



# The American Club's Pre-Employment Medical Examination Program

2017 - 2018





## Foreword

While that well-worn aphorism, “*prevention is better than cure*”, has become something of a cliché in regard to maritime loss prevention initiatives generally, it represents a crystal-clear, demonstrable reality for the American Club’s pre-employment medical examination (PEME) program.

As the remainder of this document shows, the implementation of this program has generated consistent - and significant - claims costs savings for the Club and its Members. Indeed, the extrapolation of results over several years - including the two years on which this document provides a particular focus - indicates an annual average cost saving of between \$2.5 million and \$3.5 million attributable to PEMEs. As a key component of the American Club’s loss prevention universe, the program has come to occupy a special place within the risk management culture of the Club and its Members alike.

Indeed, and as Dr. Bill Moore acknowledges in the pages which follow, the success of the Club’s PEME program is due in major part to the unwavering support it has enjoyed from Club Members over the more than fifteen years since it began. Over that period, the network of Club-approved clinics has expanded substantially - it now boasts no fewer than 93 approved PEME clinics in 16 countries.

The American Club’s pursuit of this important aspect of loss prevention and risk management will continue with unrelenting energy over the years ahead. In justification of that commitment, it is hoped that the information contained in this report will be of interest to Members - and to the Club’s many other friends throughout the world - in providing insights into the substance of the program and what it has been able to achieve since its inception in 2003.

In this regard, and as always, thanks are due to the Club’s Members for their continuing commitment to its efforts in this, and other, loss prevention initiatives. Moreover, as the acknowledgements section below also records, thanks are also due to the individuals - not least Dr. Moore himself - who have made it such a success over recent times.

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## Preface

As part of the American Club's loss prevention mission, the health and safety of seafarers is critical to its objective of limiting exposure to claims. A key component of this is ensuring that the seafarers whom Members employ are aware of their physical condition and take appropriate action to improve the management of their health both prior to, and during, their employment at sea.

In 2003, the American Club launched its Pre-Employment Medical Examination (PEME) program in the Philippines and Ukraine. At that time, these countries had been identified as having a crew illness profile which might disproportionately affect the Club's overall loss exposures.

In May 2006, the American Club was able to report annual claims cost savings in the vicinity of \$2 million attributable to the PEME program. Since then, the program has expanded significantly, and now embraces 49 PEME service providers in those nine countries whose seafarers are subject to mandatory examination.

At the request of its Members, the Club has also established an extended network of clinics beyond those nine countries. These clinics are in port cities frequently visited by seafarers. They include Athens, Hong Kong, Antwerp, Rotterdam, Singapore and multiple locations within the US. In total, the American Club maintains no less than 93 approved PEME clinics in 16 countries.

The claims cost savings generated by the program indicated in the attached report are a source of gratification to all who benefit from them. But the maintenance of the PEME network requires the dedication and cooperation of both Members and the operators of the clinics themselves.

This, as will be clear from the report, has led to a significantly positive result in economic terms, in addition to instilling greater health awareness within the seafaring community with which the Club's Members are involved. The future success of the PEME program is predicated upon the continuing dedication of all involved in its aims, a dedication which may be relied upon in view of the success it has enjoyed to date.

We look forward to the continued cooperative success of the PEME program and the benefits our Members gain from their participation in it.

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## Acknowledgements

The singular success of the American Club's PEME program is due to the unwavering support it has enjoyed from the Club's Members over the more than fifteen years since it began in 2003.

The approved clinics which implement the program in close cooperation with the Managers are also to be congratulated for their efforts, as are the Members and their manning agents who have committed themselves to ensuring that the seafarers in their employment are physically capable of performing their duties.

Within the management company, special thanks are extended to Captain Sanjive Nanda and Ms. Ashanti Storr; to Captain Nanda for his efforts in making quality control visits to clinics within the network and coordinating the activity of Members and correspondents in that regard; and to Ms. Storr for her tirelessly diligent work in collecting and collating the information upon which this report has been based. Mr. Patrick Bond of Marine Response also deserves a sincere vote of thanks for his own efforts and assistance in maintaining the quality of service the PEME network has been able to maintain since 2004.

The cover photographs: courtesy of the Seamens' Church Institute

The artwork: Mr. John Steventon

## PEMEs performed and cost savings

- From January 1, 2017 through December 31, 2018, the American Club’s network of approved clinics performed **20,080 mandatory pre-employment medical examinations** (PEMEs) for seafarers of Bulgarian, Indian, Indonesian, Latvian, Filipino, Ukrainian, Russian, Romanian and Polish nationalities. The seafarers’ examinations were performed to the standards required by the *American Club’s Guidance on Standards for Pre-Employment Medical Examinations (PEMEs), Third Edition*.
- As can be seen in **Table I**, of the seafarers examined during this period, **18,231 (91%) seafarers** met the medical requirements contained in the Club’s Guidelines and were deemed “**fit for duty**” upon completion of their American Club approved PEME. Of these PEMEs performed, **3,466 (17.3%) seafarers** were conditionally found fit for duty requiring control medications (oral only) and/or lifestyle changes while employed during their contract.

**Table I | Numbers and percentages of seafarer fitness for duty following American Club approved PEME**

Condition	No. of seafarers	% of PEMEs
Fit for duty	14,765	73.8%
Conditionally fit for duty	3,466	17.3%
Temporarily unfit for duty	1,274	6.3%
Permanently unfit for duty	519	2.6%

- 1,274 (6.3%) seafarers** were found to be “temporarily unfit for duty” but, with certain lifestyle changes and/or oral medications, capable of re-examination in a relatively short period for potential upgrade to a higher level of fitness for duty. Only **519 (2.6%) seafarers** examined globally were found “permanently unfit for duty”. In summary, of the PEMEs conducted, only **1,793 (9%) seafarers** were found to be unfit for duty at the time of the medical examination.
- Adopting a cost-benefit analysis of the value of the PEME program which is similar to those used by other clubs in evaluating their own schemes, the argument for the PEME approach to crew claims prevention is compelling.
- During the two policy years (2017 and 2018) under review, the average cost of an American Club individual non-US, non-injury related death or illness claim was \$23,800 (A). If this figure is multiplied by the number of crew members found permanently unfit for duty in consequence of a PEME examination over those two years, being an average of 260 per annum (B), and assuming that each of those cases would have generated an average-sized crew illness claim on the Club but for the PEME program, a loss-preventative annual value of \$6.188 million per annum is implied (i.e. A x B). However, this is a small sample embracing only the two years of substantive analysis contained in the bulk of this report, and the figure is counterintuitively large, given the experience of other clubs in this field.
- On the other hand, taking a longer perspective, and examining the 16 years (2003 to 2018 inclusive) of the entire PEME program history, the implied loss-preventative annual value becomes \$4.820 million using the same method of calculation, where A = \$18,540 (average relevant claims size) and B = 260 (as above).

- Of course, not every member of that cohort of seafarers considered permanently unfit for duty would necessarily have suffered an episode of illness serious enough to have generated a P&I claim had they subsequently served on board ship absent the PEME “filter”. However, even if only 50% of them had, the annual savings to the Club would still potentially be about \$3.1 million and about \$2.4 million in the 2018/2019 and 2003/2018 data scenarios respectively.
- Moreover, this does not take account of the prophylactic effect of the PEME program in treating those considered temporarily unfit for duty, or conditionally fit for duty. This remains something of an imponderable number, but it is likely to have a respectable value in claims-saving terms.
- In conclusion, recognizing that there is no rigorously scientific way of calculating an annual PEME cost benefit, not least because there is no availability of experimental “control” populations of seafarers, simple extrapolation based on existing statistics, as outlined above, would suggest, on a conservative basis, an annual average cost savings range of between \$2.5 million and \$3.5 million, having regard also to rising individual claims severity in recent years.

### Where are Members’ PEMEs conducted?

- Table II shows that **16,089 (80.2%) of all PEMEs** were conducted in the Philippines (**57.1%**) and Ukraine (**23.1%**) respectively. These results show that these two countries continue to be a significant source of seafaring labor for the membership of the American Club. However, seafarers from India, Russian Federation Romania and Indonesia and other countries also account for a significant population of seafarers globally.

**Table II | Countries where American Club PEMEs were conducted (2017-2018)**

Country	No. of PEMEs	% PEMEs
Philippines	11,458	57.1%
Ukraine	4,640	23.1%
India	1,779	8.9%
Russian Federation	922	4.6%
Romania	572	2.7%
Indonesia	373	1.9%
Bulgaria	258	1.3%
Poland	59	0.3%
Latvia	19	0.1%

### What are the most frequent circumstances of ill health affecting seafarers?

- **5,014 circumstances of ill health** were identified from the 20,080 PEMEs based upon the 24 medical factors set forth in the *American Club’s Guidance on Standards for Pre-Employment Medical Examinations (PEMEs), Third Edition*.
- As noted in Table III, the top three medical conditions accounting for **72.4% of circumstances of ill health** observed during American Club PEMEs were:
  - overall physical condition—**1,802 cases observed (35.9%)**;

- blood sugar and diabetes—**1,081 cases observed (21.6%)** (combination of tests (17)+(19)+(21)); and
- miscellaneous conditions of ill health—**747 cases observed (14.9%)**.
- Given the scope of the physical examination covering several basic physical and visual examinations, most observations were found to be relevant to obesity as per measurements of the Body Mass Index (BMI).
- Blood sugar and diabetic conditions have become more easily diagnosed and were treated with oral medications in many cases.
- Many of the clinics noted specific conditions of ill health which are becoming of a chronic nature for seafarers. These conditions include obesity, hypertension, chronic kidney disease, problematic lipid profiles relevant to poor eating habits, chronic liver conditions, and gall stones.

**Table III | Conditions of ill health found during American Club PEMEs**

Medical Conditions (Test #)	No. of findings	% of findings
Physical Examination (2)	1,802	35.9%
Diabetes (19)	885	17.7%
Miscellaneous Medical Conditions	747	14.9%
Ultrasound Examination (13)	348	6.9%
Medical History Questionnaire (1)	140	2.8%
Liver Function Test (22)	128	2.6%
Visual Test (5)	125	2.5%
Spirometry (24)	118	2.4%
Fasting Blood Sugar (20)	105	2.1%
Stress Test (18)	98	2.0%
Glycosylated Haemoglobin (HbA1c) (21)	91	1.8%
Hep C Antibodies (15)	70	1.4%
Complete Blood Count (12)	66	1.3%
Hep B Antigen (14)	56	1.1%
Visual Test (9)	51	1.0%
Chest X-ray (8)	44	0.9%
Color Vision (6)	29	0.6%
Alcohol/Drug Test (23)	27	0.5%
Urinalysis (10)	25	0.5%
Dental Examination (3)	24	0.5%
HIV Test (17)	21	0.4%
Audiometry (7)	6	0.1%
Psychological Test (4)	4	0.1%
Fecalysis (Food handlers only) (11)	2	0.0%
VDRL (16)	2	0.0%



## Ill health making seafarers “permanently unfit for duty”, where did they occur and why?

- **519 circumstances of ill health** were identified causing seafarers to be designated as permanently unfit for duty. These incidents were only observed in Philippines (**350 cases**), Ukraine (**167 cases**) and India (**2 cases**).
- As indicated in **Table IV**, the most frequent circumstances of ill health designating a seafarer to be permanently unfit for duty are:
  - fasting blood sugar & diabetes related conditions—**59 (26%) permanently unfit designations**; and
  - drug and alcohol & urinalysis—**45 (19.7%) permanently unfit designations**.

**Table IV | Most frequent conditions leading to seafarers being designated as permanently unfit for duty**

Medical Conditions	No. of findings	% of findings
Fasting Blood Sugar	43	18.9%
Alcohol/Drug Test	26	11.4%
Urinalysis	19	8.3%
Hep B Antigen	18	7.9%
Psychological Test	18	7.9%
Visual Test	17	7.5%
Diabetes	16	7.0%
Color Vision	11	4.8%
Liver Function Test	10	4.4%
Complete Blood Count	10	4.4%
Spirometry	9	3.9%
VDRL	6	2.6%
Audiometry	5	2.2%
Ultrasound Examination	4	1.8%
Medical History Questionnaire	4	1.8%
Visual Test	4	1.8%
Hep C Antibodies	3	1.3%
Physical Examination	2	0.9%
Miscellaneous Medical Conditions	2	0.9%
Stress Test	1	0.4%

## Are there variations in medical conditions by country?

The following tables provide a summary of the sum of the **5,014 conditions of ill health** found by clinics broken down by country as seen in **Table V**. Higher percentages of medical observations are highlighted by country and condition.

Table V | Medical observations by country

Medical Condition	Numbers of medical observations by country in ( )									% of medical observations by country								
	Bulgaria (42)	India (239)	Indonesia (41)	Latvia (1)	Philippines (3,612)	Poland (0)	Romania (376)	Russian Fed (88)	Ukraine (615)	Bulgaria	India	Indonesia	Latvia	Philippines	Poland	Romania	Russian Fed	Ukraine
Medical History Questionnaire	2	0	0	0	92	0	43	1	2	5%	-	-	-	3%	-	11%	1%	0%
Physical Examination	0	32	3	0	1,566	0	9	26	166	-	13%	7%	-	43%	-	2%	30%	27%
Dental Examination	0	7	0	0	0	0	7	4	6	-	3%	-	-	-	-	2%	5%	1%
Psychological Test	0	0	0	0	1	0	0	0	3	-	-	-	-	-	-	-	-	0%
Visual Test	0	11	0	0	12	0	5	0	23	-	5%	-	-	0%	-	1%	-	4%
Color Vision	0	8	4	0	5	0	3	0	9	-	3%	10%	-	0%	-	1%	-	1%
Audiometry	0	0	0	0	4	0	0	0	2	-	-	-	-	0%	-	-	-	0%
Chest X-ray	0	0	0	0	27	0	2	2	13	-	-	-	-	1%	-	1%	2%	2%
Visual Test	10	8	2	0	25	0	10	7	63	24%	3%	5%	-	1%	-	3%	8%	10%
Urinalysis	0	2	0	0	3	0	6	4	10	-	1%	-	-	0%	-	2%	5%	2%
Fecalysis	0	0	0	0	0	0	0	2	0	-	-	-	-	-	-	-	2%	-
Complete Blood Count	8	34	6	0	4	0	1	1	12	19%	14%	15%	-	0%	-	0%	1%	2%
Ultrasound Examination	0	72	4	0	162	0	17	2	91	0%	30%	10%	-	4%	-	5%	2%	15%
Hep B Antigen	0	2	3	0	17	0	15	3	16	0%	1%	7%	-	0%	-	4%	3%	3%
Hep C Antibodies	4	0	0	0	1	0	1	0	64	10%	-	-	-	0%	-	0%	-	10%
VDRL	0	0	0	0	0	0	2	0	0	-	-	-	-	-	-	1%	-	-
HIV Test	0	0	0	0	0	0	1	0	20	-	-	-	-	-	-	0%	-	3%
Stress Test	0	2	0	0	63	0	1	2	30	-	1%	-	-	2%	-	0%	2%	5%
Diabetes	0	25	4	0	809	0	15	2	30	-	10%	10%	-	22%	-	4%	2%	5%
Fasting Blood Sugar	3	7	0	0	80	0	6	3	6	7%	3%	0%	-	2%	-	2%	3%	1%
Glycosylated Haemoglobin (HbA1c)	6	10	0	0	68	0	1	0	6	14%	4%	0%	-	2%	-	0%	-	1%
Liver Function Test	9	14	8	0	59	0	10	6	22	21%	6%	20%	-	2%	-	3%	7%	4%
Alcohol/Drug Test	0	4	0	0	2	0	0	0	21	-	2%	-	-	0%	-	-	-	3%
Spirometry	0	1	1	0	116	0	0	0	0	-	0%	2%	-	3%	-	-	-	-
Miscellaneous Medical Conditions	0	0	6	1	496	0	221	23	0	-	-	15%	100%	14%	-	59%	26%	-

- **Bulgaria.** Impaired sight among Bulgarian seafarers is also a concern, much of which is age related. Color blindness is also a concern. Conditions relative to the kidney, gallbladder and liver also are more frequent for Bulgarian seafarers as well as issues surrounding pre-diabetic conditions, predicated by the frequency of HbA1c abnormalities.
- **India.** As with other nations, most of the conditions affecting Indian seafarers are lifestyle related, particularly in regard to diet. Obesity, hypertension, excessive BMI, gall & kidney stones, uncontrolled diabetes, lipid profiles and exposures to Hepatitis B (Hep B) are risk factors identified by clinic doctors.
- **Indonesia.** Conditions affecting Indonesian seafarers are spread across a range of issues from lifestyle including blood sugar levels & diabetes; and the contraction of Hep B.
- **The Philippines.** As noted earlier in **Table II**, this country is where the largest number of American Club PEMEs were performed. As seen in **Table V**, a range of medical conditions impact Filipino seafarers. From the statistics noted above and numerous dialogues with the approved clinic directors, pre-diabetic and diabetic conditions, hypertension and excessive BMI tend to afflict Filipino seafarers. Many of the conditions are relative to lifestyle, particularly dietary habits. Sugar, fatty and heavily salted foods seem to be common factors, often arising from eating habits at home rather than during employment at sea.
- **Poland** is the only nation where PEME clinics did not report any individual conditions of ill health.
- **Romania.** **Table V** shows several conditions which fall within the Club's guidelines for examination but have been highlighted by clinic directors as being problematic. Such conditions include obesity, dental problems, dyschromatopsia, cardiac issues, gall bladder and kidney stones, syphilis and chronic hepatitis. Many of these conditions are reflected in the seafarer's medical questionnaire.
- **Russian Federation.** Except for diabetes, the Russian Federation has a similar risk profile to that of the Philippines. However, on reading more detailed notes from clinics, Type 2 diabetes is a concern. Obesity (BMI) related conditions are also a concern particularly in light of increasing frequency of the condition worldwide.
- **Ukraine.** As noted in **Table V**, gall and kidney stones are prevalent. Clinic directors have also reported a significant number of inactive Hepatitis C (Hep C) cases. As with others, the physical examinations are showing a significant number of examinees with a BMI exceeding the Club's guidelines. There is also a fair number of cases of impaired vision as well as a fair number of cases of colorblindness.



## Summary & Conclusions

- Members are reminded that the objective of the American Club PEME program is to assist in providing greater transparency and confidence in the pre-employment examination process.

Shipowners and seafarers alike should be aware of the seafarer's medical condition and take any relevant actions and lifestyle changes as necessary to ensure they can conduct their duties safely.

- Upon consideration of the statistics the American Club have collected, collated and analyzed further suggests that the PEME program has been a thoroughly successful and cost effective loss prevention endeavor. As discussed above, an annual average claims cost savings range of between \$2.5 million and \$3.5 million is (conservatively) implied by an analysis of figures extrapolated from both recent and more distant average claims costs.
- Most medical conditions observed by our approved clinic network are lifestyle related, attributed to seafarer's dietary habits. Plainly stated, there is too much sugar, salt and fat in diets. This may not necessarily be on board the ship, but certainly an observation seen time and time again at the PEME stage as seafarers are going back to sea. Members are highly encouraged to further consider these dietary issues when ordering food consumables for their fleet.
- The American Club has also seen a general trend and rise in the incidences of Hep B and Hep C conditions globally. We do see this trend clinics are corresponding with the Managers to request our recommendations on seafarers with inactive forms of Hep B and Hep C.
- Additional information regarding the American Club's PEME program, requirements, guidelines, forms and the list of the network of approved clinics can be found at our web address below.

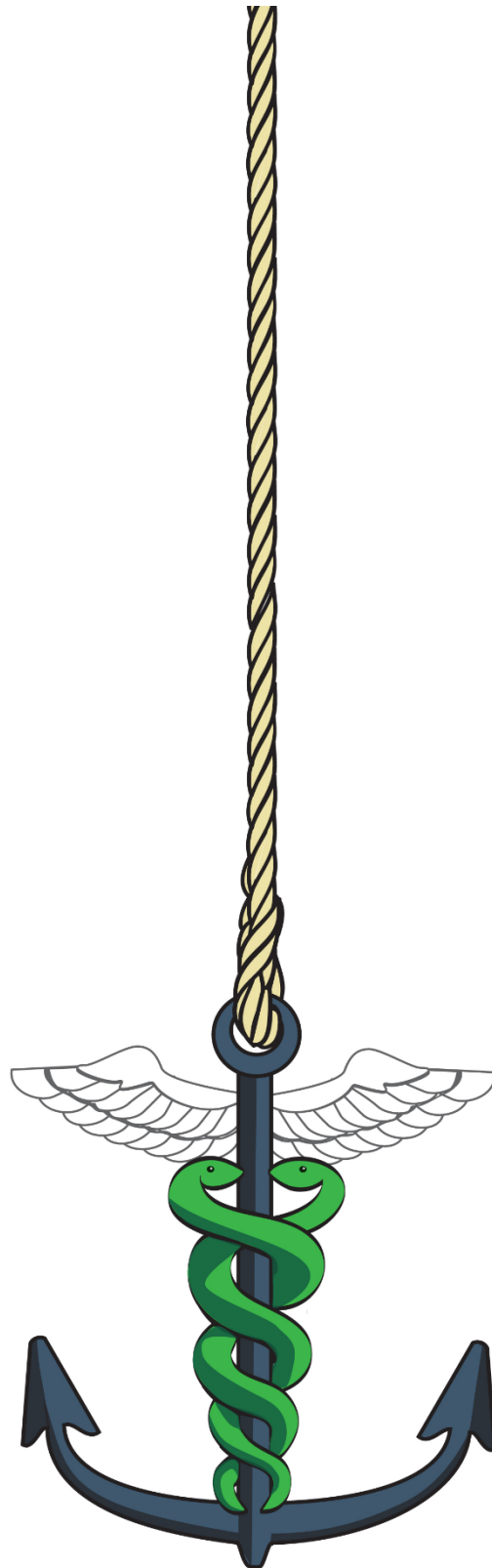


<https://www.american-club.com/page/pemes>

## Comments

- The seafarers' examinations were performed to the medical requirements as set forth under the *American Club's Guidance on Standards for Pre-Employment Medical Examinations (PEMEs), Third Edition*.
- Clinics have a controlled level of flexibility and discretion to deem seafarers “**conditionally fit for duty**” if they do not fully meet the Club's requirements as per the Guidance. Seafarers that are deemed conditionally fit are normally provided a Club PEME certificate with a one (1) year validity rather than the standard (2) year validity. Any seafarer found conditionally fit also requires any seafarer needing medication is provided with a prescription for the duration of the seafarer's contract or some other arrangement to ensure access to any required medication during his contract period. Of the seafarers examined, 3,466 (17.4%) were found with a medical condition that if properly controlled through specified medication and healthy lifestyle changes, were deemed as fit for duty.

- Regarding the medical fitness of seafarers who are considered as possibly conditionally fit for duty, it is the American Club's general policy to follow the recommendations of the examining physicians. This has been the Club's policy since the implementation of the PEME program in 2004.







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