitation. The group without CPA was subdivided into 3 groups in function of ventilation technique used, i.e., invasive (IV), non-invasive (NIV), and spontaneous (SV).

	CPA	No CPA		
Type of ventilation	IV	IV	NIV	SV
N°	38	14	48	26
Duration of ventilation	7.3	0	1.5	2.1
Death	22	0	0	0

In the NIV group, the Glasgow score (GS) was ≥ 13 in 33 patients; between 9 and 12 in 4; and ≤ 8 in 11. The neurologic condition of the patients in this group improved quickly with a mean GS of 14 ± 1 after one hour.

In contrast with other emergency settings, the use of NIV for management of drowning victims appears to be effective despite the presence of neurologic changes at the onset of treatment. In our cohort, 11 patients presenting a GS ≤ 8 were successfully treated with prompt recovery of conscience using NIV. These findings suggest that NIV should be the preferred technique for management respiratory insufficiency in drowning victims.

HEALTHY SHIP: AN INNOVATIVE APPROACH FOR IMPROVING MEDICAL CARE OF SAILING SEAFARERS

R. DEGLI ANGIOLI[1,2], A. SATURNINO[1], F. SIBILIO[1] and F. AMENTA[1,2*]
[1] Centro Internazionale Radio Medico (CIRM), Rome, Italy
[2]Centro di Telemedicina e Telefarmacia, Università di Camerino, Camerino, Italy
*Submitting author: FAmenta@gmail.com

Topic: Seafaring, medical fitness and seafarer welfare
Preferred type of presentation: oral
Keyword(s): Electronic health records, health surveillance, seafarers, medical care

Abstract

Objectives

This paper summarizes an initiative developed by Centro Internazionale Radio Medico (CIRM) in Italy for improving standards of medical assistance of seafarers on board ships using telemedicine according to IMO MSC/Circular 960/200

Methods

The project follows the legal obligation relating to the "compulsory health information for workers destined overseas", which is specifically governed by Italian Legislative Decree 81/2008 and following amendments, Legislative Decree 106/2009, to be met. Phases of the project Healthy Ship are: Health education, Psychological assessment of on board employment and duty assignment, Risk communication , Risk management and Occupational surveillance.

Results

For analyzing and controlling worker's characteristics and the influence of what he is doing on its health electronic health records (HER) were developed. These HER are implemented with several medical data obtained in standard visits for medical fitness assessment (BMI, Audiometry, ECG, Spirometry, Blood analyses).Access to these records is granted to the occupational health surveillance team, to the doctors on duty for Telemedical Maritime Assistance Service (TMAS) and for each worker that can access his/her health information worldwide via the Healthy Ship WEB site using a dedicated username and password.

Conclusions

Delivery of high quality medical assistance requires a given technological background, but primarily the clinical history of a patient. Information collected for medical fitness and health surveillance of seafarers can be used for providing assistance in case of diseases or accidents on board. This could represent a way for providing without particular extra costs medical assistance to patients on board ships.

MEDICAL CONDITIONS REQUIRING EMERGENCY EVACUATION FROM A TALL SAILING SHIP CRUISE LINER.

P Camal[1], G Boucaru [1], B Victoire [1]. T Sauvage[2], JP Crest[3], JP Auffray[4]

[1] Medical care onboard cruise ships.
[2] Seafarers health service, France.

[3] Mediterranean medical society for maritime emergency (SMMUM); Marseilles, France.

[4] Department of emergency medicine and critical care -SAMU 13; Marseilles, France.

*Submitting author: jean-pierre.auffray@ap-hm.fr

Topic: cruise medicine
Preferred type of presentation: poster
Keyword(s): maritime medical emergencies, chronic disease, trauma.

The CM2 is a tall sailing ship cruise liner with a capacity for 372 passengers and 212 crewmembers. It operates on a seasonal basis in two zones, i.e., the Caribbean and Mediterranean. Medical services are provided in compliance with regulatory requirements and recommendations.

This report describes the findings of a retrospective study of patients requiring emergency evacuation over the last 6 years.

During the study period, a total of 61 persons required emergency evacuation including 23 crewmembers and 68 passengers (range, 25 to 87 years).

The main reason for evacuation was injury (40%) for both passengers and shipboard personnel. The other reasons included heart disease (13%), neurologic disorders (11%), and acute psychiatric illness in 4 patients.

Injury involved both passengers and crewmembers. Medical emergencies were usually associated with chronic illness mainly in passengers. Mental illness involved both passengers and crewmembers equally.

Despite current shipboard facilities and physician training, emergency evacuation is still necessary in some cases. Emergency evacuation raises a number of issues for commercial operations and involves risk for patients. Information should be developed for passengers with chronic conditions. Safety procedures and prevention measures should be implemented to avoid traumatic injury to shipboard personnel and elderly passengers.

Medical training for professional sailors.

M. Coudreuse, O. Ballerdi, T. Lassiège, P. Labes, J. Sechet,
T. Mokni

Introduction

In France, medical training for professional sailors is organised at different levels. The General Hospital of Bayonne is now accredited to provide the most advanced level of training, in collaboration with the Professional Maritime High School of Ciboure.

Objective

Organise thorough medical training for professional sailors, integrating both theory and practicals within the hospital.

Materials and Methods

Medical theory lectures and various workshops were conducted to prepare for the practicals, which mostly took place at the Accident and Emergency Department of Bayonne. Pedagogical groups consisting of one nurse and three sailors were constituted for the practicals. All nurses were professionals from the Department, who had been trained for teaching nursing techniques and introduced to the specificities of professional maritime environment.

Results

The theoretical training appeared to be dense for both students and instructors, although a large body of information was properly assimilated by the sailors. All students were positive about the group system and in particular the ratio of nurses to students, which they judged to be optimal to guarantee instructor availability and quality of the training. The psychological impact of being exposed to difficult hospital cases was underestimated and will be an important aspect of future courses.

Conclusions

The provided training, based on instructor/student groups maintained in both workshops and practicals, was very efficient and allowed the objective to be reached. The results from this first session showed that the Accident and Emergency Department is likely to be the most adapted unit for such a course.

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Plenary Session 2

Maritime dermatology

Anne E. Burdick, MD, MPH

ISMH Abstract

Teledermatology at Sea

For over three years, the University of Miami has provided a store-and-forward teledermatology service for cruise ships around the world. The service is designed to be primarily for crewmembers, but passengers are seen when necessary.

This presentation will address the operational and clinical aspects of this service, including systems architecture and workflow, description and classification of volume, and presentation of interesting cases.

Our experience demonstrates that a store-and-forward approach can be used to effectively provide teledermatology services for an employee population that is geographically dispersed. The service allows crew medical staff to effectively manage skin conditions for their employees, reduce the need for on shore dermatology visits, and more effectively make medical evacuation decisions.

The skin of skippers before and after a transatlantic race

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Maritime Dermatology

Oral

Skin ; sailing ; sport

Skin skippers is deemed to be damaged after a big race off high but we did not find any study on this subject.
We conducted a prospective study at the time of the last Transat AG2R. The 17 crews of two skippers participating in this race have all used the same boat (Beneteau Figaro 2). Clinical examination, photos and a questionnaire of 34 questions were proposed before departure and on arrival, 22 to 24 days later.
Twenty-eight skippers agreed to participate in the study at baseline and 18 on arrival. The average age of skippers was 32 years. 780 photos were taken. Before departure, mycoses of the feet and hyperkeratosis of the hands were very common. Were observed less frequently folliculitis on thighs or xerosis of thighs. Upon arrival, mycoses were aggravated and wider, often affecting the inguinal folds. Hyperkeratosis was considerably more severe, with a peeling in shreds. Dyshidrosis from hands was common. On buttocks, there were often erosions, areas of thickening of the skin and folliculitis.
Hence, numerous skin conditions were noted on arrival but also before departure. These athletes commonly used sunscreens and healing creams but rarely barrier creams, anti-fungals or antiseptics, which favors the occurrence of lesions that probably decreased their performance.

Skin reactions after stings and bites of marine animals : a recent review

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Topic: Marine Dermatology
Preferred type of presentation: oral
Keyword(s): Marine dermatology, marine bite and stings,

Abstract

Mariners are exposed to sea life of all kinds in their travels around the globe. Most of these creatures offer no harm to humans, but encounters with some species can result in disease. In this presentation, the dermatologic manifestations of exposure to marine life will be reviewed, the characteristic features of these illnesses will be illustrated, and the treatment of skin manifestation of marine bites and stings will be discussed.

Occupational contact dermatitis from protein in sea products : who is most affected, the fisherman or the chef ?

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ABSTRACT:

Objectives:
Firstly to determine the incidence of protein contact dermatitis in fishing in France and to compare it with data from work onshore where an exposure to seafood could be found. Second to discover what factors could explain any differences.
Methods:
We analysed data from the French national occupational disease surveillance and prevention network (RNV3P) and occupational diseases declared in the seafarer health and social services. This retrospective study was done for a ten year period.
Results:
Between 2001 and 2011 we only found 7 cases of protein contact dermatitis in the French network. There were no cases of protein contact dermatitis in the seafarer population. The 7 cases from the French network are essentially allergies to different fish and the chef is the profession most touched. Atopy is frequent in these cases.
In the seafaring population we found several cases of eczema due to bryozoans and to gloves but no protein contact dermatitis.
Conclusion:
The chef (when he has to cook seafood) is more at risk of occupational protein contact dermatitis than the fisherman. We think that skin protection (that is to say glove wearing) is better in the fishing sector than in cooking on shore. Atopy seems to be a risk factor for sensitivity to fish proteins in chefs. And yet in France atopy is rare among professional fishermen. Many atopics are prevented from going to sea if they are asthmatic.

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Parallel Session 2

Piracy at sea

MEDICAL ASPECTS OF PIRACY

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Topic: Emergencies at sea, piracy at sea
Preferred type of presentation: oral
Keyword(s): piracy and health, medical management in piracy

Abstract

Working on a medical textbook chapter about piracy the authors did a literature search for publications on it's medical implications. Apart from some singular case reports nothing was found that pertained to the present situation and would allow general conclusions.

Therefore, the (military) method of contingency planning was chosen to assess possible scenarios of piracy attacks and it's physical and mental health effects. Optional routes of action were considered as well for seafarers affected as for physicians involved trying to adhere to the rules of best medical practice as much as conditions would allow.

As a result suggestions are made:

- Ships passing through high risk areas should be medically equipped to sustain attacks as well as (prolonged) hijacking.
- Crew should be trained at least in advanced first aid and in stress management.
- Standing operating procedures should be established to reliably ensure medical care and emergency as well as hygiene management in the various stages of a piracy attack.
- Medical expertise should be available at all levels of crisis management.
- Ships should be able to receive telemedical advice – including psychological support.
- Any attempt to forcefully end the situation should include level 2 medical capabilities.
- Any after action analysis should consider medical aspects; seafarers affected need to be medically and psychologically followed up.

ABSTRACT TITLE: ”We are like animals”- A case study of coping strategies in an authentic pirate hijacking situation.

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Topic: II Emergencies at sea, piracy at sea
Preferred type of presentation: oral
Keyword(s): piracy, acts of terror, coping strategies, pirate-shipowner negotiation

Abstract

Inciting fear and vulnerability is the main objective in acts of terror,[1] and unfortunately in this era of piracy, seafarers and shipowners are both the target of direct violence and the intended audience. The International Transport Workers' Federation has received testimonies from seafarers who were subjected to such 'acts of terror', involving extended confinement, threats by guns, physical torture[2]. It can be argued that the psychological trauma of such acts calls for a response that goes beyond the core competence of a shipping company. A concerted response to the scourge of piracy has been made from different sides[3]. However, for shipping companies and seafarers, the effectiveness of debriefing psychological trauma can become a challenge of proportions.

Research in the effectiveness of debriefing in the psychological and psychiatric disciplines, show that debriefing interventions after critical incidents have proven ineffective, and at best, provide no significant preventive efficacy[4]. These findings make it vital that seafarers are well armed with coping strategies, in order to avoid psychological scarring. The objective of the study is to investigate existing coping strategies and how they are used in interaction.

A data corpus of 173 transcripts of communication between pirates and a shipping company are analyzed using discursive psychology and conversation analysis. The study shows that coping strategies are used by the pirates to intensify the psychological stress for both seafarer and shipowner.

[1]Kaplan, A. (1981), pp. 35-50. McDermott, R. /Zimbardo, P.G. (2007), pp. 357-370

[2]Stampe, C. /Sorensen, L.M. (2011)

[3] Mitropoulos, E.E. (2011): The year of the seafarer and the impacts of piracy. WMU Journal of Maritime Affairs 10, pp 1-5

[4] Van Emmerick et al. (2002); Carlier et al. (1998); Macnab et al. (1998)

PSYCHOLOGICAL CONSEQUENCES IN VICTIMS OF MARITIME PIRACY: EVALUATION OF EXPERIENCES OF KIDNAPPED SEAFARERS AND THEIR FAMILIES

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Topic: Emergencies at sea, piracy at sea
Preferred type of presentation: oral
Keyword(s): piracy, kidnapping, anxieyy, PTSD

Abstract

Objectives

Maritime piracy is a global emergency and there are no studies to date having investigated the effects of this kind of trauma on kidnapped seafarers and their families. This study has assessed the general health status and the presence of post traumatic stress disorder (PTSD) in kidnapped victims and to evaluate anxiety and depression in family members.

Methods

16 subjects were examined approximately 5 months after the release: 4 kidnapped victims were evaluated using the Cognitive Behavioral Assessment (CBA 2.0) and the Clinician-Administered PTSD Scale (CAPS- DX); and 12 family members were evaluated using the State-Trait Anxiety Inventory (STAI Y) and the Hamilton Depression Rating Scale (HDR-S).

Results

All victims showed high scores of state anxiety and emotional instability revealed by CBA 2.0. In addition, 75% of them had traits of anxiety and social adjustment disorder and the half of them developed depression. In 3 of 4 victims a PTSD diagnosis was obvious. Symptoms of recall were documented by higher scores of CAPS-DX. About 70% of family members developed anxiety and/or depression. In the 25% of them both problems were noticeable.

Conclusion

Acts of maritime piracy have a serious impact on seafarers and their families and induce psychopathologies characterized by specific features. Stress disorders are common, in particular PTSD that can consolidate into a chronic disorder negatively impacting on the individual's well-being and functioning. A better understanding of psychological reactions of victims and their families to plan immediate supports and specific therapeutic programs is desirable.

PIRACY-9 DAYS IN CAPTIVITY

TRUE STORY

By Dr.Ilona Denisenko

Moscow,Russia

For the last years growing number of pirates attacks became a real threat to the marine industry. Even with many best practice guidelines available, seafarers remain vulnerable to ruthless attacks. We are talking a lot about post-traumatic stress, examination and psychological treatment of seafarers who was in pirate captivity. But can we do something to decrease risk of such stress, to prepare seafarers not only to defense themselves in case of pirate attack but also to teach them how to survive in case of they will be taken by the pirates

Unfortunately not only Somalia, but piracy off the Nigerian coast and elsewhere in the Gulf of Guinea is on the rise, especially in the oil-rich Delta region

On 17 February 2013 six seafarers were taken when the oil service ship Armada Tuah was attacked around 40 miles off the coast of oil-producing Bayelsa state. A Russian, three Ukrainians and 2 Indian sailors were 9 days in captivity

After being released seafarers were checked in the local hospital,provided with antimalarial treatment and send back to their home countries

9 Days Siege or how to survive? True story told by Russian seafarer after captivity

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Plenary Session 3

Hyperbaric and underwater medicine

INVESTIGATION OF THE DIVING REFLEX USING AN ICE BAG - COMPARISON OF FREE BREATHING AND NO BREATHING-

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Topic: X－ Underwater and hyperbaric medicine
Preferred type of presentation: poster
Keyword(s): diving reflex, ice bag, second derivative photoplethysmograph, free breathing

Abstract

Objectives: It is well-known that diving results in a reflex bradycardia. Arrhythmia that may accompany this bradycardia can be a clinical problem, and examination of the diving reflex has been proposed as a method for judging the risks involved in swimming or diving. The purpose of this study was to compare "free breathing" and "no breathing" diving reflex test conditions using second derivative photoplethysmography (SDPTG).
Methods: 17 healthy men (21.9±1.79 years) volunteered as subjects. Facial cooling was performed by applying an ice bag while subjects rested in a supine position for at least 10 minutes. In order to cover the face well, the ice bag was filled with a combination of water and ice. The ice bag covered the forehead, eyes, cheeks, and nose (mouth and nose breathing was possible). Measurement of the SDPTG (obtained from the left fingertip) accumulated time series data for every beat during three phases: 60 seconds of rest, 30 seconds of facial cooling, and 60 seconds of recovery during both free breathing and no breathing conditions.
Results: The mean SDPTG a-a interval during face cooling increased significantly compared with the resting phase in both conditions. There was no significant difference between the conditions of free breathing and no breathing in the magnitude of this change.
Conclusions: It is concluded that the ice bag method for cooling the face with free breathing in a supine position can be used to induce bradycardia and arrhythmia, and has validity as a method for examining the diving reflex.

EFFECT OF A SINGLE OPEN SEA AIR SCUBA DIVE ON HUMAN MICRO- AND MACRO-VASCULAR FUNCTION

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Topic: Underwater and hyperbaric medicine

Preferred type of presentation: oral

Keywords: Decompression, endothelium, microcirculation, Laser-Doppler.

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CHANGES IN REGIONAL CEREBRAL AND PERIPHERAL BLOOD VOLUME DURING BREATH-HOLD DIVING IN HUMANS

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Topic: X – Underwater and hyperbaric medicine
Preferred type of presentation: poster
Keyword(s): breath-hold diving, human diving response, regional cerebral blood volume, regional peripheral blood volume.

Abstract

To further elucidate the nature of the human diving response, the measurement of hemodynamics during actual breath-hold diving is preferable to measurements under dry conditions or on surface. In the present study, the cerebral and peripheral hemodynamics during actual human breath-hold diving to a depth of 40 m was observed. The study participants were two male competitive breath-hold divers whose personal official breath-hold diving records were both more than 100 m. Underwater near-infrared spectroscopy (NIRS) equipment was developed for the purpose of performing this measurement. The equipment was strapped to the back of the participant, and the NIRS probes were placed on the forehead and forearm. The relative change in the total hemoglobin level (oxygenated-hemoglobin + deoxygenated-hemoglobin) was regarded as the relative change in the regional blood volume of the tissue underneath the NIRS probes. A decrease in the regional peripheral (forearm) blood volume was observed during descent and ascent. In addition, the decreasing level was more profound during ascent in both participants. Because peripheral vasoconstriction can lead to a decrease in the blood volume in the peripheral tissue, it was assumed that the decrease in the regional peripheral blood volume observed during this measurement reflected the typical human diving response. On the other hand, the regional cerebral (forehead) blood volume increased during both descent and ascent. The increase in the regional cerebral blood volume might have been caused by cerebral vasodilation. These results suggested that underwater NIRS measurements were useful for observing hemodynamic features during actual human breath-hold diving. Therefore, the equipment developed for this measurement might provide new knowledge regarding the human diving response.

Acute pulmonary edema in immersion can be rapidly life threatening: what consequences for divers and physicians.

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Topic: selected topic diving

Preferred type of presentation: oral

Keyword(s): diving, death, acute immersion pulmonary edema, prevention, rescue

Abstract

Background

Despite efforts to reduce their number, fatal diving accidents still occur. The causes are multiple (insufficient gas, entrapment, equipment problem, necessity of emergency ascent, buoyancy trouble, cardiac incident) leading finally to drowning. Cardiac incidents include dysrythmias, cardiac arrest but also immersion pulmonary edema (IPE). Autopsy may underestimate this cause, as the macroscopic differentiation between pulmonary edema and water aspiration is not feasible. The reality of IPE-related scuba diving is no longer contested. We want to discuss some risk factors and preventive measures about two case-reports of acute IPE during swimming.

Case-reports

We observed recently two cases of very acute IPE (onset in a few minutes): in one case IPE prevented the diver from swimming and calling for help, and in the other, it led to a loss of consciousness in water. Both narrowly escaped death. One was 46 year-old with HTA, Ankylosing Spondylitis, and recent Tuberculosis contagium: he was taking diclofenac, amlodipine. The other was 48 year-old without particular medical history. Both were practicing regularly sport.

Results

1- In IPE, three factors seem predominant: **effort**, **cold** and **stress.**

2-Acute IPE can be rapidly life threatening like a "**flash pulmonary edema**". Thus, in the cases of death in immersion, IPE related death should be considered as well as cardiac dysrythmias.

3-The prognosis is far better in the case of IPE related loss of consciousness than in case of cardiac dysrythmias but it is dependent of the **efficiency of the supervision.**

Conclusion

Divers and supervising physicians must take into account the reality of acute IPE related death.

- An **efficient diver supervision** is always needed.
- When assessing **fitness for activities in immersion** this should be taken into account with a careful cardiological evaluation (neither cardiopathy nor valvulopathy - controlled blood pressure). Be careful in case of **history of first episode**.

INITIAL MANAGEMENT OF IMMERSION PULMONARY EDEMA

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Topic: Underwater and hyperbaric medicine
Preferred type of presentation: oral and/or poster
Keyword(s): diving, immersion pulmonary edema, oxygen therapy

Introduction: During scuba diving, the body is placed under intense physiological constraints that can lead to pulmonary edema in individuals with no history of cardiorespiratory disorders. The purpose of this study was to analyze initial management of these patients with a view to developing a standardized protocol.
Methods: This study presents a mostly female series of 22 divers with a mean age of 49 years referred to the Emergency Department of the Marseille University Hospital Center for pulmonary edema. Most patients had no previous medical history.
Results: Respiratory symptoms including dyspnea, cough, and hemoptysis occurred when returning to the surface after a deep dive lasting more than 30 minutes. In these cases resurfacing often required great physical exertion in a context of hyperoxia, cold, and/or stress.
Pulmonary auscultation revealed bilateral crackling sounds that were well tolerated with no sign of right cardiac insufficiency. Mean arterial pressure was stable at 94 mm Hg (range, 85 to 105 mm Hg) and heart rate at 89 min^{-1} (range, 60 to 108 min^{-1}). In ambient air, blood oxygen saturation was 92% (range, 82 to 98%) and PaO_2 was 70 mm Hg (48 to 90 mm Hg). Diagnosis was assisted by CT scan that showed diffuse interstitial syndrome and ruled out arterial gas effusion. In most cases, treatment consisted of oxygen therapy under normobaric conditions for 24 hours. However, two patients were transferred to the cardiology department due to myocardial ischemia associated with cardiac insufficiency. Outcomes were always favorable and follow-up findings were normal.
Conclusion: Immersion pulmonary edema is characterized by a discrepancy between clinical and laboratory findings. Diagnosis necessitates extensive additional studies and treatment requires oxygen therapy for at least 24 hours. Cardiologic management may be necessary in some cases.

Objective

To provide the same standard of care equivalent to that available onshore to divers in saturation in a diving support vessel (DSV).

Method

A telemedicine unit (D-MAS) has been developed for use supporting offshore medics within the energy sector. A “hypersat” version of this equipment has been developed and fully tested/certified for use within a saturation chamber to a depth of 400m and in an oxygen rich environment. This unit as well as allowing a direct video consultation with a diver in saturation can monitor blood pressure, pulse oximetry and an extended ECG. Attachments for otoscopy, and dermatascopy are also available. This enables the doctor onshore to speak directly to the patient, to observe the patient or to direct an appropriate physical examination while observing real time vital sign data. This consultation can also be shared via encrypted web conference with other medical specialists as required. The other major benefit of the unit is its small size and that it can be rapidly pressurized when required in saturation.

Results

Testing in the UKCS in DSVs has proved the technology works and can be used to improve the confidence in the diagnosis of medical conditions within saturation and allows onshore medical support to provide a standard of care equivalent to that available onshore.

Conclusion

Real time telemedicine support is practical to provide and significantly improves the degree of support that can be provided remotely to a remote environment.

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Parallel Session 3

Maritime occupational health

POSSIBILITIES OF INTERNATIONAL COMPARISONS OF MARITIME OCCUPATIONAL ACCIDENT STATISTICS

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Topic: Maritime occupational health

Preferred type of presentation: oral

Keyword(s): Maritime occupational accident, Lost Time Incident Frequency, international comparisons

Abstract

Reliable statistics of occupational accidents are necessary for rational improvement of safety of seafarers by benchmarking. Several organizations publish maritime occupational accident data internationally, but the comparisons and benchmarking are difficult for several reasons. Differences are typical in:

- Definitions of occupational accidents
- What is the number of persons and time at risk on-board
- Sizes and types of ships which are included in each statistics
- Incentives for reporting of the accidents

For this reason, the content of some published information was analyzed in Turku University of Applied Sciences. Similar features and possibilities of joint uses of the data were reviewed. A case study of the statistics of the Nordic countries was carried out and the details of the accidents reporting were inquired for each country. Comparative graphs for Lost Time Incident Frequencies in Denmark, Finland, Norway and Sweden are shown. A joint method of occupational accident statistics is proposed, with an aim for practicality but sufficient accuracy for benchmarking.

Based on comparisons it is proposed e.g. that 1) Occupational accident frequencies for statistics could be extracted from insurance payment data instead of voluntary reporting, 2) Risk exposure could be based on 24 hours per day, 3) Accident rates (LTIF) could be calculated per million exposure hours, as this information can be obtained relatively easily. In addition, some future possibilities of increasing knowledge on the matter are discussed.

The project CAFE is funded by the EU, the Regional Council of Päijät-Häme, and participants from the industry.

UKRAINIAN SEAFARERS' MORBIDITY STRUCTURE

PANOV BV,BALABAN SV, SAMYSKO DB

State enterprise "Research Institute for medicine of Transport", Odessa, Ukraine

Objective: to determine seafarers' morbidity system and improve medical care on board a ship. **Object**: personified data of 4788 seafarers medical examinations for 2011-2012. **Results**: the seafarers under examination have been ranged according their age and professional groups with subgroups of offices and sailors. There were two groups of seafarers according tot heir state of health – healthy (n = 3417, 71.37%) and those with chronic diseases (n=1371, 28.63%). Only 2.3% of the person with chronic diseases were classified as "unfit for sea". The rest needed special medical care during sea voyages. Cardio=vascular pathology was registered in 70% of cases, gastro-intestinal pathology constituted 18%, urinary tract disease constituted 6%. Less than 1% of cases constituted all other pathologies. There were no significant difference in cardio-vascular and gastro-intestinal pathology frequency rate in all professional groups. However, diseases of urinary tract were met significantly more frequent ($p<0.01$) among deck officers. **Conclusions**: 1. In the curricula of medical training for seafarers the greatest attention should be devoted to cardio-vascular and gastro-intestinal diseases. 2. The problems of dietary nutrition for the crew members with gastro-intestinal diseases are urgent and should be reflected in the curricula mentioned above as well.

PROPHYLACTIC FOCUS OF MEDICAL AND SANITARY AID TO SEAFARERS

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Objective: to substantiate requirements to prophylactic targeting of medical and sanitary aid extended to seafarers and thus decrease risks of morbidity.

Tasks. To estimate health risk factors and develop measures of their coping.

Results. More than 50 year researches of the Institute allowed us to determine etiological gradation of risk factors typical for seafarers and highlight the paths of their diminishing by methods of sanitary and epidemiological supervision and therapy.

We consider sanitary and epidemiological supervision to be the first link in a consistent chain of prophylactic medicine common for all fields of industry. While specific conditions seafarers exist at both labour and rest intensifies each other. Groups of risk include physical, chemical, epidemiological, biological, ergonomic, natural, physiological and managerial factors. Medical fitness examinations are an intermediary stage on the direction to curable measures. Their objective is to determine if the candidate fits to work at sea under the conditions of all ship risk factors influence.

At further medical examinations the dynamics of health changes under the influence of risk factors is diagnosticated and measures arresting the progress of diseases are determined. These measures include diagnosis, treatment at in-and out-patient units, health survey, rehabilitation, recreation, recommendations in the case of necessity about change of profession, retirement and measures of social protection.

Conclusions.

The development and scientific verification of sanitary norms and rules, methodical recommendations, regulations, training of experts for sanitary and preventive and curative departments are necessary for qualified fulfillment of maritime medicine prophylactic tasks.

Keeping the French Atlantic fleet confined at the naval base of Brest and preventing or at worst detecting any moves to mobilise into open waters was one of the prime objectives of the British Navy during both the Seven Years War of 1756-1763 and the Napoleonic Wars of 1799-1815. Blockade was established during both conflicts. This required a squadron of ships to be stationed off Brest continuously and either re-supplied at sea or replaced regularly by new vessels from bases in Britain. This was an arduous posting with long periods in hostile seas, with no prospect of shelter in the event of storms and where continuous vigilance and readiness to fight against a well organised and armed force were needed.

Outbreaks of scurvy were common among the seamen on the blockading ships during the Seven Years War and the early years of the Napoleonic wars but there were changes to provisioning from around 1800. It was then accepted that citrus fruits and fresh meat and vegetables should be supplied not just for those suffering from scurvy but as a preventative measure. This led to a great reduction in the frequency of the disease and greatly increased the British navy's ability to maintain an effective blockade.

I will examine the background to this change in policy and its effectiveness as well as consider why it took so long for it to be established following the work of James Lind in 1747.

DEPLOYMENT OF THE MEDITERRANEAN MARITIME MEDICAL RESPONSE UNIT: IMPACT OF TRAINING REHEARSAL

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Topic: Training in maritime medicine/ Emergencies at sea, piracy at sea

Preferred type of presentation: oral

Keyword(s): disaster medicine, exercise, field training

ISMH 12
ABSTRACTS

Plenary Session 4

Emergencies at sea

Epidemiology of health evacuations in high sea by helicopter of the French Navy for the benefit of sea fishermen

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Topic: Emergencies at sea
Preferred type of presentation: oral or poster
Keyword(s): Fishermen, French Army, Search and Rescue, High sea, Helicopter

Abstract

Brittany is the French most maritime area; it provides 35% of French fishing. The French Navy is undertaking search and rescue in deep sea areas as a public service. Fishermen represent 35% of this activity.
The aim of this study is to analyse this population. It is a retrospective monocentric study based on data collected by the Lanveoc-Poulmic Aeronavale Base from 2008 to 2011.
The topics of these aeronautical evacuations have been analysed according to medical rescue register: 91 evacuations for 109 patients. They all were men.
2 categories of emergency evacuations have been collected: medical evacuations (89%) including those for medical reasons (40%) and those due to accident on board (49%); and secondly rescue at sea (11%) for search and rescue of people following a fall over board or a shipwreck.
Main reason for medical evacuation is injured people mostly because of traumatism while fishing. First aetiology is wounded hands. Second cause of evacuation is abdominal indication (28%) then heart attack (25%).
The drowned at sea were distributed between fall over board (21%) and drowning men consequently to damage of ship (79%). Drowned at sea usually die up to 36% while 25% disappear.
These results confirm how this profession is hazardous and how necessary it is to develop an active prevention against these accidents. A good prognosis relies on the great reactivity of Search and Rescue operation.

FACTORS INFLUENCING SURVIVAL IN CASE OF SHIPWRECK AND OTHER MARITIME DISASTERS IN THE DANISH MERCHANT AND FISHING FLEET

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Topic: Safety at sea; survival at sea
Preferred type of presentation: oral
Keyword(s): maritime disasters, survival at sea

Abstract

During the last 40 years, merchant and fishing ships have become safer and a number of new safety measures have been introduced. The purpose of the present study was to investigate factors influencing survival.

The first part of the study focuses on seafarers who abandoned a merchant ship in the period from 1990 to 2012. During the 22-year period, more than 40 incidents were identified involving more than 270 seafarers. Among these, 51 did not survive. The fatality risk for seafarers on small ships was about six times higher compared to large ships. Among seafarers who were rescued dry, one was injured and did not survive. Out of 64 seafarers ending up in the water, 28% did not survive. Suboptimal organization of the evacuation process was of importance in some cases. Survival suits and automatic emergency transmitters (EPIRB's) have been shown to work in practice but their introduction has had limited influence on survival statistics in the merchant fleet.

The second part of the study focus on the development of safety among fishermen in the Danish fishing fleet in the last decade. The number of incidents is much higher compared to the merchant fleet, but the survival rate is high despite the fact that a large proportion of the accidents take place during the cold season. Widespread use of modern life saving equipment has had major impact on survival.

Contingency Plan for Managing Exceptional Medical Risk at Sea

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Topic: Emergencies at sea, piracy at sea
Preferred type of presentation: oral
Keyword(s): Maritime Medicine, Hostile Environment, Medical Engineering

Abstract

Capitalizing on their experience as medical providers supporting maritime operations (offshore, cruise, fishing vessels) worldwide, including Antarctica, and Medical Director of a seismic fleet, the authors assess the evolution of the medical risks for seafarers and their passengers while sailing in hostile environments, and the contingency plans which are designed to gradually address such risks.

Mitigation of risks related to piracy, challenging medevac conditions due to the remoteness of sailing areas, must be anticipated through the following plan of actions:

1. Assess the medical risk and the level of medical support required with benefit/cost analysis.
2. Provide inboard medical facilities with drugs and equipment focusing on versatility, redundancy and reliability, while complying with international regulations and state of the art in medical practice.
3. Recruit, train and manage the inboard medical provider(s) according to the level of skills required by the specific environment.
4. Crisis management readiness (on site and at company headquarters) mostly through training, policy definition and ready to implement protocols (including hostage situation management, public health…), but also through minimum redundancy of medical resources and identification of specific experts (psychiatrists, forensic pathologists, epidemiologists…).
5. Post crisis debriefing and lessons learned.

The authors are illustrating these risk management policies through actual examples addressing:

1. Medical imaging: X-ray, ultrasound.
2. Blood transfusion management.
3. Laboratory capabilities.
4. Remote medical support, through telemedicine.
5. Special skills for special risks.

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ABSTRACTS

Parallel Session 4

Seafaring medical fitness, seafarer welfare

THE WEIGHT OF ICELANDIC FISHERMEN

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Topic: Seafaring, medical fitness and seafarer welfare
Preferred type of presentation: oral
Keyword(s): Physical fitness, weight.

Abstract

There are no rules and regulations in Iceland for crew members other than officers regarding certification of fitness to work on board fishing ships. It is important for safety on board to have a crew that is healthy and has the physical fitness to work and survive under extreme conditions.

The objective of this study was to look at just one aspect of physical fitness, weight, and try to find out if many fishermen in Iceland would have trouble passing a health examination because of weight problems.

Data was gathered on board ships and in health examinations, using a questionnaire. A total of 405 questionnaires were useable for the study. Only fishermen working on fishing ships 500 GT and larger were studied.

The results showed that the average weight was 90 kg, average BMI was 27.7. Nearly 24% were obese with 6% of the fishermen with BMI of 35 or more. Nearly 120 Icelandic fishermen would not get license to work on board fishing ships due to weight problems.

When these results are compared with older studies an increase in overweight and obesity can be seen. This is not good and something needs to be done to diminish this pending epidemic of overweight amongst seafarers. We need to look at the diet onboard, the convenience stores onboard, regular exercises and health promotion. The fishing companies need to share the responsibility and the changes have to be initiated from the top by supporting healthier lifestyle on board in every way possible.

THE METABOLIC SYNDROME IN DANISH SEAFARERS

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Topic: Lifestyle and prevention
Preferred type of presentation: Oral
Keyword(s): Metabolic syndrome, lifestyle, fatigue, cardiovascular health, seafarers

Abstract

Objectives: To assess the prevalence of the metabolic syndrome (MS) among Danish seafarers.

Methods: MS is a condition caused by low physical activity and increased caloric intake but not only restricted to obese subjects. Approximately 20% of Danish adults have MS. It is likely that there is an elevated prevalence among seafarers due to lifestyle and risk factors on board, e.g. fatigue. Out of 655 seafarers attending medical fitness examination by seafarers' doctors in four clinics 481 underwent waist circumference measurements and had blood samples taken if increased. MS was defined according to the International Diabetes Federation as a combination of central obesity (indicated by increased waist circumference) plus two of the following four: Elevated triglycerides, BP, fasting plasma glucose, or reduced HDL-cholesterol (or treated hyperlipidemia or hypertension, or previously diagnosed type 2-diabetes, respectively). Seafarers with MS were advised with regard to health (10% weight-reduction, physical activity ½ hour/day, reduced saturated fat and increased fibers in diet, smoking cessation, control of alcohol).

Results: We present the crude baseline prevalence of MS among Danish seafarers.

Conclusion: The identification of an increased prevalence of MS may positively influence lifestyle and reduce complications such as type 2-diabetes, atherosclerotic cardiovascular disease, and hypertension. Follow-up after two years will be carried out this summer.

1. Alberti KGMM et al. The metabolic syndrome - a new worldwide definition. Lancet 2005;366(9491):1059-62.

AN INITIAL STUDY OF REPATRIATION IN THE PHILIPPINES

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Topic: Seafaring, Medical fitness

Preferred type of presentation: oral

Keyword(s): repatriation

Abstract

This is a descriptive study that involves the repatriation of seafarers from the Philippines. Though the medical conditions are already screened and intervened prior to the deployment, there are factors which contributes to problems onboard and benchmarking data should be considered to improve the medical status of the workers in the Philippine maritime industry.

The Philippines is one of the largest human resource that flood workers into the maritime industry the world over, with such a critical mass in labor one must see the epidemiologic profile as well as the indicators that can have a working scientific basis for the directions either in medical protocols and/or policy in health screening.

Data presented are culled from the records of maritime manning agencies in the country, and the medical, dental, surgical, and other causes are then tabulated. Other correlations in the management as well as the impact of repatriations are presented for updates.

The need for a fitness test for offshore workers

KP. Faesecke, V. Harth, A. Preisser

Currently there is a controversial discussion surging in Germany over the importance of health physicals versus the individual's free disposition of her/his medical data which is considered superior over the prophylactic aspect of pre-occupation health exams.

The offshore medicine working group of the German Maritime Health Association (DGMM), based on the individual expertise of the participants, gathered during the medical coverage of the initial projects since 2008, considers a pre-employment fitness test mandatory for every worker before putting to sea.

Looking at the special environment exposing to heat, cold and wind, the increased work load of climbing vertical ladders, working at great heights while wearing clumsy protection gear, working in shifts while staying off-shore, risky means of transportation on or above the waves, one realizes that this work-place requires a physical fitness distinctly above the standard of today's average male worker.

The working group developed in 2010 (last revision in 2012) a recommendation on the fitness examination for offshore workers. The group unanimously opted for a standardized procedure to establish a minimum pulse working capacity (PWC) considered essential for the worker's individual safety when moving around, at the same time protecting the safety of his co-workers. This primary approach is therefore aimed at the individual, not the satisfaction of the employer.

How this test is conducted, either by standardized bicycle-ergometer or applying different step-tests should be described and discussed. It is postulated that the decision should be left to the examiner. Preliminary results of the first year's application will be presented.

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ABSTRACTS

Poster Session 1

HYGIENIC ASSESSMENT OF WATER SUPPLY AND WATER DISPOSAL IN THE PORT OF ODESSA

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Urgency: increase of Ukrainian ports cargo turn - over leads to the necessity their water supply and water disposal improvement. It concerns optimization of drinking water quality according to the international requirements for the expansion of its delivery on board the ships and quality control of different polluted waters (waste and fecal, ballast, petroliferous, bilge), rain (from the systems of the storm sewerage), etc. This is a problem of top priority as the ports, in particular the port of Odessa port, directly borders the recreational and rest areas and their pollution may cause essential damage to health of the population, recreants and patients. **Objective**: to do a hygienic assessment of water supply and water disposal of the port of Odessa. **Methods:** sanitary and epidemiologic inspection, analytical. **Results:** water supply of the port is carried out via water supply system of Odessa and from underground sources (11 artesian wells located on the territory of the port). The depth of the wells is from 67 to93 m (the upper Sarmatian water-bearing horizon). The inspection made showed an unsatisfactory sanitary and hygienic condition of the soak constructions, sanitary protection zones of artesian wells and sewer and pump stations. It has been established that from 54 port moorings 44 aren't equipped with hydrants, from 10 working 7 have no passports. The hoses are absent. Sanitary condition of four- way wells is unsatisfactory, caps are absent. The terms of revision and disinfection is established for none of the tanks under exploitation. It has been revealed that the main impact on sea water of the port aquatic area exert storm waters (urban rain water and thawed) and polluting substances containing in them. **Conclusion**. Timely and effective control over the implementation of existing sanitary standards and rules for seaports water supply is necessary.

WATER TRANSPORT AND SEA POLLUTION

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Urgency. The water transport is one of the key elements of Ukrainian economy and the problem of ecologically and epidemiologically safe operation of marine vessels aggravates from year to year. Today's state of knowledge about contamination of sea water with sanitary indicative microbiota and pathogens of dangerous intestinal diseases of bacterial, virus and parasitic etiology, as well as sewage of foreign vessels (about 18 000 ps annually) is extremely insufficient. Such sewage is dumped in urban sewer networks without disinfecting that creates high epidemic risk of biological pollution of the water environment.

Objective. To estimate the role of water transport in the pollution of marine environment.

The working papers of sanitary and quarantine departments of sanitary and epidemiologic service on the water transport for 2011 have been analyzed. **Results.** The total sanitary inspection has been done at 16816 vessels arriving from abroad. The vessels with open waste system have not been registered in Ukrainian ports. For the control of cleaning and disinfecting equipment of the vessels, 1653 samples of sewage have been drawn and investigated according to bacteriological indexes, and 1653 samples have been investigated according to chemical indexes. Discrepancy to sanitary requirements of sewage is noted has been noted in 651 cases (39,0%) on bacteriological requirements and 324 cases (20,0%) on chemical norms. These data have been steadily fixed during several previous years. All the vessels arriving from abroad, make replacement of ballast waters before arrival to the ports of Ukraine in the Black Sea. In the ports of Odessa and Illichiovsk 478 samples of ballast waters from foreign vessels have been investigated. 49 samples contained *Escherichia coli,* 8 contained iron and 3 petrochemicals.

Conclusion. The analysis of sanitary-and-epidemiologic service on water transport activity showed lack of unitized methodical approaches of the service's specialists at supervision for the vessels for prevention of sea pollution by waste and ballast waters.

Study of the pathologies at the origin of sick leaves of more than 30 days in a population of worker of the naval repair in 2009 and 2010

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Topic: I
Keywords: Occupational Port Medicine, shiprepair workers, disability at work
No Preferred type of presentation

Context: In 2011 an important rate of long-term sick leaves in the population of the employees of the local shiprepair yard was noted for next years.

Methods: All the sick leaves requiring a visit of resumption (upper in 21 days) and occurrences over 2009 and 2010 were included and analyzed by the Occupational health service.

Results: 63 sick leaves for a total duration of 5328 days, 2693 in 2009 and 2635 in 2010 were found with in majority trauma and muskuloskeletic pathologies (respectively 26.8 and 23.8%). A more thorough analysis of knee's pathologies was realized. We found knee's pathologies for 30 % of the welders, 17,6 % of the sheet iron manufacturers-boilermakers, 16 % of machining workers, 10 % of the logistic workers and 8,2 % of the painters. For the meniscal damage, the mechanics represent 33 % of the statements, the welders 25 %, and for sheet iron manufacturers-boilermakers 17 %.

Discussion: ascendancy of the osteoarticular pathologies in particular knees with an incidence in the population of production employees at 14 % and Meniscus lesions represented 43% of all cases. A lack of individual protection on knees wearing was found.

Conclusion: We found strong rate of long-lasting stops in connection with osteoarticular pathologies essentially. Pathologies of the knee and especially in meniscus was described in particular for mechanic corporation and probably in connection with the working conditions. The generalization of individual protection was made after, this study and we are looking for it efficiency.

PREDICTORS OF SEXUAL PROPENSITY OF THE MARITIME STUDENTS OF DAVAO CITY

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Keywords: sexual propensity, maritime education, maritime health

Background and Objective: The study aimed to identify the level and the factors affecting sexual propensity of the scholar and regular maritime students enrolled in BSMT and BSMarE programs in Davao City. It used descriptive-correlational and regression analysis designs. The authors developed a self-made questionnaire which was initially pilot-tested to 1200 maritime students. Cronbach's alpha and test retest were used for test of reliability.

Results and Conclusion: Sexual propensity has a mean score of 2.28, which means that the students have few sexual activities. They have a clear concept of what sexual intercourse (X=3.26) is and same-sex intercourse involving bareback (X=1.27) is rated the lowest in the inclination. Students disagreed that there is so much sex-related content in media (X=2.43); agreed that there is sufficient sex education (X=2.63) in the curriculum; disagreed that it in socio-cultural (X=2.19) aspect, it is okay to involve in pre-marital sex (X=2.64); religion (X=3.15) views marriage as something important (X=3.70) but does not strictly follow the beliefs and practices of the religion (X=2.67); and, socio-economic status (X=2.68) shows that more money means more sexual encounters (X=2.83) but disagrees that it can let you have paid sex with just anyone you want (X=2.47).

Sexual propensity differs between scholars and regular students. Scholars who stayed in the dorms have higher sexual propensities (X=2.36) compared to regular students (X=1.97). The more the students are suppressed, the higher the sex drives.

Conclusion: Socio-cultural aspect and religion were the predictors of sexual propensity. Socio-cultural aspect has dictated the society that men should have numerous sexual encounters before reaching the age of 21 and virginity is no longer important. Religion consistently predicted negative attitudes towards premarital sex before marriage, extramarital affairs and self-gratification such as masturbation. Individuals who attend and practice religious services are more likely to be accepting or showing higher sexual propensities. There is a higher sexual inclination for students staying in dormitories than those staying with their parents or boarding houses.

NAVAL STRUCTURES AND ERGONOMICS: OCCUPATIONAL HEALTH AND SAFETY IMPROVEMENT

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Topic: Health Promotion
Preferred type of presentation: Poster
Keyword(s): naval structures, ergonomics, occupational health and safety

Abstract

Architecture and the form of any structure have evolved and included not only aesthetics but also the need to consider the health and functionality of the structure to suit the needs and the efficiency of the utilization of the whole ship for this matter. There is a need to determine the different theories and the accepted standards in terms of the ergonomics of these in the realm of the maritime industry. As medical doctors and those involved in the industry, it is but proper to determine the new trends and the new threats as well as the new occupational safety that has been woven into the space and the solids of the structural design. The different media as well as the innovation shall be considered and the determination of the over impact on the health and the mobility of the people working shall be considered in this paper.

The determinants and the structure is conceived in terms of architectural concepts that have been adopted in the industry all these years. Updates on the relationship of the human body to the structure and the functionality shall be assessed, in terms of health and safety standards in this area of medicine.

SELENIUM-CONTAINING LYCIUM BARBARUM POLYSACCHARIDES ANTIOXIDANT RESEARCH

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Topic: Maritime occupational health
Preferred type of presentation: poster
Keyword(s): selenium-containing lycium barbarum polysaccharides (Se-LBP), antioxidant, functional food, immunity improvement

Abstract

Analysis of maritime occupational diseases shows that digestive system diseases and respiratory diseases accounted for high percent. Descent of immunity caused by long time marine operation is the main reason for the diseases. To investigate the antioxidant capacity of selenium-containing lycium barbarum polysaccharides (Se-LBP), and possibility as functional food for nautical personnel to improve immunity, Se-LBP was prepared through reaction of Lycium barbarum polysaccharides with sodium selenite using acedic acid as the catalyst, and it was characterized by means of Fourie transform infrared spectroscopy. Aging model and normal mice induced by D-galactose were given with three doses Se-LBP dissolved in normal saline. Se-LBP can increase SOD activities of serum, liver and brain organization, decrease the contents of their MDA ($P<0.01$). It also increased the survival time under hypoxic condition and swimming time of mice significantly ($P<0.01$). In addition, all Se-LBP of different dose group can improve thymus index and spleen index of normal mice significantly. Se-LBP has significant function of the anti-oxidant and immunity improvement on the mice, and in the future could be used as one kind of functional food for nautical personnel to improve immunity.

Effect of Trunk/Back Exercise on Prevention and Improvement of Musculoskeletal Complaints in Ship Crew Members

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Topic: I - maritime occupational health
Preferred type of presentation: poster
Keyword(s): musculoskeletal complaints, trunk/back exercise

Abstract

It has been suggested that life aboard a ship can predispose crew members to develop musculoskeletal complaints because of incomplete contraction and extension of the trunk musculature while working aboard a ship. Trunk/back exercise has been suggested to be effective for the prevention and improvement of musculoskeletal complaints in the general public. In this study, a questionnaire survey of musculoskeletal complaints was made of 58 ship crew members. Additionally, crew members performed a trunk/back exercise that consisted of 10 repetitions of trunk/back flexion and 10 repetitions of trunk/back extension in the upright position. We measured variations in symptoms of musculoskeletal complaints and the profile of mood states (POMS) before and after the trunk/back exercise regimen. The questionnaires were composed of a five-item rating scale that subjectively assessed muscle, mood and general fatigue states. The muscle stiffness and pain symptoms were assessed in the neck, shoulder, back and lumbar regions. Results indicated that neck, shoulder and lumbar region muscle stiffness and pain symptoms tended to decrease after trunk/back exercise. With the exception of the vigor subsection, the POMS showed significant decreases in tension-anxiety, depression-dejection, anger-hostility, fatigue, and confusion after trunk/back exercise. In conclusion, subjective symptoms showed a tendency for improvement in musculoskeletal complaints and general fatigue after trunk/back exercise. The assessment of mood state showed a temporary effect of decreasing negative feelings after trunk/back exercise. This study suggests that trunk/back exercise may improve musculoskeletal complaints and mood state in crew members.

NMR Metabonomics analysis of helicopter aviators in maritime

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Topic: Maritime occupational health (including maritime and port toxicology, Maritime occupational diseases…)

Preferred type of presentation: poster

Keyword(s): NMR metabonomics analysis, helicopter aviators, maritime, metabolism disorder

Abstract

Object To analyze characteristics of metabolisms of ship-based helicopter aviators in maritime. **Methods** 33 Naval helicopter aviators were involved in this research, including control group（land-based aviators）, 18d frigate-based aviator group（frigate ship-based aviators in 18d maritime）, 72d frigate-based aviator group（frigate ship-based aviators in 72d maritime）, and 72d landing ship aviator group （landing ship-based aviators in 72d maritime）. Besides, 7 warship crew based on the same frigate were also observed. At the different required time, brachial venous blood and early morning urine specimen were collected from every group for NMR metabonomic analysis. **Results** 3D model PCA analysis showed that 72d frigate-based aviator group were obviously different from control and 18d Frigate-based aviator group, but similar to 72d frigate-based warship crew group. While 72d landing ship aviator group were similar to control. OPLS-DA analysis between 72d frigate-based aviator group and the other groups showed that aerobic metabolism pathway were retardant because of high level of Cit, Ace and Suc(P<0.05), while lactate, an anaerobic glycolysis product was accumulated (P<0.01). Meanwhile, catabolism of proteins were upgraded and metabolism disorder of amino acids appeared. Lastly, the ecological imbalance of intestinal flora micro was found. **Conclusions** Metabolisms of ship-based aviators would be challenged by environmental stress from based ship and sea，especially in 2-3 months of maritime. As metabolism disorders concerned，the impact of large tonnage ship was minor than that of small tonnage. And if in the same based-ship，the impact to warship crew was minor than to aviators in the same time of maritime.

Skin infection by Staphylococcus aureus in a fisherman : difficulty in continuing work on board.

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ABSTRACT

Objectives: To understand why an infectious skin disease due to colonization by Staphylococcus aureus methi-S led to disembarkation of a fisherman for treatment and follow-up.

Methods: By discussion of this case we analyze the different reasons why this fisherman could not be successfully treated on board.

Results: A 42 years old fisherman first presented with skin lesions while fishing for hake. When the fisherman had developed fever and exfoliative skin lesions on both hands the ship's captain called the radio-medical center for maritime consultation in Toulouse for advice on treatment. After 3 days on penicillin the fever decreased but the dermatitis became incapacitating. On his return to shore the fisherman was hospitalised. Bacteriological swabs of a skin lesion showed colonization with Staphylococcus aureus methi-S with presence of Panton Valentine leukocidin. 7 days treatment with a follow-up of antibiotitherapy was necessary to resolve the skin eruption and obtain definitive apyrexia. Treatment ashore was advised because of difficulty in continuing manual work on board whilst suffering from significant skin lesions and also due to fear of contagion.

Conclusion: Skin infection with Staphylococcus aureus methi-S with presence of Panton Valentine leukocidin is difficult to treat on board because of difficulty in carrying out manual work when it affects the hands and the slow improvement of dermatitis even when appropriate treatment is undergone. The maritime environment is also a risk factor for skin abrasion which can lead to secondary colonization of pathogenic bacteria.

Effects of Co2 tolerance table breath hold training

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Topic: X – Underwater and hyperbaric medicine

Preferred type of presentation: poster

Keyword(s): CO_2 tolerance table, breath-hold diving, percutaneous oxygen saturation, psychological factor, Maximum breath-holding time

Abstract

Objectives: This research aims to verify the effects of breathing trainings on breath holds and the SpO_2, oxygen saturation by pulse oximetry, through the interval method, and to determine whether the CO_2 tolerance table training has a certain mechanism to imrove the subjects' maximum breath holding.

Method: 6 healthy men participated in a daily CO_2 tolerance table training program, in which they were repeatedly to hold their breaths for 90 seconds, gradually reducing the intervals by 15 seconds at a time, starting from 2 minutes. The program ended either when the interval was reduced to 30 seconds or the subjects could not hold their breaths for 90 seconds. Three maximum breath holding times with 4 minute intervals were measured at the beginning, 2nd, 4th and 6th week of the training program. These times and SpO_2 readings were recorded for comparison.

Results: The maximum breath holding times showed significant improvements between the beginning and the 6th week of the program ($p<.01$), and also between the 2nd and 6th ($p<.05$). Between these two periods, there were also significant decreases in SpO_2 ($p<.05$). The kinetics of SpO_2 showed a similar tendency throughout the program, and only the minimum level appeared to have decreased.

Conclusion: During the training program, biological adaptions like that of oxygen conservation did not occur. It was predicted that psychological factors, such as the subjects' assumption that they became able to stand high CO_2 levels, led to extended their breath holding times.

Evolution of the ventilatory function of professional divers

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Selected topic: X – Underwater and hyperbaric medicine

Preferred type of presentation: poster
Keywords: Diving, respiratory function tests, occupational medicine, occupational exposure

Introduction: The aim of this study was to assess changes in lung function of professional divers during their careers.
Materials and Methods: This is a review of the literature. Were included only professional divers. All published cohort and case-control studies from Medline and Embase, from January 1990 to January 2013, were systematically searched. Results of pulmonary function tests were extracted from each individual study and cohort study. The methodological quality of each study was assessed using a standard approach proposed by Downs and Black.

Résultats: three cohort studies were analysed: a cohort of five years, one of 10 years and one of 12 years. All studies showed a decrease in DLCO and MEF25 before 5 years of professional diving. One study showed a decrease of MEF50 after 10 years. Another study showed the decrease in FEF25-75 after 12 years. Parameters dives were not always related to variations on the different lung variables. After 12 yeras, the effect of total number of dives was significant for FEF(25-75%).

Discussion-conclusion: These results confirm those studies about recreational divers. One wonders whether these variations are due to age or diving. Indeed, there is no study comparing professional divers, leisure divers and not diving people on the long short. Such a study would be interesting and might help to guide fundamental research.

Risk factors for cardiovascular disease among sailors

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selectopic: 1 Maritime occupational health

preferred type of presentation : poster

keywords : occpational health/ risk factors

Objective: To evaluate the prevalence of risk factors for cardiovascular disease among sailors and their evolution over time.

Materials and Methods: This is a review of the literature databases Medline ®, Embase ® and Pascal ®. From prevalence studies, the prevalence was calculated; 2 groups were made according to the study period (1990 vs. 2000) and compared by Chi-square test with Mantel-Haenszel correction.

Results: Twelve articles were selected (total: 63,493 European sailors and 327 non-European sailors). Smoking prevalence varied between 37.3 and 72.3%; the one of overweight, between 27.9 and 66.5%; the one of hypertension, between 8.2 and 49.7%; the one of cholesterol, between 25.1 and 42%; the one of diabetes mellitus, between 3.3 and 9.3%. Two studies showed a 10-year cardiovascular risk comparable to that of the general population. After calculation with the studies comparable, the prevalence was 60.7% for smoking, 56.2% for overweight, 30.1% for hypertension, 34.6% for cholesterol, 3.6% for diabetes mellitus. Smoking prevalence was significantly lower in the 2000s (46.2% vs. 61.3%, $p < 0.01$), those of overweight, of hypertension and of hypercholesterolemia were higher (62.1% vs. 47.1%, $p < 0.01$, and 42.1% vs. 14.8%, $p < 0.01$, 42.0% vs. 33.9%, $p = 0.02$).

Conclusion: Modifiable risk factors are the most studied. Smoking tended to decrease in the 2000s.

Cardiovascular risk factors of professional divers

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selectopic: 10 X – Underwater and hyperbaric medicine

preferred type of presentation : poster

Introduction: The professional divers' activity implies body cardiovascular stress. Few data on cardiovascular risk factors are available. The purpose of this study is to investigate the cardiovascular risk factors of professional divers and calculate the predicted 5-year risk and the predicted 10-year risk of an acute coronary event.
Methods: in one medical center, data on dives and cardiovascular risk factors were analyzed on software Epidata ®, by Pearson Chi2 test or by Fisher's exact test, by analysis of variance test or by Kruskal-Wallis test, and by Spearman correlation coefficient. Cardiovascular risk scores at 5 and 10 years were calculated using SCORE.
Results: 200 professionnal divers were included. 31% were smokers or had stopped smoking for less than 3 years. 40% had an abnormal body mass index. 50% had raised total cholesterol levels. 11% had an advanced age. 6.5% had high blood pressure. 81% had at least one risk factor. 66% had an alterable risk factor. 25.5% had a 5-year risk greater than that of the general population of same age. 2.5% had a high cardiovascular risk at 10 years and 34% were at intermediate risk.
Conclusion: The majority of divers had at least one cardiovascular risk. Cardiovascular risk scores were lower than that the general population's ones. Yet some of this population is at high risk. One third of the divers had an intermediate risk which should consider conducting additional biological examinations to better assess their risk.
Keywords: Risk Factors; Coronary Disease/epidemiology ; Occupational Diseases/epidemiology ; Diving ; Prevalence

The predicted risk of diabetes for professional divers

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Selected topic: X – Underwater and hyperbaric medicine
Preferred type of presentation: poster
Keywords: Diving, occupational medicine, risk factors

Introduction: A previous study showed the prevalence of cardiovascular risk factors among professional divers: 6.5% of the divers have high blood sugar and 0.5% had diabetes. The purpose of this study is to assess the risk factors for diabetes and diabetes predictive score for this population.
Materials and Methods: This is a prospective study during 2013 with professional divers followed a French maritime medicine center. Data about their professional history of diving and dive profiles are collected. The clinical and biological data collected are: age, waist circumference, biometrics, Body Mass Indice, smoking, blood pressure, practice sports, glycemia, triglyceridemia, total cholesterolemia, HDL and LDL cholesterolemia. The predicted 9-year risk of diabetes is calculated according to the score DESIRE. Datas were analyzed on software Epidata ®, by Pearson Chi2 test or by Fisher's exact test, by analysis of variance test or by Kruskal-Wallis test, and by Spearman correlation coefficient.
Results: The authors propose to give preliminary results for 45 divers seen between 01/01/13 and 01/06/13.
Conclusion: Diabetes is a cons-indication to the exercise of professional diving in France. The interest to assess the prevalence of risk factors and the predictive risk for diabetes is to target prevention.

Accidents in hyperbaric chambers

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Selected topic: X – Underwater and hyperbaric medicine
Preferred type of presentation: poster
Keywords: Diving, occupational medicine,

Introduction: The prevalence of hyperbaric accidents is from 5 to 152 injuries per 100,000 dives for recreational diving. People working in hyperbaric chambers are also subject to these risks. However, few data are available about this. The purpose of the study is to assess the number of accidents in hyperbaric chambers.
Materials and Methods: A retrospective study with questionnaire about occupational accidents of hyperbaric chambers staff in France between 2005 and 2010. The data collected were: occupational history, the dive profiles, medical history, and the work accidents occurred (decompression event and decompression illness (DCI), accidental exposure to blood (AEB), physical accident and other accidents).
Results: 12 (46%) centers participated in the study, 73 subjects in total. The average age was 43.5 years (SD = 9.73). The average seniority was 9.8 years (SD = 7.7). The average number of diving was 198.3 per subject (SD = 174.25), for a total of 8.072 dives. 27% reported having had at least one accident during the study period. There were 30 accidents: 3 AEB, 4 physical accidents, 20 accidents during decompression; 3 other accidents. The hyperbaric accidents were: 2 (10%) decompression sicknesses with cutaneous symptoms; 3 (15%) DCI; 14 (70%) ear traumatisms; 1 (5%) dental accident. So the prevalence of total incidents was 372 for 100,000 dives and, the one of hyperbaric incidents was 248 for 100,000 dives.
Conclusion: The prevalence of incidents and accidents in a hyperbaric chamber seems superior to that of water diving.

INITIAL MANAGEMENT OF PULMONARY BAROTRAUMA IN SCUBA DIVERS

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Topic: Underwater and hyperbaric medicine
Preferred type of presentation: poster
Keyword(s): diving accidents, barotrauma, embolism

Introduction: Pulmonary barotrauma (PB) is a rare emergency. It may be associated with arterial gas embolism requiring hyperbaric oxygen therapy. The purpose of this study was to describe the particularities of PB management in scuba divers.
Method: A retrospective review was carried out to identify cases involving PB in a series of 699 diving accidents referred to the emergency and hyperbaric medicine departments of the Marseille University Hospital Center between1999 and 2007.
Results: The records of 53 patients were selected for study. Most accidents resulted from poorly controlled decompression when returning to the surface. They occurred mainly in divers who were inexperienced or in training.
Various clinical forms of PB were observed. Because plain chest films could be misleading, chest CT-scan was necessary to confirm diagnosis. In half of the cases studied, CT-scan depicted isolated interstitial syndrome. Other findings included pneumothorax in 4 patients and pneumomediastinum in 10. A potential complication of PB was cerebral gas embolism observed in 10 cases and death occurred in 5.
Treatment usually consisted in oxygen therapy under normobaric conditions in association with observation and monitoring. Therapeutic recompression was used in 9 cases and pleural drainage was performed in one. Outcome at one month was favorable in all patients except those presenting cerebral arterial gas embolisms who required intensive rehabilitation to limit neurologic sequelae.
Conclusion: If PB is suspected, the emergency care physicians should order CT-scan to rule out arterial gas embolism even in patients without severe symptoms. Patients presenting severe neurological signs should be transferred to the hyperbaric unit immediately.

ADVANCES IN PRE-HOSPITAL MANAGEMENT OF DIVING ACCIDENTS IN THE MEDITERRANEAN AREA FROM 1991 TO 2008

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Topic: Underwater and hyperbaric medicine
Preferred type of presentation: poster
Keyword(s): diving accidents, pre-hospital care, mediterranean area, medical practice assessment.

Introduction: Diving accidents are one of the most common events requiring emergency medical assistance in the maritime setting. Clinical polymorphism, communication problems, and the special features of the marine environment complicate pre-hospital management. The purpose of this study was to evaluate progress in practices after implementation of specific procedures.
Methods: This retrospective study of pre-hospital management of diving accidents was based on a series of 1087 accidents managed by the emergency care and hyperbaric medicine departments of the Marseille University Hospital Center between 1991 and 2008.
Results & Discussion: During the study period, alerting emergency coordination services became almost systematic (44% in 1991 versus 87% in 2008) within an increasingly shorter time following the accident. Establishing three-way communications between the person who called in the alert, the maritime rescue coordination center (MRCC), and the physician responsible for coordinating emergency medical care has made it easier to provide optimal pre-hospital care and prompt evacuation.
Long-distance medical coordination has not only allowed better deployment of pre-hospital medical teams but also reduced the number of hospitalizations (from 70% in 1991 to 43% in 2008). Initial management by medical teams at sea followed by-on shore hospital transfer via ambulance or helicopter is now the preferred strategy in non-life-threatening accidents occurring on diving vessels located within a 20-minute sailing distance from a port.
Conclusion: Emergency Medical Assistance Services should always be alerted to optimize pre-hospital management and shorten the time necessary for recompression. Better education of divers about raising the alert and early request for a specialized opinion regarding hyperbaric treatment is possible avenues for future improvement.

ANALYSIS OF CAUSES OF FATAL SCUBA DIVING ACCIDENTS AND PREVENTIVE MEASURES

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Topic: Underwater and hyperbaric medicine
Preferred type of presentation: oral and/or poster
Keyword(s): diving, deaths, hyperbaric, virtual autopsy, prevention

Fatal scuba diving accidents are rare and may be related to a wide range of specific disorders. Diagnoses are often interlinked and causes are multifactorial. Forensic investigation requires prompt intervention of numerous medical and technical specialists.

Because they are regularly called on to deal with fatal scuba diving accidents, the pre-hospital and in-hospital emergency care departments at the Marseille University Hospital Center have developed a dedicated process. Emergency physicians providing pre-hospital care have been instructed to open a forensic investigation systematically following every fatal scuba diving accident. They must provide a detailed description of the medical and environmental setting, alert the police officer (PO), and complete a standardized medical report. The PO will conduct an initial investigation in accordance with the coroner. They will impound the diving equipment and computer and then, after alerting the coroner, begin taking initial testimony. The coroner will perform on-the-scene examination of the body, schedule a total body CT-scan (virtopsy), and call the hyperbaric physician. The hyperbaric physician will determine the circumstances surrounding the accident, inspect the diving computer, and pick up the first CT-scan findings to assist diagnosis during the autopsy. This first stage of investigation is usually followed by histological and toxicological studies. To round out the second-stage investigation, the contents of the air tanks are analyzed and diving equipment is inspected by the expert.

This multidisciplinary management approach has allowed a better understanding of fatal diving accidents. The main causes of death are drowning and heart attack. This approach has also played an essential role in developing prevention strategies.

The Research Progress of Diving Medicine in P.R China

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Abstract: Diving medicine is one of the parts of military medicine. It plays an important role in the naval development. This paper introduced the progress of research on undersea and hyperbaric physiology and medicine of our country in the past few years. The article described our research achievement of conventional diving and its medical support, research in saturation diving and its medical support, submarine escape and medical support, the effects of hyperbaric environment and fast buoyancy ascent on immunological and cardiological function. Diving disorders (inculde decompression sickness and oxygen toxicity) were also introduced.

EPIDEMIOLOGY OF DIVING ACCIDENTS IN THE REGION OF MARSEILLE FROM 2000 TO 2009

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Topic: Underwater and hyperbaric medicine
Preferred type of presentation: poster
Keyword(s): diving accident, epidemiology, prevention

Introduction: Despite preventive campaigns, the number of diving accidents remained stable. The purpose of this study was to analyze epidemiological data and identify contributing factors.
Methods: The case records of patients admitted for treatment after diving accidents at the emergency and hyperbaric medicine departments of the Marseille university hospital center were retrospectively reviewed.
Methods: A total of 537 case records were included. Most victims were recreational divers (85%). It was mainly men, older (mean, 40 years) than the mean age of the membership of the French Federation of Underwater Studies and Sports. Ten percent of the victims had had a diving accident previously. Accidents involved divers of all experience levels but 20% occurred during training. Although accident frequency increased with diving depth, more than one third of accidents occurred at less than 30 meters. The most frequent type of accident was decompression sickness (53%) followed by severe barotrauma (15%) and immersion-related cardiovascular events (5%). Decompression sickness occurred in older, experienced divers performing successive long-duration deep dives. Barotrauma involved inexperienced divers at shallow depths. Cardiovascular events occurred in older intermediate-level divers presenting at least one cardiovascular risk factor. These events are increasingly frequent with high morbidity and mortality. It is noteworthy that 15% of divers were managed preventively following procedural errors with no clinical signs.
Conclusion: Education and training to raise awareness of the effects of age and risk factors (cardiovascular) on scuba diving physiopathology, and of the need for strict compliance with procedures are the main opportunities for improving diving safety.

DIVING PATTERNS OF BREATH-HOLD DIVERS

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Topic: X – Underwater and Hyperbaric Medicine
Preferred type of presentation: poster
Keyword(s): breath-hold diving, time-depth profile,

Abstract

Objectives: Commercial or occupational breath-hold harvest divers are collectively called Ama divers. There are two types of diving techniques: one is unassisted Ama, known as Cachido: these ama dive without any assists. The other is known as Funado, who use weights for descents and either pulled up by assistants. A survey was conducted in southern district of Chiba, Japan to investigate the diving pattern in professional breath-hold Ama divers.

Methods: 2 professional divers volunteered as subjects. One subject is male partly assisted (funado) diver and another subject is female unassisted (cachido) diver. We developed the data log system to measure depth, speed, information on a position, acceleration during their daily diving work. The subjects use fins and did not wear neoprene wet suits.

Results: We collected the data 116 times of the bottom time, depth, and intervals. There is less number of diving times in funado. And funado has large average bottom time, average interval, and average depth of diving. Moreover we can plot the behavior range using GPS. And different characteristic was seen in cachido and funado who is performing the different fishery method.

Conclusion: Comparing with a previous work, these characteristics changes with the body characteristics, experiences, and regional difference.

Divers' neurobehavioral performance under 4.7MPa: A real-time monitoring

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Abstract

Purpose. To investigate the neurobehavioral function of divers breathing heliox under 4.9MPa.
Methods. We established a method to real-time monitor the performance of those volunteers in a compression chamber. We selected 4 tests from a computerized psychological testing battery to measure 4 divers' sense, memory, intelligence and psychomotor, respectively.
Results. Digit Span had a diminishing tendency as the pressure went higher. Target Tracking score changed significantly although the sample size was small. However, visual retention and mental arithmetic showed substantial learning effects, which makes them unsuitable to be administered over repeatedly in this kind of situations.
Conclusions. Attention and psychomotor are more sensitive to hyperbaric environment than memory and intelligence. Eye-hand coordination is the best indicator.

Key words

Saturation diving; Neurobehavioral function

RELATIONSHIPS BETWEEN BREATH-HOLD TIME AND LUNG FUNCTIONS: THE EFFECT OF BREATH-HOLD TRAINING FOR THREE MONTHS

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Topic: X – Underwater and hyperbaric medicine

Preferred type of presentation: poster

Keyword(s): breath-holding, pulmonary function

Abstract

In the present study, to confirm the relationships between breath-hold time and lung functions, 30 healthy adults males and females were recruited (experiment 1).

In addition, ten of participants in experiment 1 participated to investigate whether the relationships between breath-hold time and lung functions were affected by breath-hold training (experiment 2).

Participants of experiment 2 were asked to perform 3 successive maximum breath-holds 1 time per day for 3 months. Measurements of the experiment 2 were performed for every month. In all measurements, lung functions were determined by handy spirometer (SK330; Suzuken).

The experiment 1 showed that there was no significant relationship between breath-hold time and lung functions.

In the experiment 2, significant relationships were found between breath hold time and vital capacity at 1 month ($r = .69$, $p < .05$) and at 3 months ($r = .65$, $p < .05$) after the start of training. Breath-hold time was significantly increased during 3 months training (one – way analysis of variance, $p < .001$).

However, vital capacity was not significantly increased. These results suggested that vital capacity was important factor in determining the breath-hold time among those who can hold the breath much longer.

OPTIMIZATION OF CONVENTIONAL DIVING DECOMPRESSION SCHEME IN COMPLEX CONDITIONS

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Topic: Underwater and hyperbaric medicine
Preferred type of presentation: poster
Keyword(s): complex conditions, diving decompression scheme, optimization

Abstract

Diving decompression tables were the foundation for divers rising and decompression after completing underwater task, which were always calculated and designed according to well-trained divers, and medium labor intensity and usual hydrologic condition were adopted as criterions. Therefore, these decompression tables would not be suited to the complex conditions encountered in practical diving task, and then induced an increased risk of decompression sickness. So it was necessary to optimize the diving decompression scheme according to the real complex conditions. In order to establishe the optimal selection method, five factors associated with decompression safety were calculated and analyzed: labor intensity, water velocity, water temperature, bottom material and individual susceptibility. A modified formula was presented in which the duration of underwater task was considered. An on-the-spot study involved 1469 people was also made in the construction of bridge pier to testify the formula, and it was proved safe and reliable. Taking versatile factors into account, a modification to decompression scheme on the basis of underwater duration would be conductive to both the decompression efficiency and the life safety of divers.

Disease Spectral Distribution for the Women aboard Chinese Naval Ships

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Topic: Women in maritime environment
Preferred type of presentation: poster
Keyword(s): woman at sea, disease spectral distribution, gynecology

Abstract

Objective: To understand the spectral distribution and characteristic of the diseases often seen in the women who served in Chinese Naval Ships. Method: retrospect analysis was used and clinic records in the sickbay of the ships were statistically analyzed. The routine physical examinations and the questionnaire for health of the female sailors were surveyed. Results: from the disease spectral distribution pattern, the most common disease seen in the women aboard Chinese Naval Ships are menstrual disorder, functional bleeding of the endometria and gynecological infection. There is no pregnant case reported in ships up to now. More attention should be paid to the psychology and oral health of the female sailors while serving in naval ships. From the survey, it is indicated that the morbidity of infection diseases (except for that of the urinary and reproduction systems) in female is a little bit lower than that in male aboard naval ships (0.89:1）, and that the morbidity of trauma, osteoarthropathia and sea sickness is a little bit higher than that in male aboard naval ships （1.1:1）. There is no difference in the disease spectral distribution and morbidity except for gynecological diseases between the female and male. Conclusion: The morbidity of the gynecological diseases in female is very related to the marine and ship environment with the characteristic of the disease spectral distribution. Therefore, the emphasis should be laid on in the medical support for women who served in naval ships: training the women for the adaptability to the marine environment, perfecting the physical examination system, adding some medication and special medical equipments for examination and treatment in gynecology on naval ships, setting up the scenarios to deal with the acute abdomen in gynecology on the spot, and providing the prenatal care for the pregnant women at sea..

ELECTROMAGNETIC IRRADIATION IN SEA PORTS.

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Introduction. CRLS of marine transport fleet are essential sources of electromagnetic irradiation (EMI). They works in pulsed mode of irradiation with the length of waves 3.18; 3.2 and 9.8 cm with the antenna velocity rotation 16 r/min. Usually CRLS are located at the territory of ports at a distance 100-1000 m from settlement zone and are sources of electromagnetic pollution of the ports and adjusted territories. Objectives: to analyze levels of EMI in sea ports. Methods: measurement of magnetic field intensity and fluence rate of EMI. Results: At the operation of ship and coastal CRLS there is some influence on coastal objects of industry and settlement zone. We did measurings at the cages of the gauntries. Magnetic field intensity varied from 1.3 to 4.3 V/m, while fluence rate of EMI was 2.1 – 2.3 μW/sm². At the gauntries' cages, near the panels of electric blocks and boards, at the controllers at the distance 3 - 5 cm at the repairing works fulfillment intensity of EMI varied from 3.7 to 12.6 V/m, regardless outer influences. On CRLS the levels of magnetic field intensity varied from 1.5 to 9.1 V/m, near the exits of feeder tracts – from 10.1 to 13.6 V/m, on the territory – from 10.1 -11.2 V/m, under antennas – 55.0 V/m and at the maintenance and repair works those increased to 18.3 V/m. Conclusions. The role of combined influence of EMI of different margins and modulating action, discontinuous action, combined action of several RF of EMI and surrounding parameters lead to decrease of adaptational capacity of a body and homeostasis imbalance.

TOPIC: I. Профессиональное здоровье в морской отрасли
ABSTRACT AREA:
KEYWORDS: Electromagnetic irradiation, sea ports

Preferred Presentation Mode: Poster

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RESEARCHING THE REALITY OF WORKING CONDITIONS, DIVING ACCIDENTS AND PROPOSED FIRST AID MEASURES AND PREVENTION OF DIVING ACCIDENTS FOR DIVING FISHERMEN IN THE CO TO AND BACH LONG VY VIETNAM FISHERY

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ABSTRACT

OJECTIVE:

The Authors researched the reality of working conditions and diving accidents, and proposed some first aid and preventive measures of diving accidents for diving fishermen in the fishing grounds of Co To and Bach Long Vy of Haiphong city and Quangning province in Vietnam.

RESULTS:

- About the reality of working conditions and diving accidents of the fishermen

+ There remained a low percentage of fishermen in Co To and Bach Long Vy with safe diving of less than twice a day; a majority of 78% were diving three or four times a day and the break between their two consecutive turns was less than six hours while the break after a diving day was less than twelve hours. Their diving equipments was very simple and insecure (67%-100%)

+ The general diving accident rate was 58%; 62.6% of which suffered sinus and enterogastritis injuries, 25.3% of which were decompression sickness of type I and type II, the rest of which included anoxia (due to compressor or damage of breather's cords) and other diseases (drowning, severely cold catching, injury). The decompression accident rate increased proportionally to diving depths, for example, the accident rate of those with less than twenty-meter diving was 4.54 times higher than those with deeper than twenty-meter diving. The diving accident rate increased when daily diving turns increased with a close directly proportional correlation ($r = 0.97$); The diving fishermen who omitted decompression procedures suffered from significantly higher decompression accident rate than those who followed decompression ($p < 0.01$). The rate of commonly seen sequelae and chronic diseases due to diving accidents which badly affected the fishermen's health and lives included 41.4% with ear injury (bad hearing, scarred and thickened ear-drum, perforated ear-drum), 21.8% of osteoscope, 4% of paralysis and 2.3% of urine disorder

- The reality and the proposal of some measures of giving first aid to and preventing diving accidents for fishermen on Bach Long Vy and Co To islands.

Most fishermen were not trained with diving safety (only 1.8% was trained), the fishermen did not know about the diving tables and they had no knowledge of first aid methods or diving accident treatment (23.3% - 28.4%). The ships were not equipped with necessary medicines and first aid equipment (55%) or were insufficiently equipped (41.7%). There remained shortages of ambulance services, doctors and specialized medical devices to serve the task of giving first aid to and treating diving accidents for fishermen.

CONCLUSION:

The prevalence of diving accidents of fishermen is very high 25.3% of which were decompression sickness of type I and type II.

Causes of accidents are mostly frome very poor training, equipping and working conditions of divers.

There is a need for organisation of safety training for sea diving and managing divers closely and to establish an emergency network for controling diving accidents in the coastal provinces.

Title: The effective evaluation of HBO in the treatment of insomnia at Institute of Medicine Maritime Vietnam (Vinimam)

Authors: ***Nguyen Van Thanh, Nguyen Truong Son*** **from VINIMAM**

ABSTRACT

OBJECTIVES: Evaluation of the effectiveness of HBO in the treatment of insomnia in outpatients treated at Center for Underwater and Hyperbaric Oxygene Medicine. Through the review of results, we would like to give some recommendations for the treatment and prevention of insomnia.

RESULTS: The average age of patients was 54.96 ± 11.126; 29.4%, were age > 60 and the most insomnia (43.1%) was found in elderly and retired people. The sex ratio male / female = 2 (66.7% /33.3 %) – male more than female. There were only 9.8% insomnia patients who were shift workers. The most frequent coincidental disease was hypertension (19.6%). 70.6% of patients did not habitually exercise. 33.3% of patients had a history of chronic insomnia with an average is 3.71 ± 3.496 years. Insomnia with an unknown cause was higher rate 62.7%. The most common disorder of the EEG was hypoactivity of electroencephalon 29.4%. Chronic insomnia was the most frequent with 76.5%. Transient insomnia is 23.5%. 68.6% of patients were treated with a combination of HBO and anxiolytics against 31.4% in the monotherapy group by HBO. The group used HBOT with pressure dose 2.2 ATA was outnumbered 2.5ATA group (66.7% vs. 33.3%); the average course of treatment was 9.96 ± 4.695 days. The average sleeping hours of patients after treatment with HBO were significantly higher than compared with pre-treatment (4.10 ± 0.22 vs 2.20 ± 0.13 $p < 0.001$). 70.60% had good results and 13.7% bad results and 15.7% patients discontinued treatment. 100% of patients who were already treated with Amitriptyline had no improvement of sleep.

CONCLUSION: HBOT was effective in 70.6% of patients but showed no benefit for patients who have been treated with Amitriptyline.

V

НАРУШЕНИЯ ФУНКЦИИ СЕРДЕЧНО-СОСУДИСТОЙ СИСТЕМЫ У РАБОТНИКОВ МОРСКОГО ТРАНСПОРТА
VIOLATIONS OF CARDIO-VASCULAR SYSTEM FUNCTION AT THE WORKERS OF MARINE TRANSPORT

Ignatyev A. M., Matsegora N. A., Yarmula K.A.
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Research of specific changes taking place in a human body at the influence of adverse factors of the working environment is important for decrease of general cardio-vascular morbidity in the workers of maritime industry. Low - frequency general vibration is of top importance here as unlike vibration of high frequencies it well extends in a body, and is resonant for different systems. **Materials.** 187 workers of trade marine port (engine drivers of habour cranes, dockside workers, seamen of tugs) have been examined. They all were exposed to general low-frequency vibration and accompanying adverse factors (noise, static effort, visual and emotional strain, inconvenient pose, climatic conditions). Complaints have been collected, clinical examination, skin thermometry, REG, electrocardiography, cold test were used. **Results.** In all professional groups under study the changes testifying about the defeat of the locomotor apparatus, peripheral nervous and vascular systems have been revealed. The most frequent pathological manifestations of cardiovascular system were: vegetovascular dystonia of hypertensive (13,4%) and hypotonic (to 3,1 %) type, hypertension (4,3%), a myocardiodystrophy (34,7%), coronary heart disease (11,2%). REG data testified of brain vessels tonus increase and difficulty of venous outflow from skull cavity. **Conclusions.** At the workers who were exposed to the impact of general low-frequency vibration pathological changes come to light in all links of cardiovascular system, organic changes of limbs peripheral vessels and brain vessels are noted as well. Timely diagnostics and determination of the violations severity important for treatment, examination of working capacity and social and labor rehabilitation of patients with this pathology.

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ABSTRACTS

Plenary Session 5

Cruise medicine

QUALIFICATION OF SHIP DOCTORS - A GERMAN APPROACH

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Topic: Cruise Medicine
Preferred type of presentation: oral
Keyword(s):qualification of ship doctors, cruise medicine, medical training

Abstract

Sea tourism has created a market for medical officers. Following a symposium on cruise medicine the German Maritime Health Association faced demands for some guidance on qualifying for a shipboard job. A working group of experts was tasked to draw up recommendations.
Work started with a literature review via PubMed in order to establish a data base on shipboard epidemiology and management of medical problems. The group also looked for existing programmes or guidelines for the qualification of ship doctors. 25 texts were found to be valuable enough to be further analysed.

Results:

- the epidemiology preferably calls for the general or internal medicine specialist,
- training in emergency medicine would be mandatory,
- (national) regulations require certified skills for employing medical equipment,
- some non-medical requirements also pertain to physicians.

To understand conditions on board and at sea and to adapt medical practice accordingly the working group felt that special training courses would be necessary.

A curriculum was conceived that addresses the following issues:

- maritime basics such as ship design/operation etc.
- maritime medical issues like occupational health, telemedicine, medevac etc.
- medical management of emergencies on board covering the various subspecialties.

Our group came up with a draft that will be published as a recommendation to (German) physicians about to prepare for a job at sea.
We also hope to stimulate European discussion on that topic aiming at the release of a recommendation by the European Cruise Council.

MANAGEMENT OF PHYSICAL AND EMOTIONAL TRAUMA IN FRENCH VICTIMS OF THE COSTA CONCORDIA SHIPWRECK

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Topic: emergency at sea
Preferred type of presentation: poster
Keyword(s): Shipwreck – Posttraumatic stress

Introduction. The cruise ship Costa Concordia ran aground and partially sank near the Italian coast on the night of January 13, 2012. Immediately after the rescue the survivors having embarked in Marseille were transferred and managed on this city. The purpose of this study was to analyze the physical and emotional trauma in survivors managed in the medium-early period (24 to 36 hours) after the wreck.
Methods. Descriptive analysis of case data recorded at a reception facility set up in Marseilles, France, to manage the influx of victims including some presenting posttraumatic stress disorder.
Results. A total of 402 persons were managed at reception facilities in Marseilles, France. One-hundred-and-five persons with a mean age of 58 ± 16 years (range, 10 to 80 years) and sex ratio (m/f) of 1.92 presented somatic symptoms and 200 presented posttraumatic stress of variable severity. The most common somatic complaint treated by medical teams involved anxiety caused by interruption of treatment for chronic disease for which some patients received analgesic and light sedatives. Three persons required referral to emergency surgical treatment for peripheral trauma. One person was hospitalized in the emergency psychiatric unit. All survivors were offered the opportunity for psychological assessment and were provided counseling about secondary psychological help.
Conclusion. Medium-early management of physical and emotional trauma allowed rapid resumption of therapy in persons presenting chronic disease. The ideal timing for psychological assessment and management remains problematic since some victims may develop late stress-related symptoms.

FRESH WHOLE BLOOD TRANSFUSION ON CRUISE SHIPS

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Topic: FRESH WHOLE BLOOD TRANSFUSION ON CRUISE SHIPS
Preferred type of presentation: Oral
Keyword(s): Fresh blood transfusion

Abstract

The management of acute hemorrhage at sea can be challenging. Many causes of acute hemorrhage require clinical procedures or intervention that is not available on a cruise ship. Incidents of catastrophic gastro-intestinal hemorrhage on cruise ships are on the rise with the increased use of medications such as warfarin, clopidogrel, aspirin and non-steroidal anti-inflammatory agents. Providing blood to these patients is an important "clinical bridge" until definitive medical treatment ashore can be provided.

Royal Caribbean Cruises Ltd., implemented a blood transfusion program in 2009 and since implementation has transfused fresh, whole blood to 33 patients.

This presentation will describe the blood transfusion program, the patient follow up and results of three years of experience on board.

MANAGEMENT OF CARDIAC ARREST ON CRUISE SHIPS; 3 YEARS OF DATA

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Topic: MANAGEMENT OF CARDIAC ARREST ON CRUISE SHIPS; 3 YEARS OF DATA

Preferred type of presentation: Oral

Keyword(s): Cardiac arrest, out of hospital cardiac arrest.

Abstract

Out-of-hospital cardiac arrest outcomes are consistently poor, even in urban areas with the most sophisticated emergency medical response systems. On cruise ships, which could be considered an "out-of-hospital" environment, our average rates of return of spontaneous circulation (ROSC) are higher than land-based urban environments.

This presentation will describe the emergency response system for managing acute medical emergencies on cruise ships, and in particular present data on the management of cardiac arrest and our clinical outcomes over 3 years.

FUMIGANTS AND VOCs IN OCEAN FREIGHT CONTAINERS - IDENTIFICATION, EXPOSURE & PREVENTION -

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Topic: Maritime occupational health
Preferred type of presentation: Oral
Keyword(s): Container, occupational exposure, chemicals, fumigants, tracer gas

Objectives

More than 500 million ocean freight container units are shipped annually between countries and continents. Residual levels of fumigants as well as solvents and other volatile organic compounds (VOCs) emanating from the goods constitute safety risks which may affect unprepared workers upon entering the container. The present studies cover the aspects of identification of risk containers, assessment of workers' exposure and evaluation of preventive ventilation methods.

Methods

Air samples from 101 randomly selected incoming containers in the Port of Gothenburg, Sweden were analyzed on-site using FTIR spectroscopy. Personal exposure was assessed during stripping of import containers at two distribution warehouses. Different preventive ventilation methods were evaluated by the use of an experimental tracer gas method.

Results

Seven percent of the import containers had arrival concentrations of volatile compounds above or well above the Swedish 8-hour occupational exposure limits. Trace amounts of the fumigant carbonyl sulfide were found in one container (1 ppm). The concentrations in the breathing zone during stripping of naturally ventilated containers ranged between 1 and 7 % of that measured in the unopened container (n=6). Extraction ventilation applied at the front end of the container provided the fastest and safest method of securing a risk container.

Conclusions

Strategies for the identification and safe handling of ocean freight containers should be established on national and enterprise levels. Those who enter containers should have access to instrumentation for measuring contaminants and equipment for applying forced ventilation if necessary. The container design should be changed to facilitate air sampling and extraction ventilation.

The studies were financed by AFA Insurance and Västernorrland County Council.

CRUISE SHIP CREW REFERRALS TO MEDICAL SPECIALISTS IN PORTS WITH NATIONALIZED HEALTH SYSTEMS

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Topic: Cruise Medicine
Preferred type of presentation: **oral**
Keywords: – Cruise ship, crew referral, port medical services, national health systems

Abstract

Background – The practice of referring crew to medical specialists in port varies greatly from ship to ship and from doctor to doctor. While the doctors usually receive good service by private port clinics, they often complain about poor service in ports with nationalized health systems.

Methods – Using selected data from a port clinic in Norway, we looked at referral problems and ways to correct them.

Results - In general, cruise companies disapprove of frequent crew referrals, as they are expensive, time consuming, and often without relevant consequences for crew care. In Norway, with a mixed economy, private specialist clinics welcome patients from visiting ships, but they are not open during week-ends and are often fully booked long in advance. Public emergency service is always available (24/7), but patients must wait in line according to medical urgency. Preferential treatment for ship crew is not customary.

Comments – Most crew conditions can be safely handled on the ship until resolved or the patient can be seen by own physician during vacation. Referrals should be only limited to conditions that cannot be properly diagnosed or dealt with on the ship. Doctors on ships visiting ports with primary nationalized health systems must realize that private specialist service can only be arranged on weekdays and should be booked only in major ports days in advance. For emergencies that may lead to hospitalization the public emergency system is reliable, but delays causing the crew member to miss the ship, must be expected.

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Parallel Session 5

7th Spanish-French Congress of Maritime Health (CIHFMM)

Disability and maritime occupation
Ability and Disability: conflict or adaptation?

Is the study of boredom proneness relevant in determining aptitude to ship boarding authorisation ?

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Abstract

The subject of this study is the interest in detecting mariners with proneness to boredom which could, on boarding, deteriorate their psychological state of mind owing to the specific caracter of maritime life on-board ships.

Objective and method : We used the questionnaire by Farmer and Sundberg (Boredom proneness scale - BPS), validated in French by Gana and Akremi, and also the questionnaire Hospital Anxiety and Depression (HAD) by Zigmond et Snaith. The questionnaires were completed on a voluntary basis and sent via the post.

Results : 80 mariners, including 40 officers and 40 sailors and 63 sedentary staff took part in the study. A significant difference was found between officers and sailors : average score 8,4 ± 5 (median =7) for officers and 10,2 ± 4,8 (median = 10) for sailors. 21% of officers reached scores above or equal to 12 for 41 % of sailors. We found a significant correlation between the scores of the BPS and those of the HAD depression test, both for the reference sample and for sailors, the correlation was very significant for officers (r = +0,85), but of little significance for sailors ((r = +0,54).

Conclusion : The BPS may be used as part of the boarding authorisation procedure in order to detect mariners prone to boredom and depression. However, even if inaptitude may be discussed in the event of high BPS scores, it should not automatically be applied, and a physchiatric assessment should be advised with close surveillance of the mariners concerned.

REGARDING FOUR CASES OF DISABILITY FROM THEIR INITIAL: FITNESS EVALUATION TO SEAFARING AND THEIR FOLLOW UP
A PROPÓSITO DE CUATRO CASOS CON DISCAPACIDAD: VALORACION DE LA APTITUD INICIAL PARA EMBARQUE Y SU SEGUIMIENTO

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Presented by M. Luisa Canals: lcanals@comt.es

Topic: III – Disability and maritime occupation
Preferred type of presentation: oral in the 7th International Hispano-francophone Congress on Maritime Medicine. 6-6-2013. Language: Spanish.
Keywords: Disability evaluation, Work Capacity Evaluation, Occupational Medicine, Ships
Palabras clave: Evaluación de la Discapacidad, Evaluación de la Capacidad de Trabajo, Medicina del Trabajo, Navíos

Abstract
0bjectives: To evaluate the disability and the progression of occupational fitness for seafaring in four cases with congenital or childhood diseases that attended the maritime health consultation in Tarragona (Spain) for their initial medical fitness examination.
Methods: We have selected, analyzed and followed from 1987 to 2012, 4 cases with physical disabilities.One Russian merchant seafarer with congenital muskuloskeletal defficiencies in hands and feet and 3 coastal Spanish fishermen with sequelae from diseases suffered in their childhood: Brachial Paralisis, Wills Tumour + nefrectomy + congenital deformities of 2 fingers and thoracic sequelae of radiotherapy;.Neurofibromatosis + face deformities. All, that attended our consultation.
Results: We describe the cases, their restricted fitness and their follow up. The personal behaviour and social circumstances, as handicapped, were also taken into account. We have changed our mind, in spite of the fact, that initially, their physical disabilities, made us think about giving them a qualification of Not fit. A Fit with restrictions for coastal navigation or a position on board were considered. We start with the coastal fishermen. One case, from 1987, was initially evaluated by another colleague and we have just followed his added bad evolution . A second one, from 1988, was declared initially unfit for seaman, but his claim was considered in a higher evaluation for social reasons, and finally he was declared fit for skeeper with good adaptation to his job. A third one, from 1994, which disease and familiar circumstances changed to worse was finally declared unfit. The last one, 2012, required a coordination between 2 doctors of different countries, he studied for skeeper in Spain and wanted to do his practical there but was ready to work in a touristic ship in the river in Moskow.
Conclusion: Social and Personal characteristics define some handicaped seafarers fitness, not only phisical ones. A biopsichosocial model of adaptation to the specific position on board should be followed. From our experience, the more adapted, are the ones with a higher position on board with full social support, that are working near the coast.

RESUMEN

0bjectivos: Evaluar la discapacidad y la aptitud para navegar en cuatro casos con enfermedades congénitas o sufridas en la infancia que acudieron a nuestra consulta en Tarragona (España) para su reconocimiento médico inicial para embarque.

Material y Métodos: Se seleccionaron, analizaron y siguieron 4.casos con discapacidades físicas (de 1987 a 2012). Un ruso para marina mercante con deficiencias congénitas en manos y pies y 3 pescadores españoles con secuelas de enfermedades que sufrieron en su infancia: parálisis braquial, tumor de Wills + nefrectomia + deformidades congénitas en 2 dedos y secuelas torácicas por radioterapia; neurofibromatosis con deformidad en la cara

Resultados: Describimos los casos, las restricciones en la aptitud y su seguimiento. Se tuvieron en cuenta, además, su conducta personal y las circunstancias sociales. Cambiamos de opinión, a pesar de que inicialmente sus discapacidades físicas nos habían hecho pensar en evaluarlos como No Aptos. Las aptitud con restricciones para navegación costera o para un puesto de trabajo a bordo fue considerada. Empezamos con los pescadores de bajura. De un caso, desde 1987, que había sido evaluado inicialmente por otro colega, nosotros simplemente seguimos su añadida mala evolución. En un segundo caso, desde 1988, al que declaramos inicialmente no apto para marinero, su reclamación fue considerada por decisión superior por razones sociales, y finalmente le declaramos apto para patrón con buena adaptación a su puesto de trabajo. Un tercero, desde 1994, cuya enfermedad y circunstancias familiares cambiaron a peor, fue finalmente declarado No apto para su trabajo en 2010. El último caso, en 2012, requirió la coordinación de médicos de 2 países, estudió para patrón e hizo sus prácticas en España, pero tenía trabajo preparado en Rusia en un buque turístico fluvial.

Conclusión: No solo las características físicas de los trabajadores del mar discapacitados definen la aptitud, sino que también se deben tener en cuenta aspectos sociales y personales. Se debe seguir un modelo de adaptación biopsicosocial a un puesto de trabajo determinado. Desde nuestra experiencia, los que se adaptan más fácilmente son los que tienen un puesto de trabajo más alta con un apoyo social total y que trabajan cerca de la costa.

REGARDING TWO CASES OF CARDIOVASCULAR DISABILITY: FITNESS EVALUATION TO SEAFARING
A PROPÓSITO DE DOS CASOS: VALORACION DE LA APTITUD PARA EMBARQUE MARITIMO EN PATOLOGIA CARDIOVASCULAR

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Topic: III – Disability and maritime occupation

Preferred type of presentation: oral in the 7th International Hispano-francophone Congress on Maritime Medicine. 6-6-2013. Language: Spanish.

Keywords: Heart Diseases, Work Capacity Evaluation, Occupational Medicine, Ships

Palabras clave: Cardiopatías, Evaluación de la Capacidad de Trabajo, Medicina del Trabajo, Navíos

Abstract

0bjectives: To evaluate the disability and the occupational fitness in two cardiologic cases, a Venezuelan captain that has suffered a myocardial infarction in the harbour and a Spanish seafarer with a severe mitral valve insufficiency.

Methods: We have selected and analyzed 2 cases with cardiologic problems, compensated functionally, that attended our consultation for their periodical fitness examination to embark, one in each country.

Results: We describe the cases and the organizational characteristic circumstances of each country. In the Venezuelan captain case, the ischemic accident needed an angioplastia with 2 stents in the right coronary and a definitive bi-chamberal Pacemaker. He has got a good functional recover but we had to consider the perspective of merchant seafaring in a tanker with position responsibilities, transporting dangerous goods, far from the medical facilities, with possible pacemaker interferences with communication and navigation devices. He was declared Permanently Non Fit for seafaring, with the recommendation to move him to a less risky job in the harbor, taking into account his personal and navigation safety conditions and, of course, the residual and associated cardiovascular risks (obesity, hyperlipemiae, tobacco consumption, and multiple coronary atherosclerosis ... pacemaker maintenance). In the Spanish seafarer case, the prosthetic ring and the surgical mitral valve reparation rent him fit for his coastal navigation.

Conclusion: A preventive and a global evaluation of cardiologic disabilities should be taken into account to decide fitness on board. Many factors are involved, such as personal risk, type of navigation, ship safety, distance of medical facilities, social and organizational devices.

RESUMEN

0bjectivos: Evaluar la incapacidad y la aptitud para el trabajo en dos casos cardiológicos: un capitán venezolano que sufrió un infarto de miocardio en el puerto y un marinero español con una insuficiencia severa de la válvula mitral.

Material y Métodos: Se seleccionaron y analizaron 2 casos que acudieron a reconocimiento médico periódico para embarque, con problema cardiológico que se resolvió a nivel funcional, uno en cada país.

Resultados: Describimos los casos y las circunstancias propias organizacionales distintas en cada país. El capitán venezolano que sufrió un accidente isquémico, precisó de una angioplastia, se le colocaron 2 stents en la coronaria derecha y un marcapasos definitivo bicameral. Aunque su recuperación funcional fue buena, se tenían que tomar en cuenta, su puesto a bordo de responsabilidad, en un buque tanque de la marina mercante, que transporta mercancías peligrosas, alejado de los centros médicos, con posibilidad de interferencias de su marcapasos con los sistemas de navegación y comunicación a bordo. Se le declare No Apto Permanente para esa navegación y se recomendó a la compañía que le cambiaran el puesto de trabajo a uno en tierra con menos riesgos, puesto que se debía valorar su seguridad personal y las condiciones de navegación del buque, y por supuesto sus riesgos cardiovasculares asociados (obesidad, hiperlipemia, tabaquismo, HTA, arteriosclerosis coronaria múltiple, mantenimiento del marcapasos…). En el caso del marinero español, se le declaró APTO para su trabajo en navegación costera al quedar funcionalmente compensado con la reparación plastica de su válvula mitral y la colocación de un anillo protésico.

Conclusión: Se debe hacer una valoración global y preventiva de las discapacidades cardiológicas para valorar la aptitud para el trabajo a bordo, considerando los factores de riesgo personales, del tipo de navegación, la seguridad del buque, la distancia a los recursos médicos y otros aspectos sociales y organizacionales.

ABSTRACT

Title:

Decompression sickness accident management in remote areas. Use of immediate in water recompression therapy: a new protocol developed for the Clipperton atoll expedition and applied to fisher-divers in Vietnam area.

Authors:

J-M Pontier MD, PhD and J-E Blatteau MD, PhD

In-water recompression (IWR) is defined as a treatment of decompression sickness by immediate recompression underwater after the onset of symptoms in remote areas where hyperbaric chambers are unavailable. At least three methods of IWR have been published. They used pure oxygen breathing for prolonged periods of time at a depth of 9 msw. IWR effectiveness in comparison with standard recompression techniques has not been assessed. IWR should be used in remote localities as an immediate measure to stop the evolution of decompression illness before evacuating the victim for subsequent treatment to the nearest hyperbaric facility. Resulting from environmental conditions, the risks of drowning and hypothermia are the most often cited, pure oxygen breathing at 9 msw can also expose to acute oxygen toxicity. The objectives of this oral presentation are i) to examine existing published methods of IWR , ii) to present a new method of IWR developed for a diving mission at Clipperton atoll in the North Pacific in 2005 with the exploratory Jean-Louis Etienne, iii) presentation of the humanitary mission in Vietnam area to help fisher-divers.

PREVENTION AND TREATMENT OF DECOMPRESSION ILLNESS USING IN-WATER RECOMPRESSION: RELEVANCE OF A TRAINING PROGRAM FOR FISHERMAN DIVERS IN VIETNAM.

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Background: Fisherman divers in Vietnam suffer from decompression illness (DCI), responsible for joint pain, severe neurological deficits or even death. Access to a hyperbaric center is unfortunately limited. The objective was to evaluate the relevance of a training program to prevent and treat DCI using in-water recompression (IWR).

Methods: Two sites in central Vietnam were selected, including 1250 fisherman divers, with a fishing activity in remote areas. 63 divers were interviewed and trained over a period of 3 years from 2009. 32 divers were re-interviewed in 2011-2012 for investigating results.

Results: Since 2009, most of fisherman divers have changed their diving practices, limiting bottom time or depth, taking into account dangers associated with their equipment. Mortality significantly decreased, the incidence rate of severe neurological DCI was divided by 4. A total of 24 DCI were reported, all were treated by IWR, with oxygen breathing (N=8, depths ≤ 10 msw, times ≤ 90 min), or air breathing (N=16, depths ≤ 10 msw, times from 2 to 6 h). No adverse effects were recorded. 10 joint pain were treated with IWR using air, resulting in 100% of immediate relief. Among 10 neurological DCI, 4/4 recovered completely after IWR with oxygen, whereas only 2/6 subjects obtained immediate recovery after IWR with air.

Conclusion: A training program dedicated to the issue of DCI may reduce mortality and morbidity in precarious communities of fisherman divers. Potential risks due to IWR can be taught and controlled, IWR with oxygen should be used for severe neurological DCI.

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Key Words: diving, fisherman divers, decompression sickness, bubbles, hyperbaric oxygen, in-water recompression

Asbestos in French Navy : occupationnal exposure matrix

Aurélie Maille, Nicolas Paleiron and Frédéric Grassin and Michel André.

Background

According to registry of veterans in France, there is an increase risk of asbestos-related diseases among French Navy servicemen. Indeed no precise listing of occupationnal exposure is available.
The aim of this study were to establish the first occupationnal exposure matrix in French Navy, identifying seafarersoccupationnal and environmental exposure levels

Materials and Methods

A search on Pubmed/Medline was performed, using the following words « navy », « asbestos », « shipyard » and « military ». Two independent reviewers analysed these items. Finally two highly relevant studies have been published in french Merchant Navy (Sauvage & al)and in Royal Norwegian Navy (Strand & al).

Results

Three variables are important in the application of this occupationnal exposure matrix : employment, vessel's operative date and shipment period.
There is a higher risk to serve in engine crew or handling of asbestos (like electrician) ,regardless of their duration of exposure, than non-engine crew. The latter depends mainly on the year outfitting of ships (before 1996) and the presence of asbestos in quantity or not the board and seafarers exposure duration (over ten years).

Conclusion

Until 1996, all crew members could be potentially exposed to asbestos. After 2002, non-engine crew were condidered as unexposed.These results should lead define post–professionnal follow-up according to the HAS.

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ABSTRACTS

Parallel Session 6

Human factor in maritime accidents

THE HUMAN FAKTOR IN MARITIME DISASTERS

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Topic: Human factor in maritime accidents

Preferred type of presentation: oral

Key words: maritime catastrophes, human factor

Abstract

Occurrence of accidents and disasters at sea in 80-85% due to errors of crews. Therefore, the study of psychophysiological state, behavior in extreme conditions and professionally important qualities (PIQ) of seafarers is an important task of maritime medicine.

Purpose: To determine the professionally important qualities of seafarers working in extreme conditions.

Methods: Studied neurobehavioral performance and behavior of the seafarers at sea, accidents and disasters at sea.

Results: After one month voyage has been a significant increase in suggestibility of sailors in all studied groups. Increased suggestibility depends not only on the length of voyage, but also on the functional state of the CNS.

Increased suggestibility is one of the mechanisms of mental adaptation of seafarers to dangerous conditions of sea service and extreme sailing conditions.

In accidents can adequately operate only those sailors who have higher levels of the neuro-emotional stability, mental self-regulation, moral normative and good communication skills.

Conclusion: The study found increase suggestibility of seafarers at sea. Selected list of PIQ, promoting efficient operation sailors during emergencies. These are first place, should include characteristics of neuro-psychiatric area, communication and moral-regulatory quality.

ACCIDENTS ON SHIPS IN THE DANISH INTERNATIONAL SHIP REGISTER

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Topic: VII – Human factor in maritime accidents
Preferred type of presentation: oral
Keyword(s): maritime accident, accident reporting, safety culture, nationality

Abstract

Safety has been in the focus of seafaring during the past decade that observed a gradual reduction of reported work injuries in Danish ships. The injuries are, however, unevenly distributed in the maritime workforce, depending on various factors, the nationality of seafarer among them. The aim of our study is to describe trend of accidents and their contributing factors, with special focus on nationality, occurring in ships under Danish flag in the period 2010-2012.

The study used two independent data sources, the Danish Maritime Authority and the Danish Radio Medical. It is mandatory to report accidents causing at least one day off work beyond the day of accident but the first source contains several accidents not fulfilling this criterion, too. Radio Medical is an independent service where all Danish ships may seek medical advice. The data sets were merged by identification number to create a single database that has been studied by descriptive statistics and regression analysis.

Findings show a stabilised number of accidents in the analysed period. The occurrence of accidents is influenced by nationality. There is a higher frequency of reported injuries found among Danish and other Western European seafarers compared to South East Asian (mostly Filipino) employees.

The results highlight a favourable level of reported injuries in the Danish maritime sector but also point out detectable differences between groups of employees. The identification of factors that determine the occurrence as well as the reporting of accidents is crucial to construct effective preventive measures for risk management.

IS A STRONG COMMON FRAME OF REFERENCE PREDICTIVE OF A GOOD TEAM PERFORMANCE ?

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Topic: Human factors in maritime accidents
Preferred type of presentation: oral
Keyword(s): Maritime accidents; teamwork; Common frame of reference; communication;

Abstract

Work domain : Although the number of casualties has drastically decreased during the past century, navigation remains somehow hazardous, and today accidents of big ships are dreaded more than ever because of a potential huge environmental impact.

Research problem : Collisions at sea analysed with the Human Factors Analysis and Classification System shows several deficiencies, at different levels, front line operators, supervision, organization. Analysis of collisions at sea using the HFACS tool shows that a lack of proper teamwork, either on the bridge or between ships is a major cause of collisions. In teamwork, communication is paramount, also it is at a significant cognitive cost.

Theoretical framework : the study was based on works by Hoc (1998, 2002) and Salas & al (2004, 2007) about the building and updating of a common frame of reference (COFOR) during the team activity.

The first part of the communication will show the quantitative contribution of a lack of Bridge Resource management skills to accidents.

The second part will focus on a few accidents were the absence of COFOR was identified as a factor.

In contrast with the above, the communication will end with a case were verbal communication was scarce and the result excellent, to keep the subject open for further investigation.

Towards zero vision
The possibilities and challenges for accident prevention in the Danish oil and gas industry

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Topic: Human factor in maritime accidents
Preferred type of presentation: oral
Keyword(s): oil and gas industry, accident prevention

Abstract

Background: The oil and gas industry in the Danish sector on the North Sea has always focused on reducing work related accidents. Over the years accident rates have been reduced to 2.3 per million working hours in total (2010). The study examines the possibilities and challenges for accident prevention in the Danish oil and gas industry.

Data: The data consists of interviews, workshops, documentary data such as procedures, near-miss reports and survey. Data derive from three oil and gas companies in the Danish sector of the North Sea.

Methods: Thematic analyses of interviews, documentary material, accidents prevention procedures and chosen near-miss cases and regression analysis on survey data.

Results: The possibilities could be found in the focus on safety within the industry; the development of procedural systems which provide safety guidelines for the employees; reporting systems; safety organisations; and safety awareness among employees. However, the study also identifies some barriers, including a lack of focus on structural/organisational factors to prevent accidents, a fragmented view on accident prevention, lack of support from management in certain areas, lack of a long-term strategy to prevent accidents, and a lack of follow-up on and evaluation of actions taken.

HEALTH CARE FOR OCEAN RACING DEPARTURES: A PARTNERSHIP BETWEEN LIFEGUARD SOCIETY AND EMERGENCY SERVICE UNIT

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Topic: Specific health problems for maritime leisure and professional sailing

Preferred type of presentation: oral or poster

Keyword(s): SNSM, SAMU, ocean races, gathering, health care

Abstract

Introduction: The growing popularity of ocean racing departures brings the organizers to strengthen the security, and particularly the medical one. SNSM, as national sea rescue actor, wished to embark emergency physicians on several departures since 2008 (Vendée Globe, Route du Rhum, Volvo Océan Race).

Organization: This collaboration is based on an organizational and financial agreement between the Emergency medical service and the General Secretary of the SNSM. The "nautical" logistic is supplied by the SNSM, including one or several rigid inflatable boat (RIB) of 7m50, their helm and crew, equipped in means of communication (marine VHF), navigation and first aid. The "medical" logistic is set up with a same level of care as an emergency medical mobile unit (UMH). The medical equipment is subdivided into several lots which some of them are stored aboard a lifeboat working in tandem with a RIB.

Discussion: These nautical emergency medical units are requested by the local MRCC (CROSS) unit, based in the event local operational centre where a medical director organizes the dispatching of the casualties. On the operational way, a medical team is on a RIB, responding to at sea emergency. Health care on board is made only if the size of the boat allows it. The decision for the evacuation or for a return to the dock will be taken with the operational centre.

Conclusion: Even if only a small number of victims was cared, this partnership allowed to secure with medical teams these "aquatic sports centers" just like other gathering. This efficiency can be improved with enhanced collaboration between organizers public services, nautical adaptation of the onboard medical equipment and joint training.

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ABSTRACTS

Plenary Session 6

Seafaring medical fitness, seafarer welfare

Integration of Health And Welfare Services - IMHA & ICSW

S. Idnani, C. Idnani, N. Idnani

INTRODUCTION: IMHA and the ICSW have been working closely to strengthen ties and to further working relations between the two Organisations. Among their many objectives is the ILO MLC 2006, which is all set to come into force this year. This Convention addresses also the very relevant issue of Seafarers Health and Welfare. Both, IMHA and the ICSW have contributed significantly towards harmonizing Seafarers Health and Welfare in this context, particularly in South Asia.

A benchmarked working model is the South Asia programme that has worked with stakeholders to improve the facilities available to seafarers when they call at a port. The programme has concentrated upon capacity building of local committees and on providing funding for transport, medical needs, ship visiting and communication facilities. Emphasis has been laid on mental health, nutrition and life style changes to safeguard health. Seafarers are the unsung heroes of the seafaring trade; to make life more difficult are the threats to life relating to attacks of piracy. These needs make their health and welfare considerations more significant. Seafarers are to be given every access to health and welfare services on board almost near to that on land.

CONCLUSIONS: As a result of the South Asia Seafarers Work programme, welfare and health initiatives in the region are well integrated and work to benefit all Seafarers; these are proposed to be used in other regions to address the welfare and health needs of seafarers. Seafarers visiting ports can now look forward to better services as a result of this programme.

REPATRIATION RATES IN FILIPINO SEAFARERS: A 3-YEAR STUDY OF 3,882 CASES

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Topic: Seafaring, medical fitness and seafarer welfare

Preferred type of presentation: oral

Keyword(s): occupational medicine, repatriation, epidemiology

Abstract

OBJECTIVES. The aim of the study is to determine the most common causes of medical repatriation among Filipino seafarers. Their health issues would be important for health surveillance protocols, epidemiological studies, and national health policy determination.

METHODS. We collected the data of known medical repatriations of Filipino seafarers during the years 2010-2012 from the claims and/or legal departments of different manning agencies in Manila. Data requested included age, position, type of ship, dates of embarkation and repatriation, and diagnosis.

RESULTS. A total of 3,882 medical repatriation cases for the three-year period were collected representing 202 shipping companies and 1,981 vessels. The total number of deployments for this period was 221,035 Filipino seafarers. The rate of repatriations was calculated at 1.75%. The most common illnesses causing repatriations were also reviewed and analyzed using the ICD-10 classification standards. The most common causes of repatriation were injuries (trauma), musculoskeletal disorders, digestive problems, and genitourinary illnesses. Data on the frequency distribution of repatriation dates is also presented.

CONCLUSIONS. This study attempts to describe a health profile of the Filipino seafarer and may serve as a benchmark in establishing standards of health care and illness/injury prevention. This may also serve as a guide for shipowners on their own crew's individual health status, especially during their tours of duty. Likewise, these results may help government agencies to formulate policies for health-related issues of the Filipino seafarer and assist pre-employment medical exam doctors to identify and manage conditions that are at a high risk of medical repatriation.

IMMUNIZATION SCHEDULE FOR FILIPINO SEAFARERS 2013: A MARCDOC INITIATIVE

C.M. MENDOZA[1,2*], M.M. CALIMAG[2,3,4], M.R. BERGANTIN[2,5], M.I. ALCARAZ[1], J.B. ABESAMIS[1], S.E. CHING[1], P.M. TEVES[1], S.O. SALVADOR[1], T.F. GONZALES[1]
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Topic: Seafarer welfare
Preferred type of presentation: oral
Keyword(s): immunization, seafarers, Filipino.

Abstract

Objective: To develop an immunization schedule for Filipino seafarers that shall serve as an easy reference for physicians.

Methods: A task force was created by MARCDOC. The committee did a systematic review of existing international and local vaccination guidelines. The major grouping of vaccines was based on the requirements of Filipino seafarers, their lifestyle and risk for vaccine-preventable illnesses. To develop the immunization plan which includes the schedule, indications, contraindications, precautions and route of administration, a systematic search of all BFAD-approved vaccines was generated so as to eliminate industry-biased recommendation.

Results: A table of Summary Recommendation on Immunization Schedule for Filipino Seafarers was generated using the 3Rs for easy recall, namely: **Routine** are the regularly given vaccines that should have been given during childhood and booster vaccines needed to prevent common illnesses. These include tetanus, diphtheria, acellular pertussis, hepatitis A & B, varicella, MMR, measles, pneumococcal and influenza vaccines. **Recommended** are vaccines, e.g., HPV vaccine, chosen because of lifestyle risk among seafarers and the burden of cervical cancer among women. **Required** are those vaccines that a seafarer must receive depending on the country of destination. The list is derived from the WHO's country-specific list of required vaccinations.

Conclusion: An immunization plan for Filipino seafarers has been generated based on known risk factors for vaccine-preventable diseases. The list for the routine, recommended and required vaccines took into consideration existing local and international guidelines, the burden of disease, and the travel requirements of Filipino seafarers.

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ABSTRACTS

Plenary Session 7

Free topic

PROGRESSION OF THE ATTENDED MORBIDITY IN THE SPANISH RADIOMEDICAL ADVICE CENTRE FROM 2009 TO 2012
EVOLUCIÓN DE LA MORBILIDAD ASISTIDA EN EL CENTRO RADIOMEDICO ESPAÑOL DURANTE EL PERÍODO 2009 - 2012

A. BURGOS[1], R. BURGOS[1], F. GÓMEZ[2] and M. L. CANALS[3]
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Presented by Antonio Burgos; aburgos@ull.es

Topic: VIII – Maritime telemedicine / Tema libre en 7CIHFMM
Preferred type of presentation: oral in the 7th International Hispano-francophone Congress on Maritime Medicine. 6-6-2013. Language: Spanish.
Keywords: Occupational Medicine, Morbidity, Telemedicine; Ships
Palabras clave: Medicina del trabajo, Morbilidad, Telemedicina, Navíos

Abstract

Objetivos: Estudiar y analizar las causas de la problemática de salud de las tripulaciones españolas en alta mar a través de las consultas realizadas al Centro Radiomédico Español

Metodología: Estudio epidemiológico, retrospectivo y descriptivo en el que se establecen según CIE-10 los casos de enfermedades y lesiones que presentan los tripulantes del sector marítimo-pesquero mediante las consultas radiomédicas realizadas entre 2009 y 2012 inclusive.

Resultados: Considerando la totalidad de la etiología de estos problemas de salud a bordo, la primera causa es la inespecífica del grupo "Síntomas y signos anormales" (R00-R99), seguidos del grupo "Traumatismos, envenenamientos" (S00-T98) y a cierta distancia le siguen como causas de enfermedad las de origen músculo-esquelético (M00-M99) así como las digestivas (K00-K93), de la piel (L00-L99) y del aparato génitourinario (N00-N99) entre otras. Con referencia a la actividad ocupacional según modalidad del trabajo a bordo, es el subsector extractivo de la pesca el de mayor tasa de incidencia de la morbilidad con un 67% del total, en relación con las tripulaciones de buques mercantes de transporte marítimo 33% En cuanto a la frecuencia e incidencia evolutiva de distribución de los distintos grupos de enfermedad, a lo largo del periodo de estudio, se mantiene significativamente homogénea. Es de destacar la incidencia de lesiones y causas de enfermedad por accidentes ocupacionales a bordo.

Conclusión: Son llamativas las dificultades de precisar los diagnósticos de las alteraciones morbosas en alta mar ya que la mayoría de consultas radio-médicas no disponen de posibilidades de pruebas complementarias y se hacen con tripulantes a veces con nivel socio-cultural precario, como se evidencia al agruparse las causas más frecuentes de estas patologías bajo el epígrafe de las CIE-10 "Síntomas y signos anormales". Persiste la accidentabilidad como mecanismo esencial de la morbilidad asistida a bordo de flotas de otros países marítimos con una tercera parte de la tasa de incidencia de la problemática de salud de estos trabajadores del mar.

ETUDE DES CONSOMMATIONS DE CANNABIS ET DE COCAINE CHEZ MILLE MARINS-PÊCHEURS DE L'AQUITAINE ET DE LA CHARENTE-MARITIME (FRANCE)

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Topic: Maritime Occupationnal Health
Preferred type of presentation: oral (French)
Keyword(s): Médecine maritime, Prévention, Cannnabis, Cocaïne, marins-pêcheurs

Abstract

Objectifs :
Évaluer la consommation de cannabis et de cocaïne chez les marins-pêcheurs français, dans un but épidémiologique et de prévention.

Méthodes:
Les marins-pêcheurs ont été recrutés dans les 2 régions du Sud-Ouest de la France (Aquitaine et Charente-Maritime). Ils leur ont été proposés de compléter un questionnaire anonyme durant leur visite d'aptitude à la navigation entre Février 2012 et Mars 2013 avec les médecins et infirmiers du Service de santé des gens de mer. Le questionnaire comprenait 32 items relatifs aux caractéristiques démographiques et professionnelles et aux consommations d'alcool, de tabac et de drogues. Un test urinaire de recherche des métabolites du cannabis et de la cocaïne était également proposé.

Résultats:
Le recrutement des sujets n'est pas encore terminé mais 978 marins ont déjà répondu au questionnaire. 98,5% sont des hommes, 46% matelots, 41% patrons, 4% maîtres d'équipage et 8% mécaniciens. La prévalence d'une positivité au test urinaire est égale à 30% pour le cannabis et à 5% pour la cocaïne. Environ 60% des marins ont déjà consommé du cannabis au cours de leur vie et 17% ont déjà essayé la cocaïne. Une positivité au test urinaire pour le cannabis et la cocaïne est significativement associée au type de navigation (prévalence plus importante pour les marins effectuant des sorties en mer de plus de 24 heures), et à certains types de navires de pêche (Fileyeurs, senneurs..)

Conclusions:
Le cannabis et la cocaïne sont des drogues qui, altérant la vigilance ou la conscience, sont des co-facteurs d'accidents du travail, et qui peuvent engendrer de fortes addictions. Les résultats de cette étude devraient permettre à tous les acteurs de la filière maritime de mieux coordonner leurs actions dans le but de réduire fortement ces consommations afin de diminuer le risque d'accident du travail et d'addictions.

Est-il possible d'expliquer le grand nombre d'accidents du travail en mer ? Une revue de la littérature

Dr Thierry SAUVAGE, médecin-chef interrégional, Service de santé des gens de mer

Dr Guillaume GIONTA, service de santé des gens de mer

Topic : work accidents

Prefered type of presentation : oral

Key words : work accidents, seafarers, safety

Abstract

Les marins français sont exposés à une sur-accidentalité et à une sur-mortalité au travail. En 2010, l'incidence des accidents du travail est de 95 accidents pour 1000 marins employés à temps plein contre 38 accidents du travail pour les salariés terrestres. Les indices et taux de gravité sont aussi significativement supérieurs.

Les accidents mortels atteignent plus souvent les marins au travail. Entre 2003 et 2010, 114 décès de marins ont eu lieu pendant le travail. En 2010, on recense 0.6 décès pour 1000 marins-pêcheurs employés à temps plein contre 0.03 décès pour 1000 salariés terrestres. La comparaison avec les études internationales montre que cette incidence en France est statistiquement dans une position médiane ; cela alors que de nombreux biais existent dans le recueil des décès au travail des marins. L'ensemble de ces décès n'est en effet pas pris en compte par les statistiques du ministère des transports et leur incidence est supérieure.

Ce constat se retrouve dans de nombreux pays. Des études nationales et internationales essaient de faire ressortir quelques données permettant de l'expliquer.

Il s'agit notamment de caractéristiques concernant les marins accidentés :

- de l'âge des accidentés : ceux-ci sont majoritairement âgés de 35 à 45 ans
- du genre : les femmes adoptent dans la marine les comportements masculins à risque
- de la nationalité : la différence significative retrouvée dans la survenue des accidents entre membres d'équipage originaire d'Europe de l'ouest et d'Asie du sud-est semble due à un biais
- de l'usage des produits psychotropes : la consommation de produits psychotropes rapportée à la population française est plus importante chez les marins

Il s'agit par ailleurs de données concernant de la taille et de la nature de l'entreprise maritime. De nombreux instruments de prévention sont prévus par la réglementation ou ont été mis en œuvre par les compagnies maritimes en particulier celles de la marine marchande. Malgré cela, l'incidence des ATM des marins du commerce reste proche de celui des marins à la pêche : 102 ATM au commerce pour 111 à la pêche en 2010. *Les instruments de prévention des accidents du travail en mer ont donc une action efficace de réduction de la mortalité mais peu d'efficacité sur la survenue des accidents du travail maritime.* Ceci s'expliquerait par une meilleure sensibilisation des marins vis-à-vis des risques au travail maritime dans les compagnies maritimes les plus importantes. Cependant certains facteurs de risque sont inhérents au milieu maritime et ne peuvent être complètement contrôlés. Il est aussi probable que les accidents sont sous-déclarés à la pêche.

COMPARATIVE STUDY OF HEALTHY LIFESTYLES IN FISHERMEN OF THE COAST OF TANGIER (MOROCCO) AND THE COAST OF CATALONIA (SPAIN)

ESTUDIO COMPARATIVO DE ESTILOS DE VIDA SALUDABLES EN PESCADORES DE BAJURA DE LA COSTA DE TÁNGER (MARRUECOS) Y DE LA COSTA DE CATALUNYA (ESPAÑA)

ETUDE COMPARATIVE DES MODES DE VIES SAINS CHEZ LES MARINS-PECHEURS DE LA COTE DE LA REGION DE TANGER (MAROC) ET DE LA COTE DE LA CATALOGNE (ESPAGNE)

H. ESTOPÁ[1]; T. GHAILAN[2, 5]; R.M. ALCOLEA[3]; M. L. CANALS[4]; B. HARROUM[5]; I. MOURABITI[6]

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Presented by: Helena. Estopá: helenaestopa@gmail.com

Topic: Special topics: VIII – Fishing activities, fisheries, fish processing (In the case of the Satellite Hispanofrancophone Congress: free topic)

Preferred type of presentation: **oral, in the 7th International Hispano-francophone Congress on Maritime Medicine. 6-6-2013. Language: Spanish (Español).**

Keywords: Sedentary Lifestyle, Occupational Health, Fisheries, Spain, Morocco.

Palabras clave: Estilo de Vida Sedentario, Medicina del Trabajo, Pesquerías, España, Marruecos.

Mots clefs: Mode de Vie Sedentaire, Medécine du Travail, Pêches, Espagne, Maroc.

Abstract

Introduction: Fishermen are a special category of workers whose lifestyle can have adverse health consequences.

Objectives: To analyze and compare the state of health and lifestyles of two populations of fishermen from different countries: Catalan coast (Spain) and Coast of Tangier (Morocco)

Methods: A self-administered questionnaire was distributed from October 2012 to March 2013. The variables included were: anthropometric data, cardiovascular risk factors, BMI, blood pressure, tetanus vaccination, position on board, and nationality. The statistical analysis was based on the comparison of proportions and means with a 95% CI; the Chi2 and T-test were used for qualitative variables.

Results: There are many similarities in the lifestyles of this two populations: almost half consume fast food and sometimes nibbles between meals, while the majority sleeps around 7 hours and does not practice the nap. Catalan fishermen consume more meat and alcohol and practice more sport than Tangier's fishermen; the later, consume more fish and soft drinks than the Catalans.

Conclusions: The analysis of the lifestyle of fishermen reveals many anomalies to correct. For all workers, in both populations, it's important to improve the control of cardiovascular risk factors. The results suggest the usefulness of prevention.

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Resumen

Introducción: Los pescadores constituyen una categoría de trabajadores especial cuyo estilo de vida podría tener consecuencias adversas para la salud.

Objetivos: Analizar y comparar el estado de salud y el estilo de vida de dos poblaciones de pescadores de distintos países: Litoral Catalán (España) y Litoral de Tánger (Marruecos)

Material y métodos: Estudio descriptivo transversal mediante un cuestionario autoadministrado, entre los meses de octubre 2012 y marzo 2013. Las variables incluyeron datos antropométricos, factores de riesgo cardiovascular, ÍMC, tensión arterial, vacunación antitetánica, cargo y nacionalidad. El análisis estadístico se basa en la comparación de proporciones y medias con un IC del 95%; il Chi^2 y T de Student se utilizaron para las variables cualitativas.

Resultados: Hay muchas similitudes en los estilos de vida de las dos poblaciones: casi la mitad consume comida rápida y a veces pica entre horas, mientras que la mayoría duerme alrededor de 7 horas y no hace la siesta. Los pescadores catalanes consumen más carne y alcohol y practican más deporte que los de Tánger; estos últimos consumen más pescado y refrescos, que los catalanes.

Conclusiones: El análisis del estilo de vida de los pescadores revela muchas anomalías para corregir. Para todos los trabajadores de las dos poblaciones se han de mejorar el control de los factores de riesgo cardiovascular. Los resultados obtenidos sugieren la utilidad de la prevención.

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Résumé:

Introduction: les marins-pêcheurs constituent une catégorie de travailleurs bien distincte dont le mode de vie aurait des conséquences néfaste sur leur santé.

Objectifs: Analyser et comparer l'état de santé et le mode de vie de deux populations de marins-pêcheurs de pays différents : de la côte catalane (Espagne) et de la côte de la région de Tanger (Maroc) en les rattachant aux caractéristiques sociodémographiques et aux conditions de travail.

Matériel et Méthodes: Il s'agit d'une étude descriptive et transversale où les données ont été recueillies au moyen d'un questionnaire entre les mois d'Octobre 2012 et Mars 2013. Les variables incluses comportaient les données anthropométriques, les facteurs de risque cardio-vasculaires, l'IMC, la pression artérielle, la vaccination antitétanique, le poste du travail et la nationalité.

Résultats: Il existe beaucoup de similitudes dans le mode de vie des deux populations : presque la moitié consomme de la bouffe rapide et grignote parfois entre les repas tandis que la majorité dorme environ 7 heures et ne pratique pas de sieste. Les marins-pêcheurs catalans consomment plus de viande et d'alcool et pratiquent plus de sport que les tangérois, ces derniers consomment plus de poisson et de boissons gazeuses que les catalans.

Conclusion: L'analyse du mode de vie des marins pêcheurs révèle beaucoup d'anomalies à corriger. Pour tous les travailleurs des deux populations, il est important d'améliorer le contrôle des facteurs de risque cardio-vasculaires. Les résultats obtenus suggèrent l'utilité de la prévention.

COMPARATIVE STUDY OF LIFESTYLES AND SOME UNHEALTHY HABITS IN COASTAL FISHERMEN OF THE TANGIER REGION COAST (MOROCCO) AND THE COAST OF CATALONIA (SPAIN)

ESTUDIO COMPARATIVO DE ESTILOS DE VIDA Y ALGUNOS HÁBITOS NOCIVOS EN PESCADORES DE BAJURA DE LA COSTA DE LA REGION DE TÁNGER (MARRUECOS) Y DE LA COSTA DE CATALUNYA (ESPAÑA)

ETUDE COMPARATIVE DES MODES DE VIES ET DE CERTAINES HABITUDES NOCIVES CHEZ LES MARINS-PECHEURS DE LA COTE DE LA REGION DE TANGER (MAROC) ET DE LA COTE DE LA CATALOGNE (ESPAGNE)

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Presented by: T. Ghailan: tarikghailan@hotmail.com

Topic: Special topics: VIII – Fishing activities, fisheries, fish processing (In the case of the Satellite Hispanofrancophone Congress: free topic)

Preferred type of presentation: oral in the 7th International Hispano-francophone Congress on Maritime Medicine. 6-6-2013. Language: French (Français).

Keywords: Substance Abuse, Occupational Medicine, Fisheries, Spain, Morocco.
Palabras clave: Abuso de sustancias, Medicina del Trabajo, Pesquerías, España, Marruecos.
Mots clefs: Abuse de Substances, Médecine du Travail, Pêches, Espagne, Maroc.

Abstract
Introduction: Lifestyle and peculiarities of work on board among fishermen make them a population at high risk of addiction and unhealthy habits.
Objectives: To study lifestyles and some harmful habits comparing two populations of fishermen from different countries: Catalan coast (Spain) and Tangier region coast (Morocco) linking them to sociodemographic characteristics and working conditions.
Material and Methods: Data were collected through a self-administered questionnaire, from October 2012 to mid March 2013. The variables included were anthropometric data, education, living conditions, position on board, nationality, tobacco, alcohol and other drugs consumption, rest, and physical activity. The statistical analysis was based on the comparison

of proportions and means, with a 95% IC; the Chi2 and T-test were used for qualitative variables.
Results: These two populations of fishermen have similar habits. Rank age 18-70 years old, mainly primary education, BMI between normal and high, they do physical exercise occasionally, and have significant problems of MSDs, less than half do not smoke. In Catalonia more coffee and more tea in Tangier is consumed. Besides alcohol consumption is more important in Catalonia and cannabis consumption is higher in Tangier. There is a relationship between tobacco and cannabis consumption. The two populations believe that cannabis is less harmful to health than tobacco.
Conclusion: A slight higher use of cannabis in Tangier than in Catalonia. A low percentage of the two recognized populations consume during working hours. The consumption is normally in group. Medical examinations is a good tool for detecting and monitoring patients with toxic habits harmful to their health.
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RESUMEN
Introducción: El estilo de vida y las peculiaridades del trabajo a bordo hacen de los pescadores una población con alto riesgo de adicción y hábitos nocivos.
Objetivos: Estudiar estilos de vida y algunos hábitos nocivos comparando dos poblaciones de pescadores de distintos países: Litoral Catalán (España) y Litoral de la región de Tánger (Marruecos) relacionándolos con las características sociodemográficas y las condiciones de trabajo**.**
Material y Métodos: Estudio descriptivo transversal. Se obtuvieron los datos mediante un cuestionario autoadministrado, entre los meses de octubre 2012 y mitades de marzo 2013. Las variables incluyeron datos antropométricos, escolaridad, convivencia, cargo, nacionalidad, consumo de tabaco, alcohol y drogas, descansos, y actividad física**.** El análisis estadístico se basa en la comparación de proporciones y medias con un IC [95%]; los test de Chi^2 y T de Student se utilizaron para las variables cualitativas.
Resultados: Se trata de dos poblaciones de pescadores con hábitos muy similares. Rango de edad entre 18-70 años, mayoritariamente con estudios primarios, IMC entre normal y alto, realizan deporte de forma ocasional, y tienen problemas significativos de TME, menos de la mitad no fuma, en Catalunya se consume más café y en Tánger más té. Además el consumo de alcohol es más importante en Cataluña y el del cannabis es más marcado en Tánger. Hay relación entre consumo de tabaco y cannabis. Las dos poblaciones consideran que el cannabis es menos nocivo para la salud que el tabaco.
Conclusión: Un ligero aumento de consumo de cannabis en Tánger respecto a España. Un pequeño porcentaje de las dos poblaciones reconoce consumir en horas de trabajo. El consumo es en grupo. Los reconocimientos médicos previos al embarque, son una buena herramienta de detección y seguimiento de los pacientes con hábitos tóxicos perjudiciales para la salud.
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Résumé:
Introduction: Le mode de vie et les particularités du travail à bord font des marins-pêcheurs une population à risque élevé d'addictions et d'habitudes nocives pour la santé.
Objectifs: Etudier les modes de vie et certaines habitudes nocives en comparant deux populations de marins-pêcheurs de pays différents : de la côte catalane (Espagne) et de la côte de la région de Tanger (Maroc) en les rattachant aux caractéristiques sociodémographiques et aux conditions de travail.

Matériel et Méthodes: Il s'agit d'une étude descriptive et transversale où les données ont été recueillies au moyen d'un questionnaire, entre les mois d'Octobre 2012 et Mars 2013. Les variables incluses comportaient les données anthropométriques, le niveau intellectuel, la cohabitation à bord, la poste du travail, la nationalité, la consommation de tabac, d'alcool et de drogues, le repos et l'activité physique. L'analyse statistique reposait sur la comparaison de pourcentages et de moyens, avec un IC [95%] ; le Chi2 et test T de Student furent utilisés pour les variables qualitatives.
Résultats: Il s'agit de deux populations qui ont des habitudes similaires à bord. Âgés de 18-70 ans, de scolarisation primaire, avec un IMC entre normal et augmenté et une activité sportive occasionnellement pratiquée. Les TMS marquent l'état de santé et plus que la moitié fume le tabac ; En Catalogne le café est plus consommé alors que c'est plutôt le thé à Tanger; Aussi, la consommation d'alcool est plus importante en Catalogne et celle du cannabis en est plus à Tanger. Il existe une relation entre la consommation du tabac et du cannabis. Les deux populations croient que le cannabis est moins nocif pour la santé que le tabac à priser.
Conclusion: La consommation du cannabis est légèrement augmentée à Tanger qu'en Espagne. Une minorité des deux populations reconnait en avoir consommé durant le travail. La consommation se fait en groupe. L'examen médical préalable à l'expédition est un bon outil pour détecter et surveiller les patients ayant des habitudes toxiques nuisibles à la santé.

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ABSTRACTS

Workshop 2

Seafaring medical fitness, seafarer welfare
IMHA Quality

WHAT IS THE EVIDENCE FOR THE BENEFIT OF QUALITY ASSURANCE AND ACCREDITATION IN MARITIME HEALTH?

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Topic: VI – Seafaring, medical fitness and seafarer welfare (Quality Assurance)
Preferred type of presentation: oral
Keyword(s): Quality assurance, Accreditation, Benefit, Maritime Health

Abstract

OBJECTIVE: To define the evidence for the benefit and cost effectiveness of quality assurance and accreditation systems, and also the criteria which should be demonstrated by top quality providers of maritime health.

METHODS: Analysis of the evidence from recent international literature reviews. Review quantifiable aspects of maritime health which might benefit as the result of undergoing an accreditation programme.

RESULTS: There is much published material demonstrating evidence of many benefits of accreditation, although there are still areas which would benefit from further research.

A number of areas have been identified which can be seen as positive outcomes of accreditation programmes, and can be used to identify top providers of maritime health, including:

- Strong leadership with well defined responsibility and accountability
- Work is efficient and effective, and resources are used effectively
- Policies and procedures are clear
- Communication is good both internally and with stakeholders
- Adverse events are monitored and acted upon, and the work environment is safe
- Areas for improvement are identified, and professional development for staff encouraged
- Clinical outcomes are good
- Patients, staff and clients are satisfied
- Credibility and commitment to quality improvement are demonstrated

CONCLUSION: Public awareness of quality assurance has never been so high, and it has changed from being an optional extra to being a foundation of practice. Quality assurance in healthcare is expected both by patients and other stakeholders. There is a wealth of evidence to show that accreditation is a powerful tool for quality assurance and quality improvement. The necessary attributes for top quality providers can be defined, and the process of accreditation is designed to develop and enhance these attributes.

EVIDENCE-BASED RISK ASSESSMENT IN CLINICAL DECISION-TAKING AS A PART OF SEAFARERS' MEDICAL EXAMINATIONS

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Topic: VI – Seafaring, medical fitness and seafarer welfare (Quality Assurance)

Preferred type of presentation: oral

Keyword(s): Medical examination, decision-taking, evidence-based, seafarers' medicals, quality assurance

Abstract

OBJECTIVE: To map the extent of evidence-based conclusions as provided by approved medical doctors in cases considered by the Appelate Body of the Norwegian Maritime Authority (NMA) 2010-2012.

To suggest procedures for the development of increased evidence-based decision-taking in medical examinations of seafarers.

METHODS: A survey of 361 cases of applications for exemptions or complaints at the Appelate Body of the NMA in the period of 2010-2012.

A systematic approach to literature search for evidence about medical conditions, which can form a basis for clinical decision-taking in case-handling of the Appelate Body.

RESULTS: NMA approved medical examiners regarding medical certificates rarely provide evidence from clinical examination and supplementary tests on presenting a case to the Appelate Body.

NMA approved doctors only rarely substantiate their decisions by up to date scientific knowledge.

End-points of published studies often are less suitable as a basis for clinical decision-taking in medical selection of seafarers.

Existing databases have limitations as knowledge source for clinical decision-taking in seafarers' medical examinations.

CONCLUSION: The study shows that existing evidence are used to a limited extent today in clinical decision-taking, making second opinion difficult.

End-points in clinical studies are not always relevant for medical examinations of seafarers.

Increased use of evidence-based clinical decision-taking can enhance the reproducibility of the medical examinations.

The process of clinical decision-taking in medical examinations of seafarers needs improvement and quality assurance.

LESSONS LEARNED FROM THE INTRODUCTION OF A QUALITY ASSURANCE SCHEME FOR THE MEDICAL SERVICE ON CRUISE SHIPS

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Topic: VI – Seafaring, medical fitness and seafarer welfare (Quality Assurance)
Preferred type of presentation: oral
Keyword(s): Quality assurance, Cruise ships, maritime health, standards

Abstract

OBJECTIVE: To describe the development of quality standards and introduction of an accreditation programme on board a fleet of 28 cruise ships from the standpoint of the Project Manager.

METHODS: Work on developing a set of standards specific for cruise ship medicine started in 2001, and the first standards were finalised in 2003. Much work was required in order to understand the requirements of the standards and to apply them appropriately to current practice. In working towards accreditation to meet the standards (which included healthcare standards equivalent to ISO and were equivalent to those expected of facilities on land), a number of changes in practice were instigated.

RESULTS: Methods of record keeping were fully reviewed and much improved. Systems for reporting and acting on complaints and adverse events were put in place, and communications were enhanced. Staff management was also fully updated with respect to handover, induction and training. Changes in practice were welcomed by staff, and patient satisfaction was evident. The organisation was fully surveyed and accredited in 2006, and continues to work for continuing accreditation to updated sets of standards.

CONCLUSION: Even when a healthcare accreditation system is up and running, the development of a set of standards to complement a new area of practice such as cruise ship medicine is time consuming and requires input and expertise from many sources. Taking an organisation new to the process through accreditation is challenging but extremely rewarding in that changes of practice were found in many areas to be beneficial to staff development and to patient care.

The contributions of standards, competence and quality assurance to clinical decision taking on seafarer fitness

T. Carter

OBJECTIVE: To review the contributions of written standards and criteria for fitness, the competence of those applying these criteria, the support provided for them and quality assurance and audit programmes to decision-taking at seafarer medical examinations in the UK from 2000-2010.

METHODS: Presentation of the changing approaches to decision-taking and assessment of the outcomes of examinations in terms of audit findings, referrals for referee re-assessment and complaints and concerns about risks at sea. A mix of statistical and qualitative findings will be reviewed. These will be evaluated in relation to changes both in the maritime sector and in expectations about the ethics of medical examinations for remote and safety critical work.

RESULTS: Progressive changes to the framework for seafarer medical examinations have resulted in fewer seafarers being found unfit, but in more having restricted duties. Referrals to referees have been reduced. Concerns and complaints have not increased and the arrangements have continuing support from both employers and seafarers unions. This has been a consequence of greater clarity in the expression of fitness criteria and supporting these with detailed guidance and a helpline for advice. Advice and criteria are modified in the light of experience and changing medical practice. Recruitment and training criteria for examining doctors have been enhanced and a systematic audit programme based on an annual review of decisions, assessment of performance and prioritised audit visits have been introduced.

CONCLUSION: Quality improvements within a national system of seafarer medical examinations can be achieved in practical ways and at a small proportion of the cost of the system to users. However in a global industry the challenge is to develop frameworks that enable quality assurance that will be internationally acceptable.

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Poster Session 2

FOOD HYGIENE AWARENESS ON BOARD A TANKER FLEET

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Topic: Maritime occupational health
Preferred type of presentation: poster
Keyword(s): foodborne diseases, seafarers, risky behaviours, food handlers

Abstract

Objectives
The aim of this study was to evaluate knowledge and awareness of the risk represented by food in seafarers.
Methods
An anonymous questionnaire was filled-in by seafarers and office employees (243 interviewed) of the Italian shipping company Finaval S.p.A. Data were divided for ashore and at sea workers as well as according to the rank of seafarers to assess possible differences in perceiving risk.
Results
The overall knowledge on food safety concept is quite low, mainly among food handlers, with galley and catering personnel giving a low percentage of correct answers. These workers showed little awareness of the risks linked with handling food and a low perception of health risks related to food. The percentage of "I don't know" answers is very high. This highlights that this personnel is aware of the right steps but does not understand why that is necessary.

"Do you think that diseases can be transmitted through food?"	**Yes %**	**No %**	**n.a. %**
Deck officers	82.00	16.00	2.00
Engine officers	86.96	6.52	6.52
Deck crew	71.21	25.76	3.03
Engine crew	74.29	25.71	0.00
Catering and galley crew	53.85	15.38	30.77
Administration	90.00	10.00	0.00
% Total	76.54	17.69	5.76

Conclusion
The above results highlight the need to hire qualified personnel of the food industry on board ships, i.e. those in possession of the health card, those who have successfully attended courses on food hygiene and can demonstrate their knowledge and familiarity on the subject. All those who work in food services should be trained in food hygiene. Seafarers should be therefore the target of specific informative campaigns about health risks linked with food, possible consequences and how to minimize exposure to them during travel/life at sea.

TREATMENT OF WATER AT AN INDEPENDENT VOYAGE.

N.S Baduck

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In 1889 on intergovernmental summit in Washington the problem of safe navigation was raised for the first time. Since then a lot of Conventions concerning the development of unified international standards and norm on the point did not stop. A few of them dealt with norm of water supply. We have taken them into consideration during our voyages on reconstructed ancient vessels (bireme “Ivlia”, medieval merchant ship ”Odessa”) in the Black and Mediterranean Sea, in the system of the rivers the Danube – Main – Rheine. When carry historic inquiry on ancient and medieval navigation, we failed to find any information about rules for water treatment at that period, so as a source of drinking water we used prepackaged bottled water. The reserves of water in the anker-tanks were used only for service-utility needs as there were no effective means for their disinfection. The first voyage on the reconstructed Phoenician merchant ship “Melkart” (the V century BC; length – 12 m; width – 2.8 m; full load weight -12 t) was a repetition of a route of Carthaginian navigator Gimilkone near the coasts of Spain and France. During this voyage we used MICROPUR (Switzerland) as a disinfectant. For the period of the voyage the water supplies treated with the preparation mentioned did not change either taste, or colour; microbiological tests done after the voyage showed a complete correspondence to the norms at force. Later on the preparation was used during independent voyages to Cadis, South America, etc.

LABORATORY REQUIREMENTS FOR HEALTH ASSESSMENTS IN THE PHILIPPINES: A BASIS FOR MODIFICATION / ADVANCEMENT

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Topic: Seafaring
Preferred type of presentation: Oral
Keyword(s): laboratory requirements, health assessment

Abstract

LABORATORY METHODS and requirements complement the institution of major clinics assessing maritime workers for employment and deployment. It is in these centers that the methods and the standards are kept and are implemented with what is given by regulatory agencies. There have been no studies that saw the implications for assessing the status of these laboratory at the same time determine the areas of improvement if there are. There is a need also to see that this area of laboratory science has an imperative role in the development a well as the upkeep of those who are going to work in the maritime industry.

This revisit is not meant to assess the capabilities but rather to check on the impact of these institutions with laboratories on how they evolved to the demands of the industries and the stakeholders. There is also a need to look into the different dimension of medical technology as a partner in the medical field and marine industry. The study saw fits the determination of where the policies and standards are going in as far as the determinant/factors that would make the industry reliable, competent and safe.

The study on WIB (Work improvement on board) training for fishery boats.

Shuji Hisamune, Kosei Fukushu, Hyou Mathumoto(Takasaki city University of Economic), Nobuo Kimura (Hokkaido University)

The work accident of crews on the vessels higher than in other industries. The work accident of crews on vessel in the 2009 was 9.8 per 1000 workers, which was 4.5times higher than the incidence in other industries. The death rate from work accidents in 2009 was 0.2per 1000 workers, 2 times higher than the rate in other industries. Thus, we seek to implement measures to improve safety by crew at sea and reduce vulnerability for crew. This will be achieved by increasing awareness of dangers and hazards. Because ships and inboard equipment varies are greatly according to the type and size of ship and the areas. We develop the WIB (Work improvement on board) participatory training program and a checklist to dangerous, harmful factor and the risk. WIB referenced the WISE method. We studied the effort of WIB training for merchant vessels (2009).

We hold the WIB training course with five fishing-cooperation(two trawlers and three coastal fisheries) from 2010 to 2011 in Hokkaido(the most north of Japan).We researched the effectiveness of WIB training. The 134 participants of about 83percent or more was an opinion with the necessity. The participant of about 92percent or more was that WIB training is the possible. All members proposed three problems by using the checklist and WIB program is easy, cleanly, shortly. This study supported by special Research bounty of Takasaki City University of Economic.

PREVALENCE AND CHARACTERISITICS OF ADMISSIONS DUE TO UROLITHIASIS AT THE AMOSUP-SEAMEN'S HOSPITAL, MANILA

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Topic: Maritime occupational health
Preferred type of presentation: oral and poster
Keyword(s): Urolithiasis, bilateral nephrolithiasis, diagnosis, kidney, seafarers

OBJECTIVES: Urolithiasis is a formation of stones originating anywhere in the urinary tract that includes the kidneys and urinar y bladder. The study was conducted to determine the prevalence of urolithiasis of AMOSUP members in the Philippines.

Methods: Data were gathered from the AMOSUP Seamen's Hospital Medical Records. Patient charts of seafarers from the years 2001 to 2010 were examined. Noted on the diagnosis and treatment. Position and vessel type boarded by seafarers were taken from the AMOSUP membership master list.

Results: The total number of AMOSUP seafarers is estimated to be 85,000. Of these, 272 (0.32%) had Urolithiasis and were admitted at Seamen's Hospital. The mean age was 42.24 $\pm$ 7.99 years and most cases were from 40-49 year old age group. 99.6% of the patients were male. 34.2% of the cases were nephrolithiasis in the left kidney and 29.8% in the right kidney. Only 4.4% have bilateral nephrolithiasis.

Conclusion: The prevalence of admissions to the AMOSUP-Seamen's hospital is similar to other data that have been previously determined. The mean age and location of the stones were likewise similar. It has determined the demographic profile of the respondents in terms of age, sex, diagnosis, position, classification (steward, engine, deck), vessel type, major classification (cargo, passenger, service, SO, SP, tanker), tenure in months, and treatment done (medical, surgical).

LIMITING LOWBACK INJURIES IN FILIPINO SEAFARERS: THE ROLE OF THE FUNCTIONAL CAPACITY EXAM IN THE PRE-EMPLOYMENT MEDICAL EXAM

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Topic: Seafaring, medical fitness and seafarer welfare
Preferred type of presentation: oral
Keyword(s): Low back pain, Lumbar injuries, physical exam, occupational medicine

Abstract

BACKGROUND. There have been various tests to evaluate the physical capabilities and body kinetics of seafarers. This study evaluated the Functional Capacity Evaluation (FCE), which has been part of the pre-employment medical exam (PEME) for Filipino seafarers in our clinic since 2008.
METHODS. A total of 33,616 Filipino seafarers in cargo merchant ships underwent PEMEs at our clinic from January 2009 to December 2011. We divided these into groups where one group underwent the FCE during their PEME (FCE group n=5578) and another group that did not (non-FCE group n= 28,038). The medical repatriation rates from for these groups were monitored from January 2009 to June 2012. The medical repatriation for low back injury cases and rates of this group were evaluated and compared to the FCE group.
RESULTS. Using the Fisher exact test, results showed that there were statistically significantly less low back injuries as the cause for medical repatriations in the FCE group as compared to the low back injuries of the non-FCE group ($p < 0.05$). The relative risk was calculated as 0.346.
CONCLUSIONS. This study has shown that the FCE has been significant in decreasing the number of repatriations secondary to back pain in seafarers. Thus, it is recommended that the FCE be made a regular component of the PEME.

Cooperative learning of medical care training for seafarers at the University of Basque Country (Spain)

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Topic: IX – Training in maritime medicine
Preferred type of presentation: poster
Keyword(s): Medical Care, Training, Cooperative Learning.

Abstract

INTRODUCTION

We want to share our experience inside the development of the Bologna Process in Spain. We have incorporated the minimum standards of First Aid and Medical Care, based on competencies established by the International Maritime Organization (IMO). The training should cover the principal elements of medical first aid, including life-saving measures, and should also encompass relevant recent developments in medical care and diagnosis. Our experience is about the cooperative learning. It is an instructional strategy in which small groups of students work together on a common task.

METHODOLOGY

Use the STCW Code in the Standards of Training, Certification and Watchkeeping for Seafarers Convention, as amended in 1995.

Cooperative learning changes students and teachers roles in classrooms. Small groups of students to learn medical first aid and medical care

RESULTS

It is based on the theoretical and practical knowledge specified in the STCW Code. It is written as a series of learning objectives. It defines a required performance of knowledge, understanding and proficiency.

Students have more opportunities to actively participate in their learning, question and challenge each other, share and discuss their ideas, and internalize their learning.

DISCUSSION

We don't know if our seafarers will be competent to participate effectively in coordinated schemes for medical assistance on ships at sea and provide the sick or injured with a satisfactory standard of medical care while they remain on board. Using cooperative groups to accomplish academic tasks not only provides opportunities for students to develop interpersonal skills but also gives them authentic experiences that will help them be successful in their future careers.

CONCLUSIONS

Structured activities can help students learn the skills to work together successfully, and structured discussion and reflection on group process can help avoid some problems.

SOURCES OF PSYCHOLOGICAL STRESS FOR SEAMEN AND SUGGESTED PREVENTIVE MEASURES

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The objective of this paper is to demonstrate the presence of psychological stress in seamen as well as the causative factors. We also want to suggest preventative measures. Man is a social being who needs love, support and care. By going to work onboard he/she is uprooted from the family. Coming onboard means facing unfamiliar people and situations. The world economic crisis caused fierce competition; demand is greater than supply so obtaining work is very stressful.

Method: A questionnaire was distributed to 160 male seamen with an average age of 37, and an average length of work aboard of 9 years, and the responses analysed.

Result: Most examinees state that the greatest stress for them is uncertainty about getting a job (65%) and the short interval before embarking (46%). Long voyages to the destination point and different time zones are problems for 74% of examinees. Leaving family and worrying about it is stated by 50%. More than 46% report problems fitting into new surroundings and 75% mention a cold, unfriendly attitude towards newcomers. Upon arrival there is no introduction to problems onboard for 65%. Loneliness and isolation are felt by 70%, and 59% cope with unfair treatment by seniors.

Conclusion: Embarking a ship and life and work conditions once on board are stressful. Reactions to stress factors are individual. The dominant stress factors are isolation, unfriendly attitude between crew members and unfair treatment of employees. A friendlier and more human attitude together with good will from employees and employers would be helpful in coping with stress in seamen.

Key words: Onboard, psychological stress, seamen, prevention

WHO BENEFITS FROM GROUP-BASED HEALTH PROMOTION? A PILOT STUDY AMONG FINNISH SEAFARERS

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Topic: VI – Seafaring, medical Fitness and seafarer welfare
Preferred type of presentation: poster or oral
Keywords: health promotion, seafarer, mental health

Abstract

Introduction
Many studies have shown that health risk factors such as overweight and poor physical activity are more common among seafarers than among general population. There have been some health promotion interventions in maritime industry, but those have had rather lean effectiveness. In this report we describe why some persons have benefits of health promotion while some others not, based on a two-year health promotion project among Finnish seafarers.

Methods
Fifty voluntary seafarers were recruited to participate in the project. During a two-year intervention seafarers were activated to do small health-promotive changes in their everyday life by organizing seven 1 – 2 days group meetings. Themes handled in group meetings were nutrition, weight control, vascular health, sleep and relaxation. Health and well-being of participants were evaluated at the beginning and in the end of intervention by health examinations and questionnaires.

Results
29 participants followed the project till the end and 15 of them reached their goal, loss of weight more than 5kg or waistline decrease by 5 cm or more. Those 21 who did not follow the project till the end were less satisfied with their health and work ability. They also reported more tiredness and sleep problems. There were no differences in physical fitness between these two groups.

Discussion
This intervention showed that a group-based health promotion works out with persons who do not have tiredness or mental health problems. Persons experiencing exhaustion do need more supportive and customized actions during health promotion programme.

INTERVENTIONS OF HOSPITAL SHIPS IN HUMANITARIAN ACTS

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Topic: VIII Seafaring, Medical Fitness and Seafarer Welfare
Preferred type of presentation: poster
Keyword(s): Ships, Hospitals, History of Medicine, Humanitarianism

Abstract

Obectives: To study and to present the contributions of the hospital ships in humanitarian missions facing extremes situations of high endemic morbidity or catastrophes.

Methodology: Studies related to the activities and the utility of hospital ships have been donein the University of La Laguna. After a thorough review of different sources, the data are organized and the contents are expressed in results and conclusions.

Results: During the past fifteen years, huge hospital ships of the American Navy have proved their generous utility as operational mobile hospital platforms to any oceanic seaboard with medical care needs. Because of their health resources and infrastructure onboard, as any land hospital of a high level, these big ships prove a great efficiency and effectiveness in far away places around the world. The activities are medical care and health promotion. Besides, these hospital ships, versatile naval ships with hospital facilities, are used to treat and transport injured people. It is described the supportive activities of the well-known White Ships or Samaritan Ships that constantly assist as floating hospitals in the seaboards of the Third World's tropical countries. We describe the characteristics of the Hospital Ships, their resources and activities.

Conclusion: It is unyielding the readiness and the utility of the hospital ships that are operational bastions to the fight against diseases and the health promotion in situations with a high demand of health care help.

INVESTIGATION OF A CLUSTER OF SCURVY CASES IN THE CREW OF A FISHING COMPANY, FUJIAN PROVINCE, CHINA

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Topic: Maritime occupational health

Preferred type of presentation: oral

Keywords: Scurvy

Abstract

Objectives Six patients with lower limb edema and unable to walk were reported from the emergency department of a hospital in Fujian province, China July 16, 2012. They were all crew of the same fishing company. We conducted this investigation to identify the reason and to provide the prevention and control measures.

Methods The case definition was defined as onset of lower limb edema or bleeding gums among crew of the fishing company from June 17, 2011 to July 16, 2012. We searched the cases by interviewing the 12 crew who were taken back by the tender and the doctor on the tender about the symptoms for all the crew.

Results In June and July 2011, the company sent six boats to South-East Pacific for squid fishing without disembarking until July 2012. Each ship was staffed by 35 crew, 28 workers and 7 ship's officers. 11 cases (with 1 death) were identified, April-June, 2012. All cases were workers. Patients were from two ships, 9 in ship A, 2 in ship B. The main symptoms were bleeding gums and lower limb edema. Their diet during the voyage had been limited to rice, frozen vegetables, and meat. This was the first time the fishing company had sent vessels for such long-term sailing. All crew had the same diet. Patients recovered after Vitamin C supplementation.

Conclusion The cause of this outbreak was most likely scurvy, due to Vitamin C deficiency. To prevent similar incidents, an adequate diet including fresh fruit and vegetables suitable for long-term offshore sailing should be provided. The fishing company should assign special medical staff in or to the long-term offshore boats routinely for recognizing health problems in timely fashion.

TELEMEDICINE SERVICES IN MARITIME TRANSPORT AND HEALTH SEAFARERS

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Purpose: To study the technical capabilities of the system due to the organization of maritime transport of telemedicine services and health of seafarers.

The problem: the study of modern systems of marine radio communication.

Material: Data on equipment radio satellite equipment of ships and shore for safety of navigation.

Method: The study and analysis of the technical characteristics of the equipment used to enable and support the implementation of telemedicine in maritime transport.

The results of the study:

Currently a Global Maritime Distress and Safety System (GMDSS). The system put in place, the 02/01/1999. All ships subject to the International Convention for the Safety of Life at Sea (SOLAS), must comply with GMDSS.

In GMDSS common satellite system INMARSAT. INMARSAT satellite system, is based on the basis of geostationary satellites and operates in the frequency range of 1.5 to 1.6 GHz, technically allows for two-way communication.

Latest standard Inmarsat-F «Inmarsat Fleet» - designed specifically for use at sea. Inmarsat Fleet - a high-quality connection for all types of ships of any size and type. The actual data transfer rate of 64 kbit / s, including a mode MPDS. Have access to e-mail, Internet and Intranet data rate and fax up to 128 kbit / s. Fully integrated into the standard ISDN technology and can be used to solve problems of telemedicine and health of seafarers.

Conclusions:

1. Modern systems for marine radio in maritime transport have reached a high level of technological development and equipment, there are great possibilities for media channels.

2. This reserve is possible and economically feasible to use telemedicine.

3. Telemedicine in the present conditions in maritime transport will help shape health information databases and solve problems on the effect of physical environmental factors and electromagnetic radiation on the health of seafarers.

REGULATORY GOVERNMENT EXAMINATIONS and TRAINING OF MARITIME PERSONNEL - IMPLICATIONS IN HEALTH: PHILIPPINE EXPERIENCE

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Topic: Health Promotion
Preferred type of presentation: Poster
Keyword(s): regulatory government examination, maritime training

Abstract

The Philippine is one of the world's greatest maritime workforce supplier, and the academic ladder is now in the vortex of changes changing from the basic education from the length of 10 years to 12 years. The government have imposed the maritime board of examiners under the Professional Regulation Commission in determining the appropriateness of the those who will be given a license or a stature that is within their work areas.

This study is an update of a previous study that aims to update at the same time validate the positive as well as the outcomes that have been determined by the different people behind those in the maritime industry. The areas of training, as well as curriculum content in terms of records review as well as focused interviews of some of those in the stakeholders and the academe were undertaken.

The health aspects as well as its implications in the different requirements or regulations are the focused of this study. Though the study focuses on the country's experience, this shall serve as a benchmark and aims to determine the directions of the industry in terms of the program and policies.

EPIDEMIOLOGY OF WATER SPORT PATHOLOGY ON SOUTH WEST BRITTANY

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Topic: Emergencies at sea
Preferred type of presentation: poster
Keyword(s): water sport, traumatic injury, prevention of medical issues

Objective

The length of the coastline in France allows the practice of many water sports, especially during holidays. The objective of this paper was to document overall characteristics of patients requiring emergency service consultations during summer 2011, and to identify specific characteristics such as population at risk and types of sports involved.

Method

A multicenter prospective descriptive study was conducted from July 1 to August 31, 2011, in 4 emergency departments, located near the sea in south west Brittany. The inclusion criterion was the occurrence of a disease during a water sport (sea, fresh water and pool).

Results

254 patients were included. 69.7% (n=177) of them were males (28.4 of mean age). 49.3% (n=125) of these patients were from another French region and 10.5% were foreigners (n=27). No significant difference in weekdays was found for emergency department visits. Trauma accounts for 87% of cases (n=221) (pool/sea ratio: 0.26). 72.4% of patients came by their own at the hospital and 6.7% via a pre-hospital medical care unit (SMUR) (n=17). Sports most incriminated are: swimming for 36.6% (n=92) (pool/sea ratio: 1.3), sailing for 19.2% (n=49), surfing for 14.9% (n=38), fishing for 10.6% (n=27) and diving for 5.1% (n= 13). Overall mortality is significant: 1.1% (n=3). 8.2% of patients were hospitalized (mean age 45.2). Three patients were transferred to an intensive car unit after drowning (mean age 57.7).

Conclusion

The population studied in this series is mainly represented by young and male people, suffering from minor traumatic injuries, treated as outpatients, as described in the literature. A special attention was paid to severe medical diseases responsible for hospitalizations, mainly in older patients. All the admissions to intensive care units were done after drowning, with often severe consequences, as shown in previous studies.

The incidence of traumas, mostly with minor consequences, seems difficult to decrease; however, it is important and crucial to insist on drowning prevention and prevention of medical issues in elderly patients at risk.

PREPARATION AND MEDICAL FOLLOW-UP FOR A SINGLE-HANDED TRANSATLANTIC ROWING RACE

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Topic: Specific health problems for maritime leisure and professional sailing

Preferred type of presentation: poster

Keyword(s): transatlantic race, physiology, physiopathology, prolonged isolation,

A single-handed transatlantic rowing race was organized between Senegal and French Guyana (2600 nautical miles). Preparation for the event consisted of a physical examination, information on food, hydratation, and sleep management, and use of a medical kit including emergency medications. Half of race participants received special preparation including management of sleep, stress, and seasickness. Participants were provided remote communications equipment. Follow-up consisted of sending out a questionnaire and performing individual interviews.

A total of 23 participants including 1 woman and 22 men; mean age of 46.5 years (range, 35 to 59) entered the race. The race lasted for 39 to 52 days with participants rowing between 10 and 12 hours per day. Nine participants dropped out.

Race catering included 3 to 5 meals per day plus a snack ever 2 hours. Both lyophilized and normal food was served. Energy intake was 4500 to 6000 Kcal/day and fluid intake was 4 to 5.5 liters per day. The resting period was 6 ± 1 hours/24 hours divided into 1.5- to 2-hour periods essentially during darkness.

Mean weight loss was 10.68 Kg.

Twenty-two racers (95%) required medical care for dermatological problems, diarrhea in 4 cases, tendinitis in 10, burn in 2, moderate to severe seasickness in 4, hallucinations in 3, panic attack in 2, and land sickness lasting from 45 minutes to 6 hours in 58.33%.

Follow-up of this type of event helps to better understand the physiology and pathology associated with prolonged physical exercise at sea as well as psychological problems associated with long periods of isolation.

ERGONOMICS AND EVOLUTION OF PHILIPPINE MARITIME VESSELS

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Topic: Seafaring/Medical Fitness
Preferred type of presentation: Poster
Keyword(s): ergonomics, maritime vessels, naval architecture

Abstract

Maritime vessels have evolved and made it easier for the world to become smaller. This research is a qualitative research that combines the naval architecture with ergonomics in some portions of the areas of a ship. Since the Philippine is archipelagic in topography and the contacts that have been made from the Malays, the Chinese and the Spaniards have made the modes of transport through the sea.

The methods of this research is through documentation review and with the basic tenets of medicine and occupational health and safety we have made some of the basic designs through what is acceptable and scientific. Focus group discussion and selected interview with some of the maritime architecture as well as those at sea and in medicine have been consulted.

The different evolution of designs have made it chronologic as well as systems in terms of functions. Functionality by design was considered and it made a new factor that should be considered by medical practitioners at sea.

The historical as well as scientific bases makes it more imperative for medical doctors consider the plight of seafarers in their quest for an ergonomically sound ship or vessel.

FOR PREVENTION OF "FATAL AND INJURY ACCIDENTS RELATED TO ON-BOARD WORKS"

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Topic: VII – Human factor in maritime accidents

Preferred type of presentation: poster

Keyword(s): maritime accidents, prevention of accidents, on-board works, accident investigation

Abstract

In recent years, we have seen many fatal and injury accidents to crew and shore workers carrying out such works as repairing, stevedoring and cleaning on vessels, in connection with the structure, equipment or operation of vessels.

In view of these ongoing situations, we present some case studies of serious accidents investigated by Japan Transport Safety Board and various statistical data aiming at JTSB Digests (http://www.mlit.go.jp/jtsb/jtsbdigests_e.html) featuring fatal and injury accidents related to on-board works for prevention of similar accidents.

Based on our investigation reports on fatal and injury accidents (95 cases in total) related to on-board works including the three serious accident investigation cases mentioned in the Digests, we summarized how these accidents occurred, and what the lessons which will help prevent recurrence are as follows.

By the type of accidents, there were 38 cases of fatal accidents (40 % of the total), while works such as mooring and anchoring, stevedoring and working inside tanks and holds accounted for 70% of the total, by the type of works when the accidents occurred. The number of contacts and heavy blows was 26 (27.4%), fall and man overboard 24(25.3%) and crush 23(24.2%).

To prevent recurrence of similar accidents, it is important for the crew members and workers to understand the properties and risks pertaining to the loaded cargo, the facilities and instruments on the vessel. And we believe that this will be accomplished only by taking appropriate initiatives in the industry, such as providing safety education and training regularly.

TOBACCO SMOKING HABITS ON BOARD MERCHANT SHIPS

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Topic: Seafaring, medical Fitness and seafarer welfare

Preferred type of presentation: poster

Keyword(s): seafarers, tobacco smoke,

Abstract

Objectives

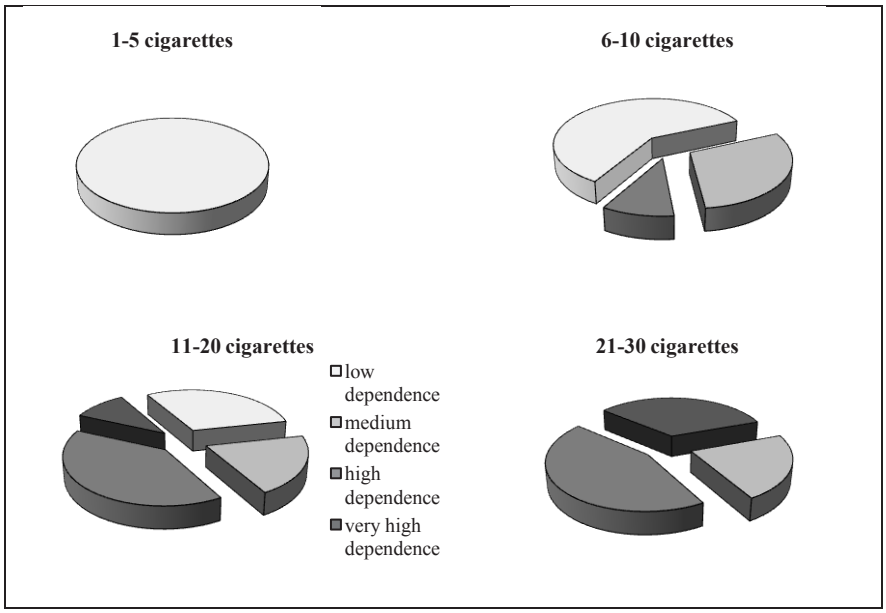
The study was aimed to acquire information on knowledge and awareness of the problem of tobacco smoking on board ships.

Methods

An anonymous questionnaire was filled-in by seafarers (1314 interviewed) of three Italian shipping company (Finaval, D'Amico, Carboflot) and CMA-CGM

Results

Questionnaire responses reveal that there is a general awareness of the damage caused by tobacco smoke and the dangerous nature of secondhand smoke. About half of the participants responded that they have never smoked, while the remainder, approximately 30%, are smokers and 20% are ex-smokers. Heavy smokers do not seem fully aware that they are smoking too much (less than 20% estimated their smoking as "very much"), simply declaring that they smoke enough (about 50%).



Dependence breakdown according to the number of cigarettes smoked per day (Fagerström test).

Conclusion

The data obtained from the questionnaire makes us realize that tobacco smoke is also a matter of concern for those who work at sea. Seafarers should be the target of specific educative campaigns about health risks linked with behaviours to minimize the exposure during travel/life at sea.

MARINE SCHOOLS OF SOUTHEEASTERN PHILIPPINES: HEALTH CURRICULAR MATTERS

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Topic: training in maritime medicine
Preferred type of presentation: poster
Keyword(s): health, education, curriculum

Abstract

The education in tertiary education is undergoing changes with the Bologna accord and the passing in the Philippine congress the shift from the curriculum of less than 12 years to a cycle that encompasses what they call K to 12 curriculum. The maritime education has since changed and that health and other issues that covers not only the syllabi, instruction, research and extension services has to serve the needs not only the students but stake holders as well.

This is a records review with interviews and focus group discussions with mentors, faculty members and those in the administration of 3 major marine schools in the southeastern area of the Philippines – Mindanao. The study focuses on the current and the changes that are for implementation. Health is in the central focus of the syllabi reviews as well as evaluation in the training modules and/or materials that are utilized in the education.

There are compliance in terms of documentation but the evaluation and measurement of the output is yet to be checked and this study shall have a novel response in creation a positive outcome in education.

Problématique de la sécurité sociale des dockers à la Société Béninoise de Manutention Portuaire, à Cotonou.

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RESUME

Les dockers de la Société Béninoise de Manutention Portuaire (SOBEMAP) sont des ouvriers employés à titre occasionnel au chargement et au déchargement des navires. La précarité de leur condition de vie et de travail a motivé cette étude qui se propose d'évaluer l'ampleur de la situation sociale en vue de redéfinir le rôle des services sociaux des entreprises.

Il s'agit d'une étude transversale descriptive qui porté sur 74 dockers choisis de façon aléatoire. L'étude s'est déroulée à Cotonou en 2009.

D'après les résultats obtenus, 98,6 % des dockers avouent être déclarés à la Caisse Nationale de Sécurité Sociale (CNSS) et avoir accès aux soins de santé gratuitement sur le lieu de travail. Mais, 91,9 % gagnent moins de 500 francs CFA par heure de travail alors qu'environ 60 % d'entre eux sont mariés et ont au moins un enfant. 94,4 % des dockers rencontrés déclarent avoir des problèmes de subsistance et 60,3% ont exprimé des problèmes de maladies. Certains (52,1%) signalent n'avoir pas du tout de possibilités d'aides sociales face à leurs problèmes tandis que d'autres (46,6 %) affirment l'avoir rarement. 60,3 % des dockers sont peu satisfaits et 38,4 % pas du tout satisfaits de l'implication du service social dans la résolution de leur problème.

Ce sont là autant d'éléments qui fondent la problématique de la sécurité sociale des dockers de la Société béninoise de manutention portuaire à Cotonou.

Mots-Clés : Docker, Sécurité Sociale, Bénin

THE SANITARY IMPACT OF SEISMIC EXPLORATION AND DRILLING OF OFFSHORE WELLS

Résumé:

Objectives: The study concerns the importance of the sanitary impact assessment in seismic exploration, the drilling of wells and the production of hydrocarbons offshore in Equatorial Africa. Two major sanitary impacts should be monitored:

First of all, oil slicks, the cause of pollution and the contamination of fishing resources, have aggravated the weak consumption by the population of animal protein coming from fishing in an area wherein domestic animal raising is almost inexistent.

Secondly, the contamination of ports by the toxic contaminants from drilling is at the basis of the proliferation of certain pathologies among the manpower.

Materials and Methods: We carried out four studies on the sanitary impacts in seismic exploration and offshore and on shore well drilling from 2010 to 2012. In this study we decided to develop the three offshore studies, and excluded the one on shore study.

Results: The method used for offshore seismic exploration by air pistons is not harmful for people or the marine ecosystem. The same cannot be said for well drilling wherein the risk of contamination for people and ecosystems is serious because of the hydrocarbons and the drilling fluids.

Conclusion: A growing demand for fossil sources of energy, the high cost of the barrel of petroleum and technological progress are at the basis of the increase in the development of offshore drilling, especially deep offshore drilling. Sanitary impact assessments allow us, through their mitigation mechanisms and their prospective nature, to pursue exploration and offshore well drilling, even in deep waters, by reducing to the strict minimum the risk of contamination of the marine ecosystem and the intoxication of people.

Key Words: Sanitary Impact, offshore, hydrocarbons, contamination

The state of Sea Bathing after the Great East Japan Earthquake

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Topic: Specific health problems for maritime leisure and professional sailing
Preferred type of presentation: poster
Keyword(s): Sea bathing, Great East Japan Earthquake, bathers

Abstract

[Objectives]

The objective of this study was to evaluate the status of bathers at sea bathing areas in East Japan following the Great East Japan Earthquake and to assess the number of such areas that were being newly established.

[Methods]

In this study, analysis of trends in the number of bathers at sea bathing areas were based on local government reports for 2011 and 2012. Additionally, interviews were held at settings such as sea bathing area lookout posts, tourist associations, and lodging facilities. Surveys were also conducted with local government authorities via either telephone or E-mail.

[Results]

Responses during interviews held at sea bathing areas around East Japan suggested that sea bathing areas situated in hot spring resorts on the coast of the Sea of Japan saw an increase in the number of bathers in 2011. Furthermore, at the time of the local interviews in 2012, similar numbers of bathers to 2011 were expected in 2012. An increase in the number of automobiles with Miyagi, Sendai and Fukushima license plates was also observed in parking areas. Overall, survey responses suggested that more bathers had returned to the sea in 2012 as compared to 2011.

[Conclusion]

Our results suggested that, with the exception of one location harmed by rumors related to the disaster at the nuclear power plant, people had returned to the sea bathing areas. However, in areas that had suffered serious tsunami-related damage, local sentiment and ways of thinking were divided, and a few cases were seen in which sea bathing areas did not open. Therefore, regional differences may have an effect on the ways in which communities perceive tourism as part of recovery.

The state of Surfing in disaster affected areas after the Great East Japan Earthquake

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Topic: Specific health problems for maritime leisure and professional sailing
Preferred type of presentation: poster
Keyword(s): Surfing, Great East Japan Earthquake,

Abstract

[Objectives]

Surfing is a popular form of sea leisure in Japan and around the world. However, due to the major tsunami caused by the Great East Japan Earthquake of 2011, surfing is no longer possible in some areas. The objective of this study was to examine the state of surfing spots in East Japan that sustained catastrophic damage, the process undertaken to reopen them, and the recovery initiatives being taken by surfers.

[Methods]

Interviews were conducted with managers of surf shops around surfing spots in Miyagi Prefecture (Sendai Shinko, Shobuta Beach and Koizumi Beach), and members of the Sendai Surf Shop Union, the Nippon Surfing Association and the Ibaraki Surf Shop Union.

[Results and discussion]

Responses from the interviews suggested that people recognized a change in the topography at various surfing spots, including ground sinking due to the earthquake and beach erosion due to the tsunami. However, both local government workers and volunteers from all over Japan were working to remove dangerous debris, promoting the reopening of surfing spots in the disaster-affected areas. Community members were also cooperating with local governments in the background, and surfers from the disaster-affected areas were participating in a variety of initiatives. However, radioactive contamination from the disaster at the Fukushima Daiichi nuclear power plant has made surfing at beaches in Fukushima Prefecture impossible. Concern remains that radioactive contamination could negatively impact both Ibaraki and Miyagi Prefectures. However, it is believed that Japan's surfers, who as a group tend to treasure the natural environment, have strong bonds that will promote recovery in the disaster-affected areas.

[Conclusion]

The catastrophic damage caused by the massive tsunami after the Great East Japan Earthquake led many people to avoid the sea, but recovery is steadily moving forward thanks to the numerous people who feel as if they have a strong connection to the sea. Problems related to the issue of safety in surfing, a sea sport that relies on the coastal environment, will take more time and effort to solve. However, these problems are shared by everyone, not just the disaster victims, and the bonds held by surfers and surfing enthusiasts from all over Japan are expected to be a vital source of future recovery.

HISTORY OF THE PHARMACIST AND THE MEDICAL CHEST IN SPANISH SHIPS

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Topic: VIII Seafaring, Medical Fitness and Seafarer Welfare
Preferred type of presentation: poster
Keyword(s): Pharmaceutical Raw Material, Ships, Pharmacists, History of Medicine

Abstract

Aims: To make a descriptive and historical analysis of the functional organization of the Pharmacy and Chemist's aboard the Spanish ships from the 16th Century to nowadays.

Methodology: After holding the database of the General Archive of Indias (Sevilla), the General Archive of Navy (Viso del Marqués, Ciudad Real) and the Institute of Navy´s History and Culture of Madrid, that compile references to the presence of chemists and provides of Medical Chests in Spanish ships as much in the navy as in merchant marine.

Results: Since the begining of the row and sailing navigation, it was necessary to carry aboard resources for treatment to guarantee good health and fight against the disease. Although at that time the galley, fleets had a naval pharmacologist, according to some documents, the truth is that transoceanic navy inexorably determined the required presence of Medical chest on board, equipped according to the 'Pharmacopeia' of that time and also taking responsible staff to control and manage it. In Spain, a maritima country per definition since the time of their overseas great Empire, had an organizational structure of the Naval Medical Chest which was famous abroad. We described here the provider of first-aid kits and medical chest and their responsible staff from XV-XVII centuries until nowadays.

Conclusion: It has been decisive to provide a medical chest and the presence of pharmacists on board in former times. The progress and characteristics of the maritime sailing technology has made big changes according, ships' typology and the needs of the crew.

Currently, the resource of the Spanish first-aid kits and Medical Chests onboard and their usage, reflect the international recommendations and the corresponding regulations that the European Directives establish to guarantee health conditions and the work onboard these European ships.

Pathogenic organisms in seawater

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Selected topic: XII –Specific health problems
Preferred type of presentation: poster
Keywords: "Bacteria/growth and development"[Mesh];"Bacteria/pathogenicity"[Mesh];"Seawater"[Mesh].

Introduction: halophilic organisms survive in the marine environment. Some are pathogenic. Several studies have reported infections among users of the sea, as part of leisure activity and professional. The purpose of this study is to identify pathogens living in the marine environment.
Materials and Methods: This is a review of the literature from the Medline ® database. and legislation of the European Union.The keywords used were: "Bacteria/growth and development"[Mesh]; "Bacteria/pathogenicity"[Mesh];"Seawater"[Mesh].
Results: Bacteria give digestive infections if contamination occurs by ingestion. If contamination occurs through contact with the integuments, the infections are dermatologic or otologic or ophthalmologic. The main bacteria are: *Escherichia coli, Salmonella sp, Proteus sp, V. cholerae, V. parahaemolyticus, P.aeruginosa, A. hydrophila, S. aureus.* Nearly a hundred human viruses can survive in marine waters. The main ones are: *Poliovirus* I and III ; *Coxsackie* A and B ; *Echovirus* ; *Rotavirus* ; *hepatitis a virus* and *hepatitis e virus*. Few human pathogenic parasites survive in saltwater. The main ones are: *Acanthamoeba* ; *Anisakis simplex* ; *Heterophyes heterophyes*.
Discussion-Conclusion: the isolation of halophilic pathogen is often difficult with routine culture and the use of indicator organisms is necessary. Knowledge of halophilic bacteria provides better diagnostic orientation.

NEW PROGRESS IN CHINESE NAVY MEDICINE

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Topic: Navy medicine
Preferred type of presentation: poster
Keyword(s): progress, Chinese, navy medicine

Abstract

To review the research and development of Chinese navy medicine in the recent five years, the papers, reviews，reports and books concerning Chinese navy medicine were collected and searched, and the progress, achievements and development in this field were analyzed. The research in navy medicine developed very rapidly as the improvement of the technologies and informatization of the Chinese navy. This paper analyzed much achievement in medical supports and equipment development for submariners' escape and rescue, medical care and evacuation at sea, specific environment monitoring and medical protection in navy, naval special clothing and foods and naval medical service system. The analysis suggest that research in the fields of helium-oxygen saturation diving, diving diseases, diving equipment development, divers' training, diving surgeon training, equipments for medical care and evacuation system at sea, aeromedicine for the pilots of ship-based aircrafts, psychology of special environment for naval personals, health assessment for women aboard naval vessels and naval medical service system should be paid more attention.

ARE SEAFARERS FIT FOR EXEPTIONAL EMERGENCY SITUATIONS ON BOARD SHIP

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Topic: VI – Seafaring, medical Fitness and seafarer welfare
Preferred type of presentation: poster
Keyword(s): seafarer, emergency situations, physical capability

Abstract

Introduction
Every seafarer must be able to perform both, normal duties and emergency situations on board ship. Physical capability of seafarers is often unsatisfactory, obesity and ageing impair it even further. Finnish institute of Occupational Health is conducting a study to measure physical demands of emergency duties among firefighting seafarers. This abstract describes the results of the study's first phase.

Methods
Eighteen firefighting male seafarers and five other female seafarers aged 24-45 were recruited to study. They all attended to physical examination and to fitness tests. Ability to perform 100 meter's swimming in rough sea, climbing ladders up, turning an upturned life raft, and climbing to a life raft from water were tested in a maritime safety training center. Physical strain of these tasks was assessed by heart rate variability method and by Borg Rating of Perceived Exertion Scale.

Results
Most of the seafarers were in excellent physical condition. Preliminary analysis of the heart rate variability shows that even in good physical shape the tasks tested are causing strain and load peaks. Swimming was causing highest strain assessed in perceived exertion scale, 2/3 of participants reported it to be somewhat hard.

Conclusion
A seafarer in poor physical condition cannot carry out physically demanding duties such as firefighting or rescue operations. This is not only a risk for the safety of the vessel and other crew but it also puts seafarer's own life in danger in emergency situations. Final results of the whole study will be available at 2014.

PROTECTIVE EFFECT OF N-ACETYLCYSTEINE ON FORMALDEHYDE-INDUCED DAMAGE IN HUMAN BRONCHIAL EPITHELIAL CELLS

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Topic: Maritime occupational health
Preferred type of presentation: poster
Keyword(s): Formaldehyde, Human bronchial epithelial cells, N-acetylcysteine, Protective effect

Abstract

Objectives: Formaldehyde is a common air pollutant in the closed ship environment. N-acetylcysteine(NAC) is the acetylated variant of the amino acid L-cysteine, which is widely used in clinic. Toxic effect of formaldehyde on the lung has attracted extensive attention worldwide. However, effective treatment strategies are limited. The aim of this study was to investigate the effect of formaldehyde on the cell viability of human bronchial epithelial cells (BEAS-2B), and examine the protective effect of NAC.

Methods: BEAS-2B cells were treated for 24 h by different concentrations(0, 50, 100, 200, 400 μM) of formaldehyde and different times(0, 6, 24, 48 h) by 200 μM formaldehyde. Cell viability was detected by Cell Counting Kit-8(CCK-8). In order to study the effect of NAC on the formaldehyde-induced cell damage, BEAS-2B cells were pretreated with 1 mM NAC for 1 h, and then exposed to 200 μM formaldehyde for 24 h. Cell appearances were observed under an inverted phase-contrast microscope.

Results: Formaldehyde can induce BEAS-2B cells death in a dose-dependent manner. After treated with 200 μM formaldehyde for 6 h，the cell survival rate was significantly lower than that of the control group($P<0.05$), and an exponential decline was found with the increase of treatment time. Additionally, cell death was observed under the inverted phase-contrast microscope after BEAS-2B cells were treated by 200 μM formaldehyde for 24 h, which could be markedly reversed by NAC.

Conclusion: NAC may be a useful agent in protecting cell damage mediated by formaldehyde in human bronchial epithelial cells.

Acknowledgements

This work was supported by grants from Key Research Program of the General Logistics Department of Chinese PLA(BHJ12J004) and Shanghai Municipal Health Bureau Program (20124Y178).

EFFECT OF ALCOHOL ON BODY CORE TEMPERATURE AND PERIPHRAL CIRCULATION DURING 30 DEGREES C. WATER IMMERSION

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Topic: VII – Human factor in maritime accidents
Preferred type of presentation: poster
Keyword(s): peripheral circulation, alcohol, water immersion

Abstract

Introduction: This study investigates the influence of alcohol on body core temperature and peripheral circulation during tepid water immersion in human volunteers.

Methods: The subjects were 8 healthy male volunteers. Resting subjects were immersed for 30 min in water (30 degrees C) after drinking alcohol. Rectal temperature, skin temperature, heart rate, blood pressure, peripheral circulation were measured and recorded during the experiments. Control experiments were carried out at the same water temperature.

Results：In the experimental test after drinking alcohol, rectal temperature at 1 min, 2.5min, 5min,10min,15min,and 20min of water immersion was lower than in the controlled experiment test. Change in fingertip surface skin temperature described downward curve in both group. There were no differences between alcohol group and control group. Pulse rate described upward curve after drinking alcohol, and described downward curve in the control group experiments. There were no differences between alcohol group and control group. Surface skin temperature in the chest at 1 min, 2.5min, 5min, 10min, 15min and 20min of water immersion was lower in the experimental test after drinking alcohol.

Conclusion: There were significant differences in rectal temperature and peripheral circulation during the two cold water immersions. It would appear that for a 30-min immersion at 30 degrees C., relatively high blood alcohol levels affect peripheral circulation and increase body heat losses.

THE TRANSFORMATION OF THE MARITIME EDUCATION IN THE MIDST OF PHILIPPINE INNOVATIONS IN THE BASIC EDUCATION

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Topic: Maritime Health Training
Preferred type of presentation: Oral
Keyword(s): maritime education; innovation in education; basic education

Abstract

The educational system in the Philippines is now going to transform by adding two years in the basic education as a signatory of the Bologna accord. And this shall have an impact in the maritime schools. As part of the academe and have an educational acumen, this research shall check on the plan of the Department of Education as well as the Commission on Higher Education on the different directions that the schools shall conduct. This will also see the different transformations, innovations that can have an impact on the outcome of the maritime professionals. What about the curricular changes? Can the institutions be ready for the full implementation of these changes by 2015?

The paper tries to see the different factors and forces that would transform the upgrading as saw fit the framers of the law. Will these changes be able to meet the demands of those who employ the graduates? What about maritime health, are these issues included in the new curriculum?

These are some of the key issues that should be seen as significant in the maritime education and the industry as well.

Abandono de marinos en puerto extranjero

7th International Hispanofrancophone Congress on Maritime Medicine

García Bercedo, Raúl; Castaños Urkullu, Amaia; Irastorza Hernando, Iñaki

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ABSTRACT

El abandono de marinos en puerto extranjero es una de las manifestaciones más trágicas del deterioro de las condiciones de trabajo a bordo de un buque. En estos casos el armador del buque se desentiende de sus obligaciones y deja de suministrar víveres, pertrechos (combustible y demás elementos que son imprescindibles para el funcionamiento del buque), además de los salarios, etc. Quedando el buque y su tripulación abandonados a su suerte en puerto.

En los últimos nueve años la Organización Internacional del Trabajo (OIT) ha informado de 174 casos de abandono, pero se estima que el número real de abandono de buques es mucho mayor.

En esta comunicación se presentarán los datos de abandono de buques de los últimos nueve años. Se analizarán estos datos con el objetivo de descubrir las causas de este fenómeno. Tras el análisis y la posterior discusión de estos datos se concluirá que los pabellones de conveniencia facilitan este tipo de prácticas. También se concluirá en la necesidad de una reglamentación internacional que impida o limite la utilización de estos pabellones.

Abandonment of Seafarers in a foreign port

7th International Hispanofrancophone Congress on Maritime Medicine

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ABSTRACT

The abandonment of seafarers in foreign port is one of the most tragic events of the deterioration of working conditions on board. In these cases the ship owner ignores its obligations and fails to provide food, supplies (fuel and other elements that are essential to the operation of the ship), in addition to wages, etc. When a crew on a merchant ship has been abandoned in a foreign port, there is very often

a depressingly familiar pattern of things that start happening. They run out of fuel for generators, sometimes also food and water.

Between 2003 and 2012, 174 ships and 1,612 seafarers were abandoned. In 2009 alone, at the height of the global economic downturn, a total of 65 vessels were abandoned affecting 647 seafarers.

This paper will present data from abandoned ships of the last nine years. These data will be analyzed in order to discover the causes of this phenomenon. After further analysis and discussion of these data it is concluded that the flags of convenience (FOC) facilitate such practices. Also conclude on the need for international regulation to prevent or restrict the use of these flags.

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Plenary Session 8

Stress, mental health and psychosocial factors in the marine environment

PROFESSIONAL ACTIVITY AND DEVELOPMENT SEAFARERS' PERSONALISTIC FEATURES.

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Introduction. The work in maritime sector is accompanied by intensive physical and psychological strains. When enter into the system "a human being-technique" a seafarer is responsible both for himself and technique. In this system a human being is a weak link while he is necessary for a safe system. A modern ship is an absolutely new type of complicated transport systems with unique workplaces. The objective: to study emotional state and personal properties of seafarers. Materials and methods: 52 seafarers have been examined by computerized system SPAS-14, M. Lüsher's tests, colored tests of relations and T. Ehlers' personal checklist. Results: The results obtained indicate the changes of seafarers' individual personal features at ageing. Their development is influenced by adaptation and professional making in younger specialist, promotion at work and age peculiarities. It has been revealed that in the group under examination attention, tranquility and lability of nervous processes correspond to normal indexes. In personal features of the seafarers under testing egocentricity, skeptical attitude to other persons thoughts, maturity of vital position, backstop on the individual experience appeared at ageing. The analysis of T. Ehlers' personal checklist results showed prevailing of high motivation to success which refer to individual features necessary for the work at maritime sector and forming professionally important properties of seafarers. Conclusions: there are several common features in seafarers, these features are changing together with professional development and ageing.

Title : The different effects of the physical and mental impact of ocean navigation on French oceanographers according to gender

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Introduction : Scientific cceanographers embark on oceanographic research vessels for professional cruises lasting up to several weeks.

Objective : Analyse the different physical and mental performances according to sex, assuming that the consequences of embarking may differ depending on one's gender.

Results : The results show that there is effectively a difference in the level of physical fitness between men and women, but that the deterioration in physical form, constant throughout the cruise, is parallel between the two sexes.

However, we note an equivalent deterioration in mental performance between men and women, despite the existence of a more marked lowering of morale in women.

Discussion : Aside from the difference in physical performance in men and women, it is remarkable to note the perfect equivalence of the results of mental performance between the sexes. We must distinguish here the mental level from the the psychological level which tends to deteriorate more in women.

Conclusion : Ocean navigation shows a clear equivalent deterioration of the mental and physical performances of French male and female scientific oceanographers.

ASSESSMENT OF STRESS OF SEAFARERS ON BOARD MERCHANT SHIPS

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Topic: Stress, mental health and psychosocial factors in marine environment

Preferred type of presentation: oral or poster (indifferent)

Keyword(s): Stress evaluation, PGWBI, seafarers, sailing ships

Abstract

Objectives

Seafaring in general are exposed to several stressors in general related to the different duties on board ships. This work has assessed the suitability of the Psychological General Well-Being Index (PGWBI) as a simple and reliable measure of stress in seafarers.

Methods

Analysis was made on 5 tankers and included 120 seafarers while they worked on board ships. As a reference the test was also administered to 30 workers ashore employed by the same company. The PGWBI test was sent with instructions a few days before ship received medical visits as part of the occupational health surveillance protocol required by Italian regulations. During fitness medical examinations on board seafarers returned the questionnaires filled in and discussed their well-being/discomfort conditions with the physician in charge.

Results

The results were grouped in 6 areas (Anxiety, Depression, General Health, Vitality and Positive Self-Control), each of which takes into account a specific aspect of the psychological-emotional health. An overall well-being index (GI) summarizing global assessment of general health was also calculated. The following psychological conditions could result from this analysis (severe distress, moderate distress, not distress or well-being).

Worker's perceptions of their own well-being was also evaluated. The term "perception" is a significant indicator of emotional experience and motivation of the individual in the work environment.

Conclusions

PGWBI for the simplicity and reliability may represent a preliminary approach for evaluating stress situations on board ships.

POSITRON EMISSION TOMOGRAPHY IMAGING IN THE EARLY DIAGNOSIS OF COGNITIVE IMPAIRMENT

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Topic: Stress, mental health and psychosocial factors in marine environment

Preferred type of presentation: oral

Key words: 18F-FDG PET, mild cognitive impairment (MCI), mental health

Abstract

The increase in life expectancy in developed countries has led to significant prevalence of cognitive disorders that lead to social disadaptation and disability in older seamen. Therefore, problems in the diagnosis and treatment of this disease are important. Special attention is paid to mild cognitive impairment (MCI), which are considered as the most promising in terms of possible therapeutic intervention.

Purpose: To study the state of brain metabolism in MCI using positron emission tomography (PET).

Methods: The study involved 14 men aged 50 to 83 years, with the presence of mild cognitive impairment, using 18F-FDG PET. Evaluation of cognitive status was conducted using a set of neuropsychological tests.

Results: In the group of patients with predominantly amnestic type of cognitive impairment was determined a significant decrease of glucose metabolism in the anterior parahippocampal gyrus and hippocampus, temporal-parietal cortex and posterior cingulate cortex, with greater expression in the dominant hemisphere. In the group of patients with multi-functional type of cognitive impairment was determined by multiple asymmetric sites decreased metabolism in the subcortical and cortical regions. The greatest decrease was observed in the frontal lobe - projection of the frontal and cingulate gyri. In both groups, the severity of cognitive impairment was correlated with metabolic changes.

Conclusion: The use of PET with 18F-FDG, combined with neuropsychological testing, is a highly sensitive and specific method for the early differential diagnosis of various forms of cognitive impairment, which can be used for decision-making during the expert examination of seamen.

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Parallel Session 8

Offshore medicine

Guide For Cold Water Survival

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Abstract

Background: On behalf of the International Maritime Organization (IMO) a group of international medical and non-medical experts (Jens Kohfahl/Wolfgang Baumeier, Germany – Michel Pujos, France – Mike Tipton/Frank Golden, UK – Francesco Armenta/Giovanny Gravina, Italy – Joost Bierens/Anja Nachtegaal, Netherlands, Michel Ducharme/Stephen Cheung/Alex Li, Canada – Art Allen, USA – David Jardine-Smith, UK/IMRF) were mandated in 2011/2012 to revise the IMO's ***Pocket Guide to Cold Water Survival*.**

Content: Description of cold water hazards and their effects to the human body (with the problems of drowning, hypothermia and circum rescue collapse) to impart knowledge that can improve the chances for survival. **Actions** taken prior to abandoning the ship, what to do in a survival craft and how to survive floating in the water. **Guidance** for those who are engaged in search and rescue how to deal with recovery of casualties from the water or a survival craft. **Treatment** of people recovered from cold water either conscious or unconscious and what to do with an apparently dead victim.

Conclusion: We want to emphasize the importance of an emergency plan and that the seafarer must be familiar with his survival equipment and survival techniques. We have to highlight the importance of a proper fitted lifejacket and we want to communicate the reactions of the human body when entering or falling into cold water and how to prevent the effects of the cold environment to increase survival.

TELEMEDICINE FOR REMOTE MEDICAL SUPPORT IN THE ENERGY SECTOR

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Topic: Offshore Medicine
Preferred type of presentation: oral
Keyword(s): Telemedicine, Offshore, Energy.

Abstract

Objective

To assess the impact of using telemedicine to support the medical advice given by an onshore doctor to an offshore medic on fixed installations, drilling rigs, vessels and remote onshore sites.

Method

A telemedicine unit (D-MAS) was installed on the installations and onshore construction site of one major Oil and Gas operator, the drilling rigs of a drilling contractor within their UKCS operation and on a small number of support vessels of major oil and gas contractors. The topside medical support doctors employed by Capita Health and Wellbeing in Aberdeen were supplied with iPads. The D-MAS unit allowed the offshore medic to record demographics, a history, an electronic blood pressure, a resting or extended ECG, pulse oximetry, spirometry, and audiometry, as well as initiating a video conference with the topside doctor real-time via a high-definition webcam. This data or images can also be shared with specialists at Aberdeen Royal Infirmary, most commonly with a cardiologist for specialist ECG interpretation.

Results

Many benefits have been identified since the service was initiated; offshore medics feel significant benefit from the ability to have a video consultation with the topside doctor (as do the patients) – especially with regard to assessment of rashes, injuries or restricted function, topside doctors feel more comfortable giving advice in such cases, and the small footprint of the device has advantages in a cramped sick bay area.

Conclusion

Real time telemedicine support is practical to provide and significantly improves the degree of support that can be provided remotely to a remote environment.

Abstract submission should be done through the website (http://www.ismh12.org/) before 1st March 2013.

BIOCHEMICAL MARKERS AND ESTIMATION OF REPAIRING DOCK WORKERS' STATE OF HEALTH AT THEIR CONTACT WITH HEAVY METALS

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Objective: in field trials to learn influence of hazardous workplace factors on biochemical indexes of repairing dock workers. Tasks: to learn the composition of the workplace air and make biochemical urine test of the workers for the presence of heavy metals and organic compounds. Object: 16 workers of a ship repairing yard. Methods: sanitary-and-chemical, biochemical, analytical (spectral, chromatographic). Results: kinds of jobs, presence of harmful pollutants in the area of respiration, endowment with respiratory protective equipment have been learnt among dock workers during disposal of old, and application of new layers of antifoulings and welding works. In a day of work with antifoulings a biochemical urinary tests have been made and pH, protein, relative density, leucocytes, lymphocytes, sugar, ketones, nitrites, urobilinogen, bilirubin have been determined as well as content of heavy metals and exogenousorganic compounds. In the workplace air concentrations of xylol, saturated hydrocarbon, butanol, trimethylbenzene, phenyl ethylene were close to threshold allowable concentration. 12 persons under examination had protein in their urine tests and 6 among them its content was higher than 30 mg/l, in 8 samples their was urobilinogen, in 2- ketones, in 4 – leucocytes, at that 1 person had more than 50 leucocytes in the field of vision. Besides, there was excess of Zn in all persons under examination. The latter is connected with Zn presence in anticors and antifoulings. In urine samples of anglesmiths there were higher concentrations of Mn. 7 persons had a high level of metallothionein which proved about an expressed exposition with Zn and Cu. The data obtained fully correlated with the workers' complaints, their subjective sensations and well-being. Conclusions. Urine tests with gasochromatography allows to determine groups with boundary states and diagnose metallotoxicosis at early stages.

Assessment of chrome and nickel exposure during chemical tank reparation

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Topic: I
No Preferred type of presentation

Keywords: Biometrology, Port Medicine, shiprepair workers

Context: in June, 2010, further to deformation, two stainless tanks of a chemical tanker must be completely replaced. Works of cut and weld on stainless steel are operated. We wanted to estimate the professional exposure of the employees working on this project on board and in manufacturing shop.

Methods: Evaluation of the respiratory exhibition of the welders edge in chromium and nickel by filter fiber of quartz on thoracic pump then analysis in approved laboratory. Evaluation of the impregnation of the employees of the workshop by urinary dosage of nickel and chromium at the end of the week and at the end of workday.

Results:
Three atmospheric analyses of an average duration of 377 minutes with atmospheric rate of chromium metal at 0.42 mg / m^3 (21 % of the occupational French legal value) and of nickel at 0.194 mg / m3 (19.4 % of the occupational French legal value). 34 urinary analyses were done with for the Chromium average rate of 0,61 µg / g of creatinin (0,19 - 1,5) and for the Nickel average rate of 4,37 µg / g of creatinin (1,3- 14,7µg / g). Values of exhibition are lower than French, German and Swedish recommended values.

Conclusion:
There is a real exposure in first-class atmospheric pollutants nickel and chromium during the works of weld edge in chemical tanks and in manufacturing shop but exposure levels are lower than the recommended values. Toward this example, we focus difficulties in collective prevention with ventilation, and the interest of this prevention associated with the individual.

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Parallel Session 9

Training in maritime medicine

INTERNATIONAL POSTGRADUATE COURSES IN MARITIME MEDICINE, A CHALLANGE TO JOINT UNIVERSITIES

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Topic: IX – Training in maritime medicine

Preferred type of presentation: oral

Keywords: Health Postgraduate Programs, Professional Training, Occupational Medicine, Universities, Naval Medicine

Abstract

Introduction: Universities are responsible for Health Postgraduate Programs. Continuing education (CE) is fundamental for Quality in any job. For Maritime Health doctors, several competences may be met: general practitioners / internal medicine, emergency medicine, tropical and travel medicine, naval or occupational maritime health.

Objectives: To describe the international cooperation for training in postgraduate education in Maritime Medicine and the future projects that are starting.

Methodology: An historical background of the line of this CE process for doctors is described with perspectives to the future.

Results: There are quite big differences in training maritime health doctors per countries. Supported by scientific associations like SEMM (Spanish) and IMHA (International), the University has provided an adapted, modular, international training system, mainly for doctors (e.g. Spanish / English versions of postgraduate courses in the University of Cadis with an on line training + practical; + research work till the level of master or postgraduate courses). A proposal of a European third cycle Postgraduate interuniversities Programme is in the air, an IMHA workshop in Tenerife, in November 2012, has started a group to work in it. Universities from Spain (Master Degree), France (Diploma), Poland (Specialization), Venezuela (Navy), Denmark (Research) and Norway (Textbook) are in the line of collaboration.

Conclusions: The advantages of all these resources per countries should be shared in a net (research, textbook, scientific journals, postgraduate courses), agreements and common accreditations are needed. A proposal of an international postgraduate programme in Maritime Medicine, 120 ECTS, for health professionals, sharing educational materials in different languages is under discussion.

EVALUATION OF BASIC TRAINING OF PETROLEUM DOCTORS IN ACCORDANCE WITH NORWEGIAN REQUIREMENTS FOR TRAINING

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Topic: IX – Training in maritime medicine (Quality Assurance)

Preferred type of presentation: oral

Keyword(s): Medical examination, decision-taking, evidence-based, seafarers' medicals, quality assurance, petroleum doctors, basic training

Abstract

OBJECTIVE: To evaluate the basic training of petroleum doctors in Norway in accordance with Regulations on health requirements for persons working on installations in the offshore petroleum industry on the Norwegian shelf. To evaluate the use of audience response technology as a tool to assess level of harmonisation of judgement during training.

METHODS: 259 participants in four consecutive basic training courses conducted by the Norwegian Centre for Maritime Medicine evaluated the basic course for petroleum doctors. The evaluation assessed teaching methods, combination of distant learning and taught course, and benefits of case discussions with the purpose of increasing the degree of harmonization of doctors' judgment and level of quality decision taking in accordance with the regulations. Audience response technology was used to assess the level of harmonization of judgment during the course.

RESULTS: Harmonisation of judgment between the participants increased during case discussions. The evaluation also showed that medical selection requires a mind-set different for regular clinical practice and that the awareness of the needs for specific training increased during the course. E-learning is suitable for learning facts, but taught courses are important to harmonize clinical judgement, even if there are guidelines in place.

CONCLUSION: The mind-set of medical selection is not well established among general practitioners, even if they have practiced medical selection for many years. E-learning is suitable for parts of the basic training, but harmonisation of clinical judgement will be better achieved through taught courses. Audience response technology is a valuable tool in harmonization of clinical judgement through basic training of medical examiners.

The NCMM/IMHA textbook of maritime medicine. Second edition.

T. Carter, A. Schreiner

OBJECTIVE: To show the development of the web-based Textbook of Maritime Medicine and review the changes made in the second edition.

METHODS: Assess the use of the first edition of the textbook and the need for further development; present objectives and contents of the second edition; discuss proposals for future development of the book.

RESULTS: The first edition of the textbook has been widely accessed: by over 150,000 readers from over 100 countries. Given this success a second edition was proposed in early 2012. The second edition has now been published. Radical changes have been made to the structure, all the text has been re-edited, many of the chapters rewritten in a more consistent style and with better referencing. Several new topics have been included – on psychosocial aspects of work at sea, accident prevention and injuries, and on medical aspects of piracy. Contributions on health, safety and environmental risk management and infectious disease have been commissioned. The aim is to maintain the position of the textbook as the major international source of information and advice on maritime health and to ensure that it has a role as an aid to the training of health professionals and others.

Proposals for the future include translations of the book into languages other than English to widen its use; development of linked items, for instance handbooks for practitioners on topics such as the medical examination of seafarers, and the inclusion of additional material covering maritime activities such as both fossil and renewable energy exploitation at sea, ship hygiene, dust risks, radiation risks – ionizing and non-ionizing.

CONCLUSION: The first edition of the Textbook of Maritime Medicine has been a success. The second edition aims to build on this, while plans for the future should make it even more useful.

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ABSTRACTS

Plenary Session 9

Maritime telemedicine

The Business case for Telemedicine

Authors: Dr. Chris Henny, Dr. Katharine Hartington Dr. Stuart Scott, Mr. Agnar Tveiten, Dr Luisa Canals

Organizations:

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Topic: Business Case for Telemedicine

Preferred type of presentation: Powerpoint

Keyword(s): keyword 1 **Telemedicine**, keyword 2, **business case** keyword 3 **Maritime**, keyword 4, **Emergency**, keyword 5, **TMAS**

Abstract

Following the coming into force of the ILO/MLC and IMO/STCW Manila amendments, the objective of this article is to provide the shipping community with an initial assessment of the economic reasons, and business case, in support of both publicly financed and private Telemedicine being implemented on board commercial vessels.

It lays out the Global scale of the requirement, the numbers of participating public (9) and private (2) TMAS calls handled, the average direct and indirect costs incurred, both by TMAS and ship operators, responding to medical emergencies. It provides a very conservative calculation of the Market size of about 760 Million Euro/year. It estimates a return on investment per ship, of implementing Telemedicine on board to meet the LC and STCW requirements at less than 1 year.

Methodology:

The methodology employed was the assembling of recent (2011-2013) available published literature, conference presentations, and the gathering statistics, from both Publicly financed TMAS, and privately operating maritime responder organizations, mapped to reputable maritime industry market information sources such as Lloydes and Fairplay. It is based on both published information and a consensus of experience of public and private stakeholders from the Malta 2013 IMHA conference attendees and contributors.

The sample of vessel profiles used, was for deep sea operating vessels, accounting collectively for about 23.299 vessels or about 1/3 of the worldwide total number of deep sea operating merchant vessels, and manned by and estimated 420.000 crew.

This article uses average figures so as not to violate the commercial confidence of those providing information.

IMPROVING OF TELEMEDICINE CONSULTATION OF SEAFARERS BY SOFTWARE SIAM

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Topic: maritime telemedicine
Preferred type of presentation: oral
Keyword(s): telemedicine, software, database, algorithm, differential

Computer software SIAM was developed with a purpose to conduct of telemedicine consultation.

SIAM consists of two databases of diseases and algorithms of syndromal and differential diagnosis.

The first database of diseases is presented by clinical signs and laboratory findings and instrumental indexes. It contains 121 diseases such as internal and infectious diseases and toxicology and their 3860 symptoms for now. And it can be easily filled. The second one is presented only by clinical signs. It contains the same 121 diseases but their symptoms are without laboratory findings and instrumental indexes.

We are going to compare the diagnosis received from the first database with the diagnosis received from the second one.

For this we used the algorithm of differential diagnosis for database №1 and database №2. It works like this. A physician inputs a symptom of a patient in the algorithm. The algorithm makes a selection from the database of all known diseases with a given symptom. Then the algorithm works with the selected diseases. It determines a few symptoms which are needed for a probable diagnosis. The physician asks the patient about those symptoms or checks them and inputs the results into the algorithm. After recalculation of the results the diagnosis is complete. The diagnosis from using the first database and the second one were the same.

Therefore we can tell about the examination of seafarers on ship with the same probability like in a hospital on shore.

SWEDISH RADIOMEDICAL - PASSENGER CASES 2007, 2009, 2011, 2012 A DESCRIPTIV STUDY

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Topic: Maritime telemedicine
Preferred type of presentation: Oral
Keyword(s): RadioMedical RM, TMAS, Passenger-cases, evacuation

Abstract

Objectives

Radio Medical the Swedish TMAS was started in 1922 by Sahlgrenska University Hospital and the Swedish Maritime Administration to give medical advice to employees onboard Swedish merchant vessels. In case of illness or accidents onboard, the officer responsible for medical services contacts the JRCC (Joint Rescue Coordination Center) in Göteborg irrespective of position. The JRCC sends the call on to the Radio Medical doctor on duty. There is a doctor on duty around the clock. During the past 10 years, the Swedish TMAS has handled 450-550 cases per year. The amount of cases concerning passengers has increased during the same period from 18% to 37,5%.

The purpose of the study is to survey symptoms/incidents, actions taken, need for evacuations, means of communication and possible changes over time to meet the need for best possible care and to create a form for these questions which could be used by the TMAS of other countries for the purpose of comparisons. The study contains 650 cases and the documentation from TMAS doctors and the JRCC logs has been studied in all cases. Nearly 40 miljon passengers pass the Swedish ports every year.

Methods

Data is collected from 650 medical records and JRCC-logs concerning vessels and position, symptoms/reasons for contact, age and sex, actions taken, evacuations, means of communication, usage of digital photography, referrals to other specialists. International Classification for Primary Care, ICPC-2, vers 1.2 is used to classify the symptoms. The total amount of passenger cases from 2007, 2009, 2011 and 2012 are included.

Results

Results will be presented

Conclusion

Conclusion and tasks to discuss will be presented

ISMH 12
ABSTRACTS

Parallel Session 10

Stress, mental health and psychosocial factors in the marine environment

Port toxicology

Voyages time duration and psychophysiologic characteristics of seafarers.

A.G.Puzanova
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Introduction. Perception, analysis, information processing are the main elements in seafarers' job description. So, when estimate working efficiency and safety of transport operators the top attention is given to the complex of psychophysiologic, vegetative and emotional reactions depending on changes of physiological functions under variable labour and rest conditions. **Materials and methods**. Seafarers have been examined during periodical and fitness medical examinations before a voyage. Psychophysiologic expertise was realized with computerized system for specialist accreditation SPAS-14. **Results**. It has been established that seafarers' professional activity influences greatly psychic processes changes and the latter are connected with both the length of a voyage and period of rest. Correlation between these factors are statistically significant. Functional condition reflects the vegetative coefficient index. The longer is a voyage the worse is functional condition, decreases work capacity, increases level of unfavourable compensation, conflict level, and psychic fatigue surges. The longer is period of rest the lower is psychic fatigue, test of attention concentration execution time decreases that proves restoration of higher psychic functions. But if period of rest is too long the level of Ma9 in MMPI(Ma9) increases. The latter characterizes active vital position, self-assurance, positive perception of the surrounding. Tropism to professions with possible realization of social activity, variable contacts, changes of places appears. **Conclusions**. We suppose that psychophysiology condition of seafarers depends on optimal balance between length of voyage and that of rest and it influences on professional safety of seafarers.

QUALITY OF LIFE OF POLISH SEAFARERS.

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TOPIC: IV – Stress, mental health and psychosocial factors in marine environment
Preferred Presentation Mode: Oral
KEYWORDS: quality of life, work at sea, coping styles, life style

Aim: Evaluation of the Polish seafarer's quality of life. Our idea was to estimate the different elements of the life quality (the social and family life, professional achievements, health state, stress coping). Additionally we assessed the impact of isolation at sea on the life style (nutrition, sleeping habits, rest and leisure, etc.).

Background: Work at sea is considered to be highly burdening, risky and stressful. The influence of the psychosocial factors is very significant and often underlined. All of those indicators have an enormous impact on the work quality of people working at sea and on their life satisfaction.
Health state, financial status, feeling of security, employment safety and family or community life are the most important parameters of the life quality. Considerable are nutrition, resting and activity standards. An important indicator is also the level of stress experienced while working at sea and the styles of coping with stressful situations.

Methods: We examined a group of 1578 Polish seafarers, working both under the Polish and foreign flag, qualifying for the health certification.
The research took place in the IMTM, Gdynia, MUG.
Applied tools:

- WHOQOL – BREF – the Polish version
- NEO-FFI Questionnaire
- Temperament Questionnaire PTS
- The Coping Inventory for Stressful Situations (CISS)
- Questionnaire for people working at sea.

Results: The results of the research enabled estimation of the life quality of people working at sea.
The assessment include such data us: age, education, work position, seniority, family situation, health state, biorhythm, harmful behaviors and other life habits.

STRESS IN INDIAN SEAFARERS – FROM MYTH TO REALITY

Idnani Corinne
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Introduction:

Much has changed for seafarers over the last decade. Seafaring is a high pressure job and besides having to deal with separation from family and loved ones, the average ordinary seafarer is called upon to deliver the task at hand at any cost and so he begins to live an 'extraordinary life' among colleagues from unfamiliar lands and the eventual effect is a stress on the mind and body. We are speaking, not only of Piracy which is one such stressor, but of a number of other conditions such as illness, death, fire, accidents, drowning, sinking – the list is endless and it is not uncommon for one to know a seafarer who has been a victim of one or other of the above. Stress is an everyday phenomenon in the lives of seafarers, but how does the seafarer cope with the trauma. In this connection it is therefore most logical to develop the seafarer's ability to cope and then to be equipped to offer medical assistance once the battle lines are drawn.

Conclusions: A hundred random cases of stress, affecting life and work, were studied. Triggers were identified and positive therapy was instituted in terms of counselling and medication, family and group support etc. Alternative supportive therapies like relaxation techniques, breathing and lifestyle adaptations were also used and the outcomes were analysed. Follow up was difficult as some of the seafarers returned to their remote hometowns. Clearly, however, it was documented that the incidence of stress disorders has not decreased and there is a need for the Maritime Health Industry to address this issue head on and resist the easy way out of sweeping the dirt under the carpet. An effective screening at pre joining stage is documented to be of value and integration of course modules in the Training Colleges on coping mechanisms may be of value too. More research and studies have to be undertaken and Maritime Health Physicians can enlist for training in detecting and assisting with these seafarers at all stages of their careers.

TOPIC: **STRESS IN INDIAN SEAFARERS – FROM MYTH TO REALITY**

KEYWORDS: Stress, Indian Seafarers, Trauma, Maritime health and welfare.

AREA:

Preferred Presentation Mode: Oral

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MEANS TO FIGHT PIRACY PSYCHOLOGICAL EFFECT ON THE CREW

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Topic: piracy
Preferred type of presentation: oral
Keyword(s): crew, piracy, psychological effect

Piracy in the Indian Ocean and its recent resurgence in the Gulf of Guinea seem to lead shipowners and shipping companies to focus on the solutions that would guarantee a greater ability to withstand the pirates, to protect their ships and cargo, and to reduce the psychological impact of such destructive acts on the crew.

To counter these, a variety of means has been developed which runs from specific designs and developments of merchant ships to repel the attacks, dedicated preparation for crews when called through these dangerous areas and finally, boarding teams of armed guards.

The embarkation of armed guards and the establishment of security and behavior rules have been seen as a revolution in the world of shipping. The reception was mitigated; they were more often perceived as aggravating factors rather than preserving factors (violence against the crew, damage to the ship etc.).

To be accepted, GEOS Group based its rhetoric and its action on the crew briefing and training, the preparation of ships and the introduction of armed guards with particular attention to a visual "low profile".

We are committed to ensuring that:
- We intervene within a legal and legislative framework clearly recognized;
- We recruit a pool of experts targeted (ex Special Forces or former members of the elite groups of forces);
- We train crews on the risks and to reassure our action and presence;
- We prepare the ship by the implementation of passive measures endeavoring to take into account the specificities of the ship (tailor-made design, running operations etc.);
- We establish rules of conduct, behavior and use of force in order to delay the later use of it.

It is clear that the application of all these measures has contributed to lessening the feeling of sailing on prison ships (exacerbated by the presence of barbed wire, guards and firearms) among the merchant marine crews, and has allowed them to adopt good reactions during pirate attacks and therefore reduce the devastating psychological effects of such attacks on them.

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ABSTRACTS

Plenary Session 10

Training in maritime medicine

MARitime Learning Network

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Selected topic: IX – Training in maritime medicine

Preferred type of presentation: oral
Keywords: education, occupational health

Introduction: MARitime Learning Network (MARLEANET) is a European project of networking of maritime training centers in the Atlantic Area. Its purpose is the development of an innovative network based on cooperation and exchange, sharing skills, dissemination of good practices, sharing of experiences and the design of teaching tools.

Materials and methods: The project is co-financed MARLEANET by the European Union through the European Regional Development Fund within the Atlantic Area Programme. Six partners are involved: the European Centre for Continuing Education Maritime (CEFCM) located in Concarneau the European University of Brittany (UBO) in Brest; the *National Maritime College of Ireland* (NMCI); the *Mútua dos pescadores and Escola Superior Náutica Infante D. Henrique* (ENIDH) Portugal; le *Centro tecnológico del mar* (CETMAR) Spain.

Results: It is a common training tool for members of network for online training. E-Learning is one of the most appropriate solutions. The courses are designed for alternating distance learning (onboard or at home) and learning in centers. The courses are aimed at different audiences (mariners, medicine doctors etc.). Training topics offered are: risk assessment; maritime health and medicine; environment; human resource management.

Conclusion: this project enables to create a network, to produce joint training courses and to provide access to their students to a wide range of maritime training. Occupational Health in the marine environment naturally finds its place next to the training of the sea.

On the doorstep to Maritime Labour Convention

How does is involve the maritime parties?

Kent Østermark Jensen and Torben Leth
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Topic: On the doorstep to Maritime Labour Convention – How does it involve the maritime parties?

Preferred type of presentation: oral

Keyword(s):

- Involving parties: Radio Medical, Researchers and Scientists, Doctors, Crews, Authorities, Ship owners, Unions.
- Education: Training, Qualifications, Educational Institutions,
- Legislation: National, EU, STCW and MLC 4.1

Abstract

The starting point is an acute ill crew member on board a merchant ship in the middle of the Pacific Ocean.

We will discuss what kind of help/treatment on board is nessesary to succeed in a brought perspective.

- The need for a skilled person on medical care
- The need for a skilled doctor on shore
- The need for education
- The need for a visible legislation and authority
- The need for research

We will, through involvement from the international professional audience, try to generate a common understanding of the MLC.4.1:

- ***Regulation 4.1 – Medical care on board ship and ashore***
  Purpose: To protect the health of seafarers and ensure their prompt access to medical care on board ship and ashore

MEDICAL TRAINING FOR SEA RESCUE OPERATIONS: EXPERIENCE IN SOUTHERN FRANCE.

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Topic: Training in maritime medicine
Preferred type of presentation: poster
Keyword(s): maritime medical emergencies, pre hospital medicine.

The French system of sea rescue operations is organized to provide care in the field by including medical personnel with training in emergency care and outpatient resuscitation in rescue teams. The system is applied by pre hospital emergency care units, armed forces health services, and civil defence departments. To enhance the effectiveness of the system, a comprehensive training course including both didactic and practical sessions has been established.

This one-year course consists of a total of 100 hours of training including 30 hours of practical application. The didactic portion of the course covers physiopathology specific to the marine and underwater environment as well as problems related to handling medical and surgical emergencies in remote locations. In addition, didactic sessions presents international regulations governing sea rescue operations, defines the respective roles of the different partners involved in sea rescue operations, and provides an overview of the logistics underpinning sea and underwater rescue.

Over the last 5 years, a total of 125 people have attended the course including 80 physicians and 45 nurses (70 m, 55 w). Most attendees, i.e., 110, had been involved primarily in on-shore emergency operations but 15 had exclusive experience in sea rescue operations. Ninety trainees came from civilian structures and 30 were armed forces personnel. Seventy trainees had more than 3 years of experience in medical care for sea rescue operations.

Evaluation at the end of training showed that most trainees had improved their theoretical knowledge and practical skills. The methods of evaluation did not assess the cost-benefit ratio for this organization.

Guild "Boka Navy "
Health and Welfare from Medieval Times

Nikolić N, Mišković S

Fides at honor – fidelity and honor - is a formal salute and a motto of *Boka Navy*. *Boka Navy* was established in 809, being the year when the relics of Saint Tryphon were brought to Kotor. The guild has continuously been active ever since.

The first documents that were preserved are from the XIV century, at that time the guild was organized as a typical medieval professional brotherhood of seaman. Several civil competences were given to the *Boka Navy* by the Venetian State during the medieval and renaissance period among them some concerning health and welfare of seaman:

1. to keep an updated record of all seamen in Boka bay for merchant and military duties in the navy;
2. to organize a police service in the Boka bay;
3. to take part in military operations against the enemies of Venice, against pirates, or to provide supply service in the circumstances of war;
4. to provide postal service;
5. to organize medical and sanitary service and to control all the ships arriving to Kotor;
6. to celebrate Saint Tryphon; to be responsible for the celebration in February in Kotor (this responsibility is the only one that the guild still has);
7. to hold judicial authority in Kotor in the matters where seamen were involved;
8. to control the arsenal of Kotor.

Medical and sanitary service in Boka bay was performed by the guild *Boka Navy* from the XIV to the XVIII century. The guild controlled all the vessels arriving to Boka bay from the XIV century, especially those arriving from far away countries. Controlling the ship, the guild would decide on what sanitary measures, if any, were to be taken. Venetian authorities in Kotor in the XV century organized medical and sanitary service in the bay area thru the Sanitary Magistrate. The guild *Boka Navy* was in charge not only of the ships arriving to Boka bay, but also for the quarantine or the lazarettos. The lazarettos in Boka bay, just like elsewhere in Venetian State referred not only to “Saint Lazarus colonies” and the lepers, but to all isolation areas for the passengers suspect of caring contagious diseases.

The *Boka Navy 809* is still the guard of the relics, the admirer of the miracles of Saint Tryphon, both in Kotor in Saint Tryphon’s cathedral, and in Croatia where the Boka Navy 809 is active in Zagreb (since 1920), in Rijeka (since 1960), in Pula, Split and Dubrovnik.

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ABSTRACTS

Parallel Session 11

Maritime telemedicine

A consensus on the development of maritime telemedical advisory services (TMAS).

T. Carter, A. Tveten

IMHA held a four-day workshop on TMAS in Malta in February 2013. The prime objective was to develop a consensus view on how best to develop TMAS for the benefit of seafarers and shipping worldwide. The process of development will be described and the main points reviewed.

Most TMAS are provided by state-supported centres, but there are also private arrangements for provision. Some of the private services use modes of communication additional to the voice, text and still image that is the norm for state services. There is scope for enhancement of services by the use of video and by the direct transmission of clinical measurements in real time. Reliable broadband communication is available to shipping in most parts of the world, it is already used for ship management and technical support. Hence for a small additional cost it could be used for TMAS communication.

To be effective protocols for communication are needed, new training for both ships' crews and TMAS staff is required and modified equipment and facilities on ships have to be provided. There are differing views on the benefits of using these additional modes of communication, but overall the benefits dominate. In general it is a consensus that the use of available technology needs to be optimised, and that different symptoms, diagnostic processes and treatment needs require different modes of communication.

In reality TMAS provision is patchy, with good provision by a number of, mainly European, states but little or no provision by less developed countries and the major open registries. Hence implementation of enhancements in a way that is equitable and benefits all the world's seafarers is a challenge.

Radio Medico Norway, Video consultation

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Topic: Video consultation in Maritime Telemedical Assistance Services

Preferred type of presentation: Demonstration

Keyword(s): keyword 1 **Telemedicine**, keyword 2, **maritime** keyword 3 **TMAS**, keyword 4, **Radio Medico**, keyword 5, **Medical Advice**

Abstract

Radio Medico Norway has established a solution for receiving video consultations from ships. The service became fully operational in august 2012, and was used up against a vessel stationed in Baffin Bay west of Greenland for three months. The system was tested and exercised several times during that employment, and video consultation is today a permanent part of the service provided by Radio Medico Norway.

In addition to the Radio medico doctor on watch, there is also established a system for video consultation with specialists at Haukeland University hospital in Bergen, as a part of the service. Today this covers surgery departments and radiology. Within 2014 it will be a full range specialist service, available through video consultations. The solution also enables sharing of monitor data, ecg, X-rays, ultrasound and other diagnostic tools. It has also been established a demonstration studio, to be able to give better guidance to seafarers that have to perform medical procedures they are uncertain on.

Instead of giving a presentation, we would like to demonstrate the solution, so that the conference participants get a real impression of what this is, and what possibilities it gives. We can adjust a demo to between 15 and 25 minutes. **This** shouldn't be regarded as a scientific paper, but could be a nice thing to put into the program, if there will be several presentations on maritime telemedicine / TMAS services. If the scientific committee has any questions please contact Agnar Tveten.

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Radio Medico Norway is a public (noncommercial) service, for all seafarers. The video consultation and the specialist care is a part of this public service, and free of charge.

TWO-WAY VIDEO IN REMOTE HEALTH CARE AT SEA. CONSENSUS ON THE ADDED VALUE.

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Topic: VIII – Maritime Telemedicine
Preferred type of presentation: oral
Keyword(s): Telemedicine, diagnosis, treatment, videoconsultation, consensus

Abstract

OBJECTIVE: Establish consensus on the added value of two-way real-time video in telemedical assistance to ships.

METHODS: Maritime telemedical services were gathered for a consensus workshop. Three groups were given the same tasks and performed evaluations in parallel. A number of relevant medical conditions were prepared in advance by systematically dividing them into different sub processes related to diagnosing, treatment, and observation/monitoring. The sub processes were evaluated by the three groups in relation to different methods of communication and in relation to criticality. Technology, bandwidth, economy, frequency of use and other constraints should not be taken into consideration.

RESULTS: The method showed to facilitate the consensus processes. The character of the different sub processes that were evaluated ranged from static to dynamic. A typical dynamic process would be the evaluation of an examination of the abdomen. The possible benefits of instruction and correction of procedures were also evaluated. The groups typically rated video and criticality high in relation to dynamic sub processes.

CONCLUSION: Consensus is normally very challenging to reach. Topics are complex and lots of constraints are typically taken into account and block the process. Through a number of sub consensuses a difficult consensus can be achieved. The described method facilitated the process of consensus. The achieved consensus shows the role of means of communication and especially the added value of two-way real-time video in remote health care at sea.

TWO-WAY VIDEO IN REMOTE HEALTH CARE AT SEA. A SOLUTION INCLUDING SPECIALIST ADVICE.

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Topic: VIII – Maritime Telemedicine

Preferred type of presentation: oral

Keyword(s): Telemedicine, diagnosis, treatment, videoconsultation, specialist

Abstract

OBJECTIVE: Establish a state of the art 24/7 telemedical end to end service including two-way real-time videoconsultation, real-time monitoring and real-time examinations using advanced electromedical devices between ships, telemedical assistance service doctors (TMAS) on duty and specialists/subspecialists within a university hospital. According to international conventions the service is free of charge to ships.

METHODS: Radio Medico Norway (RMN) has worked for many years to improve its service by introducing two-way real-time video. The realization and implementation was made possible by a joint effort by RMN, the oil company Shell, the shipowner Siem offshore and the IT-company Viju. Shell had contracted Siem offshore to perform exploration activities for 6 weeks in Baffin Bay, Greenland. A medical doctor highly experienced within remote health and acute medicine should embark the exploration ship. RMN was asked to provide the necessary support including specialist and subspecialist advice including the evaluation of X-ray, ECG and ultrasound. The end to end solution should be agreed upon, installed and enter into operation within six weeks.

RESULTS: The solution was up and running 6 weeks after the onset of the project. The system is very easy to operate and makes use of the coastal earth station (Rogaland Radio) in Stavanger as point of contact and relay provider.

CONCLUSION: Sufficient financing, enthusiastic stakeholders and focus on possibilities instead of constraints enabled the establishing of a complicated interactive system within six weeks. This state of the art service has a great potential to significantly improve telemedicine.

DEVELOPING "STANDARD OPERATING PROCEDURES" FOR TMAS: A FEASIBILITY STUDY

Lucas Viruly, MD [1], Marie Bohn Hamming, MD [2], et al.

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Objectives: At the IMHA Malta conference in February 2013, a number of prominent TMAS services agreed that it would be in the advantage of all concerned if more uniformity would be reached concerning the medical advice given to seafarers at sea. The idea was raised to try to devise "Standard Operating Procedures" regarding a number of the most common medical issues for which Radio Medical Advice is normally sought. These procedures would need to comprise all aspects of managing a certain type of ailment: consensus would need to be reached not only on the medical advice given , but also on the medication and equipment available on board as well as on the specific medical training of the ship's officers.

Methods: Good and enthusiastic initiatives must first of all be feasible. For this reason a pilot was devised with the objective to assess how the input of a number of doctors representing different TMAS services could be managed and fitted into a single consensus document. This study will focus in first instance on the process of how the consensus was attained, rather than on the consensus paper itself.
As a first topic the choice fell on "Care of Skin Injuries". This topic comprises a few interesting and probably controversial issues such as: choice of suturing materials and techniques, disinfection procedures, antibiotic prophylaxis, training of ship's officers etc.

Results: The results on how the process of reaching consensus progressed are not yet available when writing this abstract, but these will be presented at the ISMH12. Recommendations will be given on how to proceed with this initiative.

ISMH 12
ABSTRACTS

Workshop 4

Revolution on board: Point-of-Care (POC) laboratory for rapid diagnosis of infectious diseases

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Any suspicion of infectious disease on board results in, at best, empirical care which may be inappropriate, or re-routing of the ship towards the nearest port, a measure which can be considered as excessive, profitably speaking, for harmless but spectacular infectious diseases. In order to remedy this situation and to bring the ship crew and passengers a level of support equivalent to that which they would find on land, we have developed a laboratory Point-of-Care (POC) that is adapted to the particular situation of big trade or cruise ships.
POC comprises of a case with small equipments allowing the realization of immunochromatographic tests for the rapid diagnosis (< 30 min) of infectious diseases most frequently encountered on-board including malaria, travel fevers, diarrhea, lung infections, sexually transmitted infections and angina. The tests are carried out under the responsibility of the cruise ship's doctor or the Commander for trade ships, by any person even without any medical or scientific background after 3-hour training. A pad is given with the test procedures as well as their interpretation and the organization scheme. A POC laboratory has been installed on-board a cargo ship of 350 meters long belonging to the company CMA - CGM with 35 people on board including 1 Commander, 2 seconds and 1 doctor biologist who conducted the POC tests in June 2012. A second experience took place in September 2012 on board of a cruise ship of the same company CMA - CGM. These two experiences indicated that (1) it is possible to implement a POC laboratory on board of commercial and cruise ships (2) immunochromatographic tests can be performed under specific conditions of ships (3) non-medical personnel can perform and interpret immunochromatographic tests after a rapid training
On-board POC help doctors and captains in connection with the national and international coordinating doctors to rapidly and effectively take decisions concerning a patient suspected of having an infectious disease: 1) hospitalization after having re-routed the vessel to a nearest port with health facilities 2) isolation of a contagious patient on-board in order to

reduce the epidemic risk 3) prescription of antibiotic, antiviral or anti-parasite treatment available on board. The generalization of POC on-board laboratories will be a cost-effective way to increase the medical care of personnel and tourists, while constituting a sentinel system for the permanent monitoring of infectious diseases worldwide.

New concept for medical support of the maritime counter terrorism and counter piracy operations of the French navy.

A. Puidupin, O. Dubourg, J. Stephan, N. Cazes, P. Balandraud

French Navy is involved in naval coalitions in order to protect vessels from being hijacked and their crews being taken hostage during pirate attacks. When pirates succeed in tacking the control of a ship, military actions by force can be decided to save crew members. Medical support of the assault is provided by medical team of marine commandos and surgical team of French armed forces health service. Recent experiences to free hostages show that combatants during special force actions are particularly exposed to "preventable death", which are death due to fatal injuries which are considered as "potentially treatable". Facing that risk, the forward medical staff (an emergency physician and a nurse) follows an operational training in order to be included in the assault group. In addition, a new concept of surgical support has been created: the life-saving surgical unit. Medical requirements consist in providing initial trauma care and damage control resuscitation for 3-4 casualties. Moreover, this unit can be dropped on sea. After sea landing, the boxes can be easily recovered by use of inflatable boats, and then deployed in a frigate in less than 30 mn. In terms of personals, the team is composed one general surgeon, one anesthesiologist, one operating room nurse and one anesthetist. Triage, resuscitation, anesthesia and damage control surgery can be done on board, just before the evacuation, which follows as soon as possible.

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