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HEALTH FACILITIES &amp; SERVICES REVIEW BOARD

January 15, 2014

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CLIENT/MATTER NUMBER  
106699-0101

**VIA EMAIL & FEDERAL EXPRESS & HAND DELIVERY**

Ms. Courtney Avery  
Administrator  
Illinois Health Facilities & Services Review Bd.  
525 West Jefferson Street  
Springfield, Illinois 62761

Mr. Michael Constantino  
Supervisor, Project Review Section  
Illinois Health Facilities & Services Review Bd.  
525 West Jefferson Street  
Springfield, Illinois 62761

Re: AegeanMed Transitional Care of Lockport, Project No. 13-048

Dear Ms. Avery and Mr. Constantino:

We are counsel to AegeanMed Holdings LLC, AegeanMed Healthcare LLC, and Gerokomeio LLC (collectively, the "Applicants"). Pursuant to 77 Ill. Admin. Code § 1130.650, the Applicants hereby seek to modify the Applicants' Application for Permit (the "Application") for AegeanMed Transitional Care of Lockport, Project No. 13-048 (the "Project"), in the following manner: (1) an increase in the clinical costs for the Project from \$8,787,771 to \$9,508,545; (2) an increase in the non-clinical costs for the Project from \$16,036,440 to \$17,351,752; and (3) an increase in the total costs for the Project from \$24,824,211 to \$26,860,298. These modifications constitute "Type B" modifications because the cost increases are less than ten percent (i.e., 8.20%). It should also be noted that the \$1,550,000 purchase price for the land associated with this Project is excluded from the above referenced Project costs. I am attaching the following revised pages of the Application, which incorporate the above referenced modifications:

- Application page 23
- Application page 27
- Attachment 17, Item 1
- Attachment 18
- Attachment 29 Ratios
- Attachment 30-3 Operating Costs
- Attachment 30-4 Capital Costs
- Appendix A Project Costs and Sources of Funds
- Appendix B Startup Costs and Deficit (including land costs)
- Appendix C Project Status and Completion Schedules
- Appendix D Cost Space Requirements
- Appendix 1 Operating Proforma

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4835-5705-0648.1



FOLEY & LARDNER LLP

Ms. Courtney Avery  
Mr. Michael Constantino  
AegeanMed Transitional Care of Lockport, Project No. 13-048  
January 15, 2014  
Page 2

In addition, pursuant to 77 Ill. Admin. Code § 1130.670(b) and (c)(3), the Applicants are tendering the following materials to supplement its Application: (1) executed commitment letters from Eastern Capital LLC; (2) additional physician referral letters; (3) additional background and information for the Project; and (4) a support letter from Hon. Daniel Lipinski, United States House of Representatives. It should be noted that the Eastern Capital LLC commitment letters cover the Project costs referenced above and the land acquisition costs associated with this Project.

Some of this information was previously provided to the Board, but, out of an abundance of caution, is being provided again.

Please feel free to contact me if you have any questions.

Sincerely,

Edward J. Green

EJG:svc

cc: Dr. Peter Roumeliotis, AegeanMed Healthcare LLC  
Mr. Chris Dials, Revere Healthcare

**Availability of Funds**

The applicant shall document that financial resources shall be available and be equal to or exceed the estimated total project cost plus any related project costs by providing evidence of sufficient financial resources from the following sources, as applicable: **Indicate the dollar amount to be provided from the following sources:**

<u>\$8,850,000</u>	a. Cash and Securities – statements (e.g., audited financial statements, letters from financial institutions, board resolutions) as to: <ol style="list-style-type: none"> <li>1) the amount of cash and securities available for the project, including the identification of any security, its value and availability of such funds; and</li> <li>2) interest to be earned on depreciation account funds or to be earned on any asset from the date of applicant's submission through project completion;</li> </ol>
_____	b. Pledges – for anticipated pledges, a summary of the anticipated pledges showing anticipated receipts and discounted value, estimated time table of gross receipts and related fundraising expenses, and a discussion of past fundraising experience.
_____	c. Gifts and Bequests – verification of the dollar amount, identification of any conditions of use, and the estimated time table of receipts;
<u>\$19,560,298</u>	d. Debt – a statement of the estimated terms and conditions (including the debt time period, variable or permanent interest rates over the debt time period, and the anticipated repayment schedule) for any interim and for the permanent financing proposed to fund the project, including: <ol style="list-style-type: none"> <li>1. For general obligation bonds, proof of passage of the required referendum or evidence that the governmental unit has the authority to issue the bonds and evidence of the dollar amount of the issue, including any discounting anticipated;</li> <li>2. For revenue bonds, proof of the feasibility of securing the specified amount and interest rate;</li> <li>3. For mortgages, a letter from the prospective lender attesting to the expectation of making the loan in the amount and time indicated, including the anticipated interest rate and any conditions associated with the mortgage, such as, but not limited to, adjustable interest rates, balloon payments, etc.;</li> <li>4. For any lease, a copy of the lease, including all the terms and conditions, including any purchase options, any capital improvements to the property and provision of capital equipment;</li> <li>5. For any option to lease, a copy of the option, including all terms and conditions.</li> </ol>
_____	e. Governmental Appropriations – a copy of the appropriation Act or ordinance accompanied by a statement of funding availability from an official of the governmental unit. If funds are to be made available from subsequent fiscal years, a copy of a resolution or other action of the governmental unit attesting to this intent;
_____	f. Grants – a letter from the granting agency as to the availability of funds in terms of the amount and time of receipt;
_____	g. All Other Funds and Sources – verification of the amount and type of any other funds that will be used for the project.
<u>\$28,410,298</u>	<b>TOTAL FUNDS AVAILABLE</b>

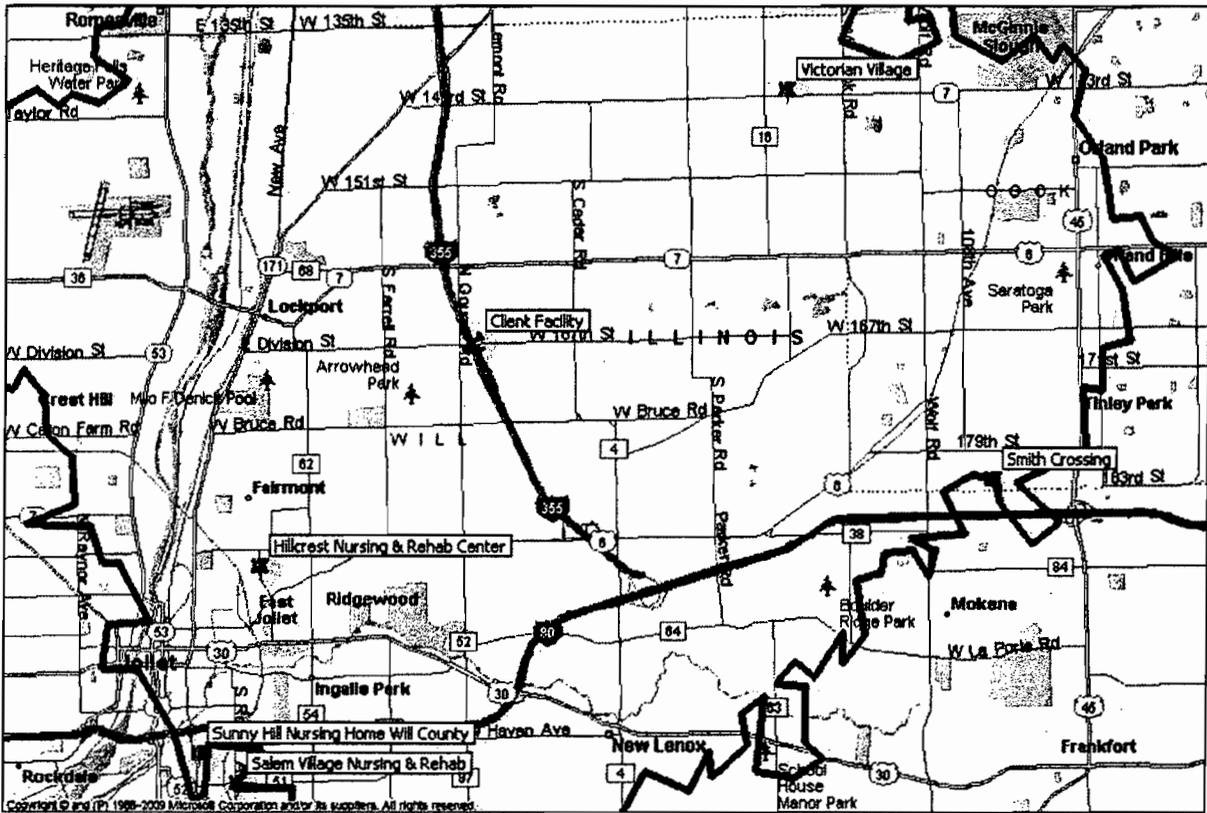
**APPEND DOCUMENTATION AS ATTACHMENT 27, IN NUMERIC SEQUENTIAL ORDER AFTER THE LAST PAGE OF THE**

COST AND GROSS SQUARE FEET BY DEPARTMENT OR SERVICE

Department (listed below)	A	B	C	D	E	F	G	H	
	Cost/Square Foot		Gross Sq. Ft.		Gross Sq. Ft.		Const. \$	Mod. \$	Total cost
	New	Mod.	New	Circ.	Mod.	Circ.	(A x C)	(B x E)	(G + H)
Nursing Care/Assited Livin	\$ 243	\$ -	109,335	-	-	-	\$ 26,549,901	\$ -	\$ 26,549,901
Contingency	\$ 17	\$ -	109,335	-	-	-	\$ 1,860,397	\$ -	\$ 1,860,397
<b>TOTALS</b>	<b>\$ 260</b>	<b>\$ -</b>	<b>109,335</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>\$ 28,410,298</b>	<b>\$ -</b>	<b>\$ 28,410,298</b>



# 20 Minute Drive Time Map



Viability Ratios

Using first full year of stabilized occupancy

Provide Data for Projects Classified as:	Category A or Category B (last three years)	Category B (Projected)
<b>Enter Historical and/or Projected Years:</b>		
Current Ratio		19.86
Net Margin Percentage		8.23%
Percent Debt to Total Capitalization		67%
Projected Debt Service Coverage		2.31
Days Cash on Hand		185.53
Cushion Ratio		3.06

Provide the methodology and worksheets utilized in determining the ratios detailing the calculation and applicable line item amounts from the financial statements. Complete a separate table for each co-applicant and provide worksheets for each. Insert the worksheets after this page.

Year 3

Current Assets	\$5,931,466
Current Liabilities	\$298,626
Current ratio (A/B)	19.86
Net Income/(Loss)	\$1,079,757
Net Operating Revenue	\$13,116,718
Net Margin percentage (C/D)	8.23%
LT Debt	\$18,920,082
LT Debt + Equity	\$28,424,107
Debt service coverage ratio (E/F)	67%
Net inc + depr+int+amort/P&I payment	\$3,639,261
Principal and interest payment	\$1,575,622
Debt capitalization ratio (G/H)	2.31
Cash + investments=reserves	\$4,817,443
Operating expense-depreciation/365	\$25,966
Days cash on hand (I/J)	186
Cash + investments and reserves	\$4,817,443
Max Annual Debt Service	\$1,575,622
Cushion Ratio (K/L)	3.06

**Criterion 1120.310(d) Projected Operating Costs  
For first full year of stabilized occupancy**

<b>Salaries</b>	<b>\$</b>	<b>4,041,699</b>
<b>Supplies and Fees</b>	<b>\$</b>	<b>4,627,419</b>
<b>Benefits</b>	<b>\$</b>	<b>808,340</b>
<b>Total direct costs</b>	<b>\$</b>	<b>9,477,458</b>

<b>Year of Target Utilization</b>	<b>Year 3</b>
<b>Patient days per year</b>	<b>\$ 48,545</b>
<b>Cost per patient day</b>	<b>\$ 195.23</b>

Criterion 1120.310(e) Total Effect of the Project on Capital Costs	
Depreciation	\$ 1,212,343
Interest	\$ 1,347,161
Property Tax	<u>\$ 149,972</u>
Total annual capital cost	\$ 2,709,475

Year of Target Utilization	Year 3
Patient days per year	\$ 48,545
Capital cost per day	\$ 47.54

**APPENDIX A****Project Costs and Sources of Funds**

Complete the following table listing all costs associated with the project. When a project or any component of a project is to be accomplished by lease, donation, gift, or other means, the fair market or dollar value (refer to Part 1130.140) of the component must be included in the estimated project cost. If the project contains non-reviewable components that are not related to the provision of health care, complete the second column of the table below. Note, the use and sources of funds must equal.

Project Costs and Sources of Funds			
USE OF FUNDS	CLINICAL	NONCLINICAL	TOTAL
Preplanning Costs	-	-	-
Site Survey and Soil Investigation	-	-	-
Site Preparation	-	-	-
Off Site Work	-	-	-
New Construction Contracts	5,927,225	10,816,348	16,743,572
Modernization Contracts	-	-	-
Contingencies	658,581	1,201,816	1,860,397
Architectural/Engineering Fees	326,819	596,399	923,218
Consulting and Other Fees	881,460	1,608,540	2,490,000
Movable or Other Equipment (not in construction contracts)	354,000	646,000	1,000,000
Bond Issuance Expense (project related)	-	-	-
Net Interest Expense During Construction (project related)	304,794	556,206	861,000
Fair Market Value of Leased Space or Equipment	-	-	-
Other Costs To Be Capitalized	1,055,667	1,926,443	2,982,110
Acquisition of Building or Other Property (excluding land)	-	-	-
<b>TOTAL USES OF FUNDS</b>	<b>9,508,545</b>	<b>17,351,752</b>	<b>26,860,298</b>
SOURCE OF FUNDS	CLINICAL	NONCLINICAL	TOTAL
Cash and Securities	2,584,200	4,715,800	7,300,000
Pledges	-	-	-
Gifts and Bequests	-	-	-
Bond Issues (project related)	-	-	-
Mortgages	6,924,345	12,635,952	19,560,298
Leases (fair market value)	-	-	-
Governmental Appropriations	-	-	-
Grants	-	-	-
Other Funds and Sources	-	-	-
<b>TOTAL SOURCES OF FUNDS</b>	<b>9,508,545</b>	<b>17,351,752</b>	<b>26,860,298</b>

20,918.79

19,086.92

**APPENDIX B****Related Project Costs**

Provide the following information, as applicable, with respect to any land related to the project that will be or has been acquired during the last two calendar years:

Land acquisition is related to project  Yes  No  
Purchase Price: \$ 1,550,000  
Fair Market Value: \$ 1,550,000

The project involves the establishment of a new facility or a new category of service  
 Yes  No

If yes, provide the dollar amount of all **non-capitalized** operating start-up costs (including operating deficits through the first full fiscal year when the project achieves or exceeds the target utilization specified in Part 1100.

Estimated start-up costs and operating deficit cost is \$ 741,954.

Yr 1

**SERVICE REVENUES**

Private	\$1,483,404
Medicaid	\$744,062
Transitional/VA	\$2,227,375
Medicare	\$1,336,425
<b>TOTAL SERVICE REVENUES</b>	<b><u>\$6,532,186</u></b>
Less Vacancy	\$326,609
<b>Net Income</b>	<b>\$6,205,577</b>

**OPERATING EXPENSES**

Nursing Salaries:	\$0
RN	\$326,827
LPN	\$295,015
Rehab Aides	\$35,378
Nursing admin	\$218,400
<b>THERAPY EXPENSE</b>	<b>\$0</b>
Maintenance	\$70,720
Social Service	\$106,080
Business Office/Clerical	\$93,600
Employee Benefits and payroll taxes	\$518,962
Therapy	\$760,720
Pharmacy	\$304,288
Medical Supplies	\$107,075
Medicare Ancillary	\$60,858
Raw Food	\$199,689
Dietary Supplies	\$26,625
Laundry	\$6,656
Utilities	\$218,670
Maintenance	\$50,000
Housekeeping Supplies	\$26,020
Accounting and Legal	\$30,000
Office Supplies	\$7,721
Social Service Supplies	\$11,685
Telephone/Internet	\$7,800
Property Taxes	\$140,000
Insurance	\$75,000
Medical Director and Physiatrist	\$18,000
Consulting	\$36,000
Bed Taxes	\$60,225
Medicaid Assesment	\$104,184
Auto-Transportation	\$6,923

**TOTAL OPERATING EXPENSES** **\$5,371,909**

**INCOME (LOSS) BEFORE  
OTHER EXPENSE (INCOME)** **\$833,668**

**OTHER EXPENSES (INCOME)**

Less Debt Service **\$1,575,622**

Surplus(Deficit) **(\$741,954)**

**APPENDIX C**

**Project Status and Completion Schedules**

Indicate the stage of the project's architectural drawings:

- |   |   |
|---|---|
| <input type="checkbox"/> None or not applicable | <input checked="" type="checkbox"/> Preliminary |
| <input type="checkbox"/> Schematics             | <input type="checkbox"/> Final Working          |

Anticipated project completion date (refer to Part 1130.140): October 2017

Indicate the following with respect to project expenditures or to obligation (refer to Part 1130.140):

- Purchase orders, leases or contracts pertaining to the project have been executed.
- Project obligation is contingent upon permit issuance. Provide a copy of the contingent "certification of obligation" document, highlighting any language related to CON Contingencies
- Project obligation will occur after permit issuance.

Dept. / Area	Cost	Gross Square Feet		Amount of Proposed Total Gross Square Feet That Is:			
		Existing	Proposed	New Const.	Modernized	As Is	Vacated Space
<b>CLINICAL</b>		-			-	-	-
Patient Rooms	4,730,868	-	19,304	19,304	-	-	-
Patient Bathrooms	1,235,162	-	5,040	5,040	-	-	-
Nurses Station/Med Prep	197,038	-	804	804	-	-	-
LR/DR/Activity	1,660,852	-	6,777	6,777	-	-	-
Exam Room	63,229	-	258	258	-	-	-
PT/OT	1,104,539	-	4,507	4,507	-	-	-
Laundry	77,933	-	318	318	-	-	-
Janitor Closet	41,662	-	170	170	-	-	-
Clean/Soiled Linen	211,742	-	864	864	-	-	-
Beauty/Barber	185,519	-	757	757	-	-	-
<b>Total CLINICAL</b>	<b>9,508,545</b>	-	<b>38,799</b>	<b>38,799</b>	-	-	-
<b>NON CLINICAL</b>							
Office/Admin	470,841	-	1,914	1,914	-	-	-
Kitchen	537,261	-	2,184	2,184	-	-	-
EE Lounge	202,211	-	822	822	-	-	-
Locker, Training	-	-	-	-	-	-	-
Mechanical	225,827	-	918	918	-	-	-
Lobby	217,217	-	883	883	-	-	-
Storage/Maint	264,694	-	1,076	1,076	-	-	-
Corridor/Public Toilet	4,583,199	-	18,631	18,631	-	-	-
Structure/Misc	10,156,787	-	41,288	41,288	-	-	-
Stairs/Elevators	693,716	-	2,820	2,820	-	-	-
<b>Total Non-clinical</b>	<b>17,351,752</b>	-	<b>70,536</b>	<b>70,536</b>	-	-	-
<b>TOTAL</b>	<b>26,860,298</b>		<b>109,335</b>	<b>109,335</b>			

Note: The balance of the cost and square footage includes the assisted living facility which is part of this structure.

	A	B	C	D	E	F	G	H	I	J	K
1	Lockport SNF and AL										
5		140 Units									
8											
9	DSCR YR 3			2.31							
10	SQUARE FOOTAGE			109,335				Second Year Inflation factor		103.50%	
11	ESTD COST PER SQ FT			169.65/62				Third Year Inflation Factor		103.50%	
12	EB-5 INT RATE			6.00%							
13	ESTD END FINANCING INT RT			7.00%							
14	ESTD CONST FINANCING INT RT			7.00%							
15	YEARS PROJECTED				2015	2016	2017				
16	Private			40	\$ 200.00	\$207	\$214	36%			
17	Medicaid			30	\$ 135.53	\$140	\$145	27%			
18	Transitional/VA			25	\$ 482.53	\$499	\$517	23%			
19	Medicare			15	\$ 482.53	\$499	\$517	14%			
20	SLF										
21	Private AL	\$ 4,000.00	month	30	\$132	\$136	\$141				
22	Vocational Training rental										
23											
24	TOTAL NUMBER OF UNITS			140							
25	AMOUNT MORTGAGED			\$19,560,298		Term	=	30 years			
26	CONSTRUCTION PERIOD			14							
33	BLU/ALU CONSTRUCTION COSTS:							SNF/ALU SOURCE OF FUNDS:			
34	Construction Cost		Per Lamp	Revised	\$18,603,989		\$132,885			\$19,560,298	
35	Increase from Lamp							Mortgage			
36	Construction Contingency							Equity-Preferred Stock	\$8,000,000		
37	Subtotal Construction Cost				\$18,603,989			Pradevelopment	\$350,000		
38	Land					\$1,550,000		Cash	\$500,000		
39	Land Improvements										
40	Architectural and Engineering Fees, Permits and Associated Costs		5.5%			\$923,218					
41	Owners Contingency									\$8,850,000	
42											
43	Organizational Costs					\$2,490,000		Total Funds		\$28,410,298	
44	Capitalized Interest					\$881,000					
45											
46											
47	Insurance during construction and rounding										
48	Working Capital per calculation					\$2,000,000					
49				\$5,824,218	\$7,824,218	\$26,428,187					
50											
51	Financing Fee			3.50%		\$982,110					
52											
53	Furnishings & Equipment					\$1,000,000					
54											
55											
56	Subtotal: Escrows/Additional Costs					\$1,982,110					
57											
58	Total uses of Funds					\$28,410,298					
59											
60											
61	Architectural and Engineering:										
62	A&E Fees		5.50% of construction cost			\$923,218					
63	Permits & Other										
64	Total A&E					\$923,218					
65											
66	Organizational:										
67	Legal and Accounting					\$50,000					
68	Initial Marketing		7500			\$1,050,000					
69	Title and recording					\$25,000					
70	Initial development costs					\$350,000					
71	Development fee		10%	Flat Fee		\$1,000,000					
72	Taxes, Title & Insurance					\$15,000					
73											
74	Organization Costs					\$2,490,000					
75											
76											
77	Furnishings & Equipment:										
78	Furniture/Furnishings (included)		140	\$ 7,143		\$1,000,000					
79											
81											
82						\$1,000,000					

## Lockport SNF and AL

### PROJECTED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN RETAINED EARNINGS

	As of December 31				
	Yr1	Yr2	Yr3	Yr4	Yr5
<b>SERVICE REVENUES</b>					
Private	\$1,707,780	\$2,946,438	\$3,127,977	\$3,237,456	\$3,350,787
Medicaid	\$874,813	\$1,503,208	\$1,589,794	\$1,645,437	\$1,703,027
Transitional/VA	\$2,611,677	\$4,469,560	\$4,716,710	\$4,881,795	\$5,052,858
Medicare	\$1,605,937	\$2,704,335	\$2,830,026	\$2,929,077	\$3,031,585
SLF					
Private AL	\$848,824	\$1,458,550	\$1,542,564	\$1,596,554	\$1,652,433
Vocational Training rental					
<b>TOTAL SERVICE REVENUES</b>	<b>\$7,649,032</b>	<b>\$13,082,091</b>	<b>\$13,807,072</b>	<b>\$14,290,319</b>	<b>\$14,790,481</b>
Less Vacancy	\$382,452	\$854,105	\$690,354	\$714,516	\$739,524
<b>Net Income</b>	<b>\$7,266,580</b>	<b>\$12,427,987</b>	<b>\$13,116,718</b>	<b>\$13,575,803</b>	<b>\$14,050,957</b>
<b>OPERATING EXPENSES</b>					
Management Fee	\$363,329	\$821,399	\$655,836	\$878,790	\$702,548
Administrator	\$83,200	\$86,112	\$89,126	\$92,245	\$95,474
Assistant Admin/ALF	\$55,120	\$57,049	\$59,046	\$61,113	\$63,251
Nursing Salaries:					
RN	\$370,569	\$635,622	\$671,933	\$695,451	\$719,792
LPN	\$334,500	\$573,755	\$606,531	\$627,760	\$649,732
CNA	\$746,107	\$1,279,788	\$1,352,876	\$1,400,227	\$1,449,235
Rehab Aides	\$40,113	\$66,478	\$67,899	\$70,276	\$72,735
Nursing admin	\$218,400	\$226,044	\$233,956	\$242,144	\$250,619
Dietary Supervisor	\$33,280	\$34,445	\$35,650	\$36,898	\$38,190
Dietary	\$196,611	\$337,239	\$356,504	\$368,981	\$381,896
Activities	\$54,068	\$92,741	\$98,039	\$101,470	\$105,021
Laundry	\$33,178	\$56,909	\$60,160	\$62,266	\$64,445
Housekeeping	\$66,356	\$113,818	\$120,320	\$124,531	\$128,890
Maintenance	\$70,720	\$73,195	\$75,757	\$78,409	\$81,153
Social Service	\$106,080	\$109,793	\$113,636	\$117,613	\$121,729
Business Office/Clerical	\$93,600	\$96,876	\$100,267	\$103,776	\$107,408
Employee Benefits and payroll taxes	\$573,046	\$767,989	\$808,340	\$836,632	\$865,914
Therapy	\$874,060	\$1,486,721	\$1,563,989	\$1,618,728	\$1,675,384
Pharmacy	\$349,624	\$594,888	\$625,595	\$647,491	\$670,153
Medical Supplies	\$121,406	\$201,202	\$205,503	\$212,895	\$220,140
Medicare Ancillary	\$69,925	\$118,938	\$125,119	\$129,498	\$134,031
Raw Food	\$226,415	\$388,361	\$410,547	\$424,916	\$439,788
Dietary Supplies	\$30,189	\$41,771	\$42,664	\$44,157	\$45,702
Laundry	\$7,547	\$12,945	\$13,685	\$14,164	\$14,680
Utilities	\$218,670	\$226,323	\$234,245	\$242,443	\$250,929
Maintenance	\$50,000	\$51,750	\$53,561	\$55,436	\$57,376
Housekeeping Supplies	\$29,503	\$48,894	\$49,939	\$51,887	\$53,496
Accounting and Legal	\$30,000	\$36,225	\$37,493	\$38,805	\$40,163
Office Supplies	\$8,755	\$15,017	\$15,874	\$16,430	\$17,005
Social Service Supplies	\$13,274	\$21,230	\$22,443	\$23,229	\$24,042
Telephone/Internet	\$7,800	\$8,073	\$8,356	\$8,356	\$8,356
Property Taxes	\$140,000	\$144,900	\$149,972	\$155,221	\$160,853
Insurance	\$75,000	\$77,825	\$80,342	\$83,154	\$86,064
Medical Director and Psychiatrist	\$18,000	\$18,630	\$19,282	\$19,957	\$20,655
Consulting	\$36,000	\$37,260	\$38,564	\$39,914	\$41,311
Bed Taxes	\$60,225	\$60,225	\$60,225	\$60,225	\$60,225
Medicaid Assessment	\$117,871	\$195,481	\$199,953	\$199,953	\$199,953
Auto-Transportation	\$7,849	\$13,463	\$14,232	\$14,730	\$15,246
<b>TOTAL OPERATING EXPENSES</b>	<b>\$5,930,169</b>	<b>\$9,028,934</b>	<b>\$9,477,458</b>	<b>\$9,799,770</b>	<b>\$10,133,363</b>
<b>INCOME (LOSS) BEFORE OTHER EXPENSE (INCOME)</b>	<b>\$1,336,391</b>	<b>\$3,399,053</b>	<b>\$3,639,261</b>	<b>\$3,776,033</b>	<b>\$3,917,593</b>
<b>OTHER EXPENSES (INCOME)</b>			5%	3%	3%
Depreciation and Amortization	(\$1,210,343)	(\$1,211,343)	(\$1,212,343)	(\$1,213,343)	(\$1,214,343)
Interest Income					
Interest Expense	(\$1,376,926)	(\$1,362,563)	(\$1,347,161)	(\$1,330,645)	(\$1,312,936)
<b>TOTAL OTHER EXPENSES (INCOME)</b>	<b>(\$2,587,270)</b>	<b>(\$2,573,906)</b>	<b>(\$2,559,504)</b>	<b>(\$2,543,988)</b>	<b>(\$2,527,279)</b>
<b>NET INCOME (LOSS)</b>	<b>(\$1,250,878)</b>	<b>\$825,147</b>	<b>\$1,079,757</b>	<b>\$1,232,045</b>	<b>\$1,390,314</b>
<b>RETAINED EARNINGS</b>					
Beginning of Period		(\$1,250,878)	(\$425,731)	\$654,025	\$1,886,070
End of Period	(\$1,250,878)	(\$425,731)	\$654,025	\$1,886,070	\$3,276,385

**Lockport SNF and AL  
PROJECTED BALANCE SHEETS**

ASSETS	As of December 31		
	2015	2016	2017
<b>CURRENT ASSETS</b>			
Cash	\$1,138,348	\$2,806,042	\$4,817,443
Accounts Receivable	\$867,955	\$1,076,350	\$1,114,023
<b>TOTAL CURRENT ASSETS</b>	<b>\$2,006,303</b>	<b>\$3,882,393</b>	<b>\$5,931,466</b>
<b>PLANT, PROPERTY &amp; EQUIPMENT</b>			
Land	\$1,550,000	\$1,550,000	\$1,550,000
Land Improvements			
Building	\$20,388,187	\$20,388,187	\$20,388,187
Equipment	\$1,005,000	\$1,010,000	\$1,015,000
	\$22,943,187	\$22,948,187	\$22,953,187
Less Accumulated Depreciation	(\$679,606)	(\$1,360,212)	(\$2,041,819)
<b>TOTAL PLANT, PROPERTY &amp; EQUIPMENT</b>	<b>\$22,263,581</b>	<b>\$21,587,975</b>	<b>\$20,911,369</b>
<b>OTHER ASSETS</b>			
Financing Costs (Net of Amortization)	\$949,373	\$916,636	\$883,899
Organizational Costs (Net of Amortization)	\$1,992,000	\$1,494,000	\$996,000
Debt Service Reserve Fund			
Replacement Reserve - Building			
Replacement Reserve - Equipment			
<b>TOTAL OTHER ASSETS</b>	<b>\$2,941,373</b>	<b>\$2,410,636</b>	<b>\$1,879,899</b>
<b>TOTAL ASSETS</b>	<b>\$27,211,257</b>	<b>\$27,881,004</b>	<b>\$28,722,734</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>			
<b>CURRENT LIABILITIES</b>			
Accounts Payable	\$250,533	\$308,192	\$298,626
Current Portion of Long-Term Debt			
Accrued Payroll and Payroll Taxes			
<b>TOTAL CURRENT LIABILITIES</b>	<b>\$250,533</b>	<b>\$308,192</b>	<b>\$298,626</b>
<b>LONG-TERM DEBT</b>			
Mortgage	\$19,361,602	\$19,148,543	\$18,920,082
Bank Letter of Credit			
<b>TOTAL LONG-TERM DEBT</b>	<b>\$19,361,602</b>	<b>\$19,148,543</b>	<b>\$18,920,082</b>
<b>OTHER LIABILITIES</b>			
Deposits			
<b>TOTAL OTHER LIABILITIES</b>			
<b>TOTAL LIABILITIES</b>	<b>\$19,612,135</b>	<b>\$19,456,735</b>	<b>\$19,218,708</b>
<b>Unrestricted Net Assets</b>			
FUND BALANCE	\$8,850,000	\$8,850,000	\$8,850,000
Retained Earnings	(\$1,250,878)	(\$425,731)	\$654,025
<b>TOTAL STOCKHOLDERS' EQUITY</b>	<b>\$7,599,122</b>	<b>\$8,424,269</b>	<b>\$9,504,025</b>
<b>TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY</b>	<b>\$27,211,257</b>	<b>\$27,881,004</b>	<b>\$28,722,734</b>

## Projected Statements of Cash Flows

	<u>2015</u>	<u>2016</u>	<u>2017</u>
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>			
Net Income (Loss)	(\$1,250,878)	\$825,147	\$1,079,757
Adjustments to Reconcile Net Revenues (Expenses) to Net Cash Provided (Used) By Operating Activities:			
Depreciation and Amortization	\$1,210,343	\$1,211,343	\$1,212,343
Changes in Current Assets and Liabilities:			
Accounts Receivable			
Other Current Assets			
Accounts Payable	\$250,533	\$57,659	(\$9,566)
Accrued Payroll and Payroll Taxes			
Operating Deficit Reserve			
Working Capital Reserve			
Deposits			
Replacement Reserves			
<b>TOTAL CASH PROVIDED (USED) BY OPERATING ACTIVITIES</b>	<u>\$209,998</u>	<u>\$2,094,149</u>	<u>\$2,282,534</u>
<b>CASH FROM FINANCING ACTIVITIES</b>			
Land	\$8,850,000		
Loan Acquisition Costs	(\$982,110)		
Proceeds from Long-Term Debt	\$19,560,298		
Principal Payments on Long-Term Debt	(\$198,695)	(\$213,059)	(\$228,461)
<b>TOTAL CASH FROM (USED IN) FINANCING ACTIVITIES</b>	<u>\$27,229,492</u>	<u>(\$213,059)</u>	<u>(\$228,461)</u>
<b>CASH FROM (USED IN) INVESTING ACTIVITIES</b>			
Capitalized Organization Costs	(\$2,490,000)		
Purchase of Land	(\$1,550,000)		
Purchase of Plant and Equipment	(\$21,393,187)	(\$5,000)	(\$5,000)
<b>TOTAL CASH FROM (USED IN) INVESTING ACTIVITIES</b>	<u>(\$25,433,187)</u>	<u>(\$5,000)</u>	<u>(\$5,000)</u>
<b>INCREASE (DECREASE) IN CASH</b>	<b>\$1,138,348</b>	<b>\$1,667,695</b>	<b>\$2,011,401</b>
<b>INVESTMENT INCOME</b>			
<b>CASH - BEGINNING OF PERIOD</b>		<u>\$1,138,348</u>	<u>\$2,806,042</u>
<b>CASH - END OF PERIOD</b>	<u>\$1,138,348</u>	<u>\$2,806,042</u>	<u>\$4,817,443</u>



**Eastern**  
Capital, LLC

**MBA**  
MORTGAGE BANKERS ASSOCIATION  
MEMBER

AMERICAN  
ASSOCIATION  
of PRIVATE LENDERS

November 22, 2013

AegeanMed Holdings, LLC  
16805 South Prime Blvd.  
Lockport, IL 60441  
Attn: Dr. Peter & Patty Rumeliotis

Via email

Re: Commitment Letter (Class B/Preferred units)

Dear Sirs:

Eastern Capital, LLC ("ECLLC") is pleased to underwrite a Class B/Preferred unit offering on the following terms and conditions below.

**Financial Terms**

Company:	AegeanMed Holdings, LLC
Offering:	Class B Preferred Units (no voting rights; no control rights; purely income participation);
Property:	16805 South Prime Blvd., Lockport, IL 60441
Collateral:	None

Eastern Capital, LLC  
1230 Peachtree Street N.E. | Suite 1900 Atlanta, GA 30309  
Phone: (404) 942-3338 Toll Free: 1-855-505-0508  
[www.eastern-cap.com](http://www.eastern-cap.com)

Offering Amount: \$8,000,000 USD Preferred / Class B

Return on Investment: 3 - 4%

**1. Disclaimer:**

The Company agrees hereto that no oral or verbal representations have been made whatsoever between the parties herein regarding the terms, conditions, and intent of this Commitment, other than what is written herein. Company are prohibited from transferring, conveying, or assigning any of its rights, title, or interest in this Commitment without first obtaining the express approval of Lender, which approval may be unreasonably withheld.

In the event any disputes arise between the parties to this Commitment, the parties irrevocably agree to have any such dispute settled by a court of competent jurisdiction located in Fulton County, Georgia. This Commitment shall be governed solely by the laws of the State of Georgia.

If any action, suit, proceeding, or investigation is commenced, as to which ECLLC proposes to demand indemnification, it shall notify Company with reasonable promptness; provided, however, that any failure by ECLLC to notify Company shall not relieve Company from its obligations hereunder. ECLLC shall have the right to retain counsel of its own choice to represent it, and Company shall pay the fees, expenses, and disbursements of such counsel; and such counsel shall, to extent consistent with its professional responsibilities, cooperate with Company and any counsel designated by Company. Company shall be liable for any settlement of any claim against ECLLC made with Companys written consent, which consent shall not be unreasonably withheld. Company shall not, without the prior written consent of ECLLC, settle or compromise any claim, or permit a default or consent to the entry of any judgment in respect thereof, unless such settlement, compromise, or consent includes, as an unconditional term thereof, the giving by the claimant to ECLLC of an unconditional release from all liability in respect of such claim.

Neither termination nor completion of the engagement of ECLLC referred to above shall affect these Indemnification Provisions which shall then remain operative and in full force and effect.

Also, Company acknowledges and agrees that their broker/agents will not attempt to contact any agent, appraiser, broker, participant, and/or fund manager that may or will participate in the funding of this project. If such an attempt is made this transaction will be cancelled. There will be no changes, alterations, amendments, or modifications to this Commitment of any kind as none are permitted and the particulars as stated herein are non-negotiable.

Company agrees that all judgments and bankruptcies, now existing or at any time in the past have been disclosed, as well as if there has ever been a judgment, lien or a dispute with the IRS and the present status or resolution of same.

All monetary amounts listed in this agreement are United States Dollars (USD).

## **2. Commitment Expiration**

This Commitment will expire unless it has been accepted by Company in writing and the acceptance received by the undersigned on or before November 29, 2013.

**COMMITMENT:** This Commitment letter will constitute the Commitment between the parties.

This Commitment is communicated only to the Company and may not be transferred by the Company to anyone else. If the terms and conditions outlined in this letter are acceptable, please evidence your acceptance by signing and returning the original copy of this letter via email. Unless we receive your written acceptance within the time specified in this letter, your application and our Commitment will be considered withdrawn.

## **Commitment**

If the enclosed copy of this Commitment is not executed by the Company and delivered to ECLLC no later than November 29, 2013 by 04:00 p.m. local time, this Commitment shall be null and void and at an end and the ECLLC shall have no further obligations hereunder.

Yours very truly,

A. Joseph Tomasso  
Director  
Eastern Capital, LLC  
Direct: (404) 935-4189  
Member: Better Business Bureau  
Member: American Association of Private Lenders  
Member: Mortgage Bankers Association

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*Acceptance*

*The undersigned hereby accept(s) the foregoing Commitment and agree(s) to be bound hereby and to accept the loan if offered on the terms and conditions of this Commitment.*

Accepted this 29<sup>th</sup> day of November, 2013

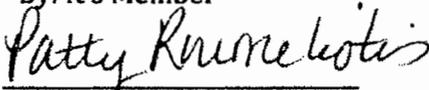
I/WE have the authority to bind the Corporation.



Dr. Peter Roumeliotis  
Guarantor

\_\_\_\_\_  
Signature

By: It's Member



Patty Roumeliotis  
Guarantor

\_\_\_\_\_  
Signature



By: Its President.

\_\_\_\_\_  
Signature



**Eastern**  
Capital, LLC

AMERICAN  
ASSOCIATION  
of PRIVATE LENDERS

MORTGAGE  
BANKERS  
ASSOCIATION

November 25, 2013

AgeanMed Holdings LLC  
16805 South Prime Blvd  
Lockport, IL 60441

Attn: Dr. Peter & Patty Roumeliotis

Via email:

**Re: AgeanMed Transitional Care Center of Lockport (First Mortgage  
Commitment Letter)**

Dear Sirs:

Eastern Capital, LLC ("ECLLC" or "Lender") is pleased to advise you that Lender proposes to extend credit to Borrower(s)/Guarantor(s) for the loan, subject to the terms and conditions below.

**Financial Terms**

<b>Borrower:</b>	<b>AgeanMed Holdings LLC</b>
<b>Guarantor:</b>	<b>Dr. Peter &amp; Patty Roumeliotis</b>
<b>Property:</b>	<b>140 bed Independent/Assisted Living Facility/Skilled Nursing facility</b>

**Eastern Capital, LLC**  
1230 Peachtree Street N.E. | Suite 1900 Atlanta, GA 30309  
Phone: (404) 942-3338 Toll Free: 1-855-505-0508  
[www.eastern-cap.com](http://www.eastern-cap.com)

**Loan Amount:** \$19,560,298 USD or up to 70% of the project's hard costs and including interest reserve.

**Collateral:** First lien on real estate

**Interest Rate:** 7.0%

**Term:** Five (5) year

**Sales Release:**

**Interest Adjustment:** None

**Amortization Period:** 25 years

**Interest Reserve:** Up to \$1,260,000

**Payments:** Equal monthly installments of interest based on the foregoing amortization period on the first day of each month, following the Interest Adjustment Date. Interest to the Interest Adjustment Date will be simple interest, calculated daily and will be payable on the Interest Adjustment Date. Payments will be taken from the interest reserve.

**Realty Taxes:** Borrower will pay to the Lender, on the first day of each month, an amount stipulated by the Lender from time to time sufficient to provide a fund to pay the annual realty taxes on the Property in full at the time the first installment of taxes for each year becomes due, based on estimated annual taxes, and subject to adjustment based on taxes actually levied. Lender may, at its option, withhold from the advance of funds a sum sufficient to create the foregoing fund for the first year of the Term.

**Prepayment:** The Mortgage shall not permit a prepayment penalty during the construction period. For

the mini perm, 5% in year 1, 4% in year 2, 3% in year 3, 2% in year 4, 1% in year 5.

1. **Loan Purpose:** The loan proceeds may be used for the sole purpose of: Purchase, Construction and start-up working capital needs

2. **Security**

The following security shall be required for the Loan:

- (a) a first in priority registered mortgage of the Property, including all improvements and chattels thereon, from the Borrower (the "Mortgage");
- (b) a first in priority general assignment of leases and rents;
- (c) a first in priority specific assignment of any leases considered material by the Lender;
- (d) a first in priority on any existing structure and/or general security Agreement respecting all existing structures and personal property located at or related to the Property, exclusive of tenants' personal property;
- (e) a guarantee and postponement of claim from each Additional Guarantor, if any, (which may be incorporated into the Mortgage); and
- (f) such other security as the Lender may reasonably require (collectively, the "Security Documents"). All the Security Documents shall be in form and content as prescribed by the Lender.

3. **Standard Conditions:**

The Loan is subject to the following special conditions:

- (a) The Lender shall have received an appraisal report for the

Eastern Capital, LLC  
1230 Peachtree Street N.E. | Suite 1900 Atlanta, GA 30309  
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Property addressed to it, prepared by CBRE Inc. / Integra setting out a market value for the Property which is acceptable to the Lender which shall be owned by the Lender exclusively.

- (b) If required by the Lender, an environmental report respecting the Property in form, content and scope acceptable to the Lender shall have been prepared by CBRE Inc. /Integra confirming to the Lender's satisfaction that the Property complies with all applicable environmental laws. This report shall be prepared at Borrower's sole cost. The mortgage document shall contain an environmental indemnity in the Lender's standard form.
- (c) The Borrower shall not further charge or otherwise encumber the Property without the prior written consent of the Lender.
- (d) Rent Roll / Leases: (if applicable) Current Rent Roll. All present and future leases shall be on market terms with lawful rent and terms. If so requested by the Lender: (i) the tenant under, and the form and content of, any existing and future leases shall be subject to the Lender's prior approval; and (ii) the Borrower will deliver, prior to funding, tenant acknowledgments, in form and content satisfactory to the Lender, from any or all tenants of the Property confirming the terms of their respective leases. (if applicable)
- (e) All information on the intake form/commercial application is accurate. Borrower(s)/Guarantor(s) shall meet the Standard Conditions below:
- Full appraisal.
  - Clear Title commitment.
  - Copy of Prior Title Policy.
  - Signed 4506t form for owning entity and guarantor(s).
  - Survey map, plans and specifications, builder profile.
  - Bio and resume of builder.
  - Complete use of funds including construction costs.
  - Subject property must be fully entitled.
  - Plans, permits, and engineering must be completed so that construction can begin without additional plans, permits or engineering.

- Borrower(s) must have been granted all necessary permits to begin construction.
- Any and all other documents required by Lender to close this loan must be provided in fifteen (15) business days. These documents must be complete and accurate.

4. Closing Conditions

The Loan is also subject to the following closing conditions:

- (a) **Title Insurance:** the Lender shall have obtained, at the Borrower's expense, a title insurance policy for the Property from a title insurance company which is acceptable to the Lender, and with such endorsements and exclusions, as approved or required by the Lender.

A mortgagee title insurance policy in the amount of the loan issued by a company acceptable to the Lender licensed to do business in the State of Illinois. The title insurance policy must insure that those signing the Mortgage have a marketable fee simple interest in the property and that our Mortgage constitutes a valid and enforceable first lien upon the property. Lender's lien must not be subject or subordinate to any prior liens, encumbrances, restrictions, or exceptions objectionable to Lender. You must furnish the Lender with a copy of the title insurance binder prior to closing along with copies of all exceptions noted in the title binder.

- (b) **Insurance:** The Borrower shall maintain "all risks" property damage insurance on a stated amount, replacement cost basis, with no co-insurance provision, liability insurance of at least \$19,560,298 million, and rental insurance for a period of at least 12 months with respect to the Property, all with a company or companies approved by the Lender and in amounts and with endorsements and deductibles satisfactory to the Lender. All property damage policies shall contain the standard IBC mortgage clause and shall show loss payable to the Lender as first mortgagee. The Lender shall be entitled to require from time to time such additional insurance as it may deem advisable, acting reasonably. The Borrower shall provide the Lender with a copy of the renewal of each such policy of insurance annually. Review of such policies shall be performed by the Lender's insurance consultant. At the time of funding, the expiry date of each of the insurance policies required hereunder shall be at least one year from the date of funding.

- (c) Use of Property: The Borrower shall deliver to the Lender confirmation from all applicable governmental bodies that the existing use if it is to continue or the proposed use as applied for is lawful.
- (d) Closing Deliveries: In addition to items required elsewhere and below in this Commitment, the Borrower shall also deliver the following Closing Conditions within 15 business days to processing in advance of funding: list will be emailed by processing.
- (i) If so requested by the Lender, complete copies of all existing leases, together with all related renewals, amendments, assignments, guarantees, indemnities or other Agreements;
  - (ii) Certificates of insurance (or certified copies if so required by the Lender) evidencing compliance with Section 4(b) hereof;
  - (iii) List of all encumbrances, debts or other obligations of the Borrower required to be paid from the advance of this Loan with appropriate supporting documentation (if applicable);
  - (iv) For the Borrower and any corporate Additional Guarantor, a Certificate of Status issued by the applicable provincial/state authority evidencing due incorporation and continuing existence; and corporate books and records, share certificates, operating Agreements and security Agreements in effect, if any;
  - (v) Such financial and other information, reports, statements and documents as the Lender may reasonably require in connection with the underwriting or closing of the Loan.
  - (vi) The borrower shall supply all appropriate supporting and confirming documentation regarding all representations to ECLLC.
- (e) Liens: The Borrower shall have complied fully with the requirements of any applicable construction, mechanics' or builders' lien legislation and provided the Lender with evidence of same. The Lender may retain from any disbursement such amounts as it considers advisable to protect its interest from subordination under such legislation.

**Eastern Capital, LLC**

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- (f) **Financial Information:** The Borrower shall provide the Lender annually with an income and expense statement for the Property, an updated rent roll containing relevant lease terms for the Property, and such additional financial information as the Lender may request, all satisfactory to the Lender in form and content. In addition, and so often as requested by the Lender, the Borrower shall provide the Lender with up-to-date financial statements and/or personal net worth statements for each Additional Guarantor and such other financial information respecting any Additional Guarantor as the Lender may request, all satisfactory to the Lender in form and content.
- (g) **Transfer of Property:** If the Borrower sells, conveys, transfers or enters into any Agreement for sale or transfer of the Property, or if there is any change in the effective voting control of the Borrower, without the prior written consent of the Lender, in its reasonable discretion, the entire outstanding amount due under the Mortgage together with accrued interest thereon shall, at the option of the Lender, forthwith become due and payable.
- (h) **No Default:** At the time of disbursement of the Loan, the Borrower shall not be in default hereunder or under the Mortgage nor shall the Borrower or any Additional Guarantor be deceased or insolvent or be the subject of any bankruptcy, arrangement with creditors, proposal, amalgamation, reorganization, liquidation, winding-up, dissolution, receivership, payment defaults or material litigation.
- (i) **Additional Guarantors:** The Additional Guarantors, if any, shall be jointly and severally liable with the Borrower and with each other for all obligations of the Borrower under this Commitment and under the Loan.
- (j) **Late Charges:** Lender will assess a late payment charge of 5% of the unpaid balance of any payment which is at least 16 days past due.
- (k) **Guaranty:** As offered by you and accepted by Lender, an unconditional continuing guaranty will be signed by Dr. Peter & Patty Roumeliotis. Each unconditional continuing guaranty will contain such terms, conditions, representations and warranties as may be required.

5. Commitment Deposit

- (a) At time of signing the Commitment a deposit of \$9,500.00 USD will be paid.
- (b) A Loan Fee of 2.0% of the total loan amount will be paid at closing to ECLLC.

6. Cancellation of Commitment

This Commitment may be cancelled because of the failure for any reason of the Borrower or any Additional Guarantor to satisfy any of the conditions or requirements hereof, the Lender has not been able to fully disburse the Loan Amount on or before December 31, 2013 (the "Close Out Date"). The Commitment may also be cancelled in the event of the inaccuracy of any information provided by the Borrower or its agent or of any material adverse change in the Borrower, any Additional Guarantor or the Property or its cash flow prior to disbursement of funds hereunder.

7. Expenses

The Lender will use its own attorney, broker/administrator and property inspector, forensic examination on the Lender's behalf, at the expense of the Borrower. Whether or not the Loan Amount is disbursed, and notwithstanding retention of the Commitment deposit by the Lender of all the Lender's costs and expenses relating to the Loan are the responsibility of the Borrower, who shall be responsible for any commission, brokerage fee or finder's fee. All such costs and expense shall be payable on demand and may be deducted from the disbursement of funds under the Mortgage. If not paid, at the Lender's option, such costs and expense may be added to the outstanding principal balance of the Mortgage and shall bear interest at the Interest rate under the Mortgage until paid.

- (a) Commitment deposit; the borrower shall pay upon the execution of the Commitment a nonrefundable Commitment deposit of \$9,500.00 USD. In the event that the borrowers comply with the terms of the Commitment yet ECLLC declines to provide funding, this fee shall be fully refundable.
- (b) The Lender will use its own attorney to close the loan on the Lender's behalf. The Borrower(s) / Guarantor(s) understand they are responsible for the legal fees.

8. Third party costs:

Borrower(s)/Guarantor(s) are responsible for any and all applicable third party reports, costs and/or expenses, which may or may not include surveys, environmental report(s), site and structural inspection(s), forensic examination, appraisal(s), to be done by either C.B. Richard Ellis or Integra and to be ordered and owned by Lender, appraisal review and /or updates, an independent underwriting report, including but not limited to any Investor's fees, legal fees, commitment fee to be paid at time of acceptance of commitment, and any and all costs associated with title to close this transaction.

All particulars contained herein are subject to change to accommodate any and all events and information realized during processing and is subject to the absolute discretion of Lender. Lender reserves the absolute right, authority, and discretion to provide subject financing as presented above by (i) corresponding with other direct lenders, (ii) assigning, transferring, or conveying its rights, title, and interest in this Commitment to any third party of its choosing, which may also provide financing to Borrower(s)/Guarantor(s).

9. Commitment Deposit

Upon acceptance of this Commitment, by Borrower's signature, Borrower shall pay to ECLLC by wire transfer a Commitment deposit of \$9,500.00 USD. Upon disbursement of the entire loan amount the Commitment Deposit will be credited back to the Borrower(s) without interest. If ECLLC fails to provide funding through no fault of the borrower, ECLLC will provide a refund of ECLLC's fees. However, if the borrower makes any false representation, fails to meet the requirements set forth in this Commitment, or fails to accept a letter of commitment offered, all funds received will be deemed earned and no refund will be made.

10. Right of First Refusal on Maturity

If the Borrower obtains an offer which it is willing to accept from another Lender to provide financing for the Property on maturity of the Term (the "Third Party Offer"), it shall provide a copy of such financing offer to the Lender and the Lender will have 5 business days to provide a written offer to finance to the Borrower on the same terms and conditions as are contained in the Third Party Offer. If the Lender does so, then the Borrower shall accept such offer to finance from the Lender.

11. Waivers

Except as otherwise expressly provided herein, this Commitment cannot be waived, changed, amended, discharged or terminated other than in writing signed by the party against whom enforcement of any waiver, change, amendment, discharge or termination is sought. Any approvals or consents required to be made or given by the Lender must be expressly given pursuant hereto and shall not be construed by the delivery or receipt of documents.

12. Entire Commitment

This Commitment, when accepted by the Borrower, together with the Security Documents and any other documents delivered on closing of the Loan transaction, will constitute the entire Commitment and understanding between the parties with respect to the Loan and supersede all other Commitments, understandings or Commitments, oral or written.

13. Representations and Warranties of Borrower

By signing this Commitment, you represent and warrant to the Lender as follows:

Your loan application, financial statements, copies of tax returns and other information you previously submitted to us or broker(s) are true and complete and accurately reflect your financial condition and income. You do not have any undisclosed direct or contingent liabilities.

There are no judgments, liens, encumbrances, penalty assessments, or other security interests outstanding against you or any of your properties other than those in favor of the Lender, except as disclosed to us on the financial statements you previously submitted. There are no pending or threatened enforcement proceedings or litigation against you or any of your properties.

There has been no material change in your financial condition since the date of the financial statements you submitted to us.

You have been validly organized, are in good standing in the state of your organization and are duly authorized to transact business in the State of Illinois and in all other states in which you are doing business.

You have full power and authority to enter into this Commitment and borrow money as contemplated by this Commitment. When executed and delivered to us,

the loan documents will be valid, legal and binding obligations of the Borrower.

Until the loan is paid in full, you will not declare or pay any dividends except from your current year's net profits without Lenders prior written consent. Any dividends paid by you will be paid only after providing for the payment of all accrued taxes and debt service. You will not declare or pay any dividend if an Event of Default exists or a condition exists which, with the lapse of time and/or notice would become an Event of Default.

Until the loan is paid in full, you will have no material change in ownership unless agreed by Lender in writing to such a change.

Without prior written consent, you will not incur any additional indebtedness and will not mortgage, pledge, encumber, grant any security interest in, or transfer any of your assets, whether now owned or hereafter acquired, except in the ordinary course of business. As all assets shall form part of the first charge security pledged.

Until the loan is paid in full, you must maintain general public liability insurance acceptable to us in an amount of no less than \$19,560,298.

14. Representations and Warranties of Each Guarantor

By signing this Commitment, each Individual Guarantor and each Corporate Guarantor represents and warrants to the Lender as follows:

The financial statements and copies of any tax returns of each Individual Guarantor and each Corporate Guarantor previously submitted to the Lender are true and complete and accurately reflect the financial condition and income of that Individual Guarantor or Corporate Guarantor. Each Individual Guarantor and each Corporate Guarantor does not have any undisclosed direct or contingent liabilities.

There are no judgments, liens, encumbrances, penalty assessments, or other security interests outstanding against any Individual Guarantor and any Corporate Guarantor or any of the Individual Guarantors' and Corporate Guarantors' property other than those in favor of the Lender, except as disclosed to the Lender on the financial statements previously submitted. There are no pending or threatened enforcement proceedings or litigation against any Individual Guarantor and any Corporate Guarantor or any of the Individual Guarantors' and Corporate Guarantors' property.

There has been no material change in the financial condition of any Individual

Guarantor or any Corporate Guarantor since the date of the financial statements submitted by that Individual Guarantor or Corporate Guarantor to the Lender.

Each Corporate Guarantor has been validly organized, is in good standing in the state of its organization and is duly authorized to transact business in the State of Illinois and in all other states in which they are doing business.

Each Individual Guarantor and each Corporate Guarantor has full power and authority to execute the unconditional continuing guaranty of the Borrower's indebtedness to the Lender. When executed and delivered to the Lender, the guaranty will be a valid, legal and binding obligation of each Individual Guarantor and each Corporate Guarantor.

Without our prior written consent, each Individual Guarantor will not incur any additional indebtedness other than for ordinary household and living expenses and will not mortgage, pledge, encumber, grant any security interest in, or transfer any of the Individual Guarantor's assets, whether now owned or hereafter acquired, except in the ordinary course of business.

Without prior written consent, each Corporate Guarantor will not incur any additional indebtedness and will not mortgage, pledge, encumber, grant any security interest in, or transfer any of the Corporate Guarantor's assets, whether now owned or hereafter acquired, except in the ordinary course of business.

#### 15. Real Property Requirements

The repayment of your loan will be secured, at least in part, by a mortgage on real property. Prior to the loan closing, Lender must receive, review and approve the following:

**Appraisal:** A current appraisal of the property prepared by appraiser licensed in the State of Illinois, selected by the lender. The appraisal must satisfy all applicable regulatory standards. You will bear all costs of the appraisal. You are required to remit the cost of the appraisal directly to the appraisal company. We reserve the right to adjust the actual amount of the loan if there is a material change in the value of the collateral. The Lender's appraisal department will review the appraisal to confirm the appraised value of the property "currently" is a minimum of 22,000,000.00. Upon completion of a 140 bed Independent/Assisted Living Facility/Skilled Nursing facility the appraised value will be not less than \$25,800,000.00. The Lender's contribution to the project

cannot exceed 70% of the project's hard costs.

**Survey:** A current survey of the property or Recorded Plat, prepared, certified and sealed by a professional engineer or registered land surveyor licensed by the State of Illinois. The survey must show, among other things, the boundaries of the property, the location of all improvements, and all rights-of-way, easements, encroachments and similar matters affecting the property.

**Title Examination:** A title examination by an attorney approved by the Lender who is licensed to practice in the State of Illinois. The title opinion must certify that the owners of the property (all of whom will be required to sign the mortgage) have marketable fee simple title to the property. The title opinion may not reveal any existing liens, encumbrances, restrictions or exceptions objectionable to the Lender, unless they are satisfied or removed at or prior to closing.

**Copies of Documents Affecting Title:** A copy of all restrictions, easements, covenants and declarations affecting the property, including documents relating to any owners' association.

**Flood Hazard:** Certification by a Flood Data Services, Inc. that the property which will serve as the Lender's collateral is not located within a flood hazard area or, if the property is located within a flood hazard area, a flood insurance policy satisfactory to the Lender. Lender will order the certification. You will be responsible for paying the fee for the certification.

**Access:** Satisfactory proof of legal access to the property acceptable to the Lender over a recorded right-of-way or a public road. Acceptable access to the property must be insured by the title insurance policy.

**Zoning:** Written evidence that the property and its intended use are in compliance with all applicable zoning ordinances and land use laws and regulations without regard to any conditional or nonconforming use permit. At our option, this evidence may consist of a certification from the appropriate governmental authority, a legal opinion from an attorney satisfactory to us, or a zoning endorsement to a title insurance policy.

**Liability Insurance:** Evidence of general liability insurance in such form and amount as we may require. The policy must be issued by a company approved by Lender which is licensed to do business in the State of Illinois.

**Assignment of Leases, Rents and Profits:** An assignment of leases, rents and

profits, together with copies of all existing leases affecting the property. Any leasing commissions relating to the property must be paid in full prior to the loan closing with evidence of payment furnished to Lender. Estoppel letters may be required for each tenant. Rents may not be prepaid by more than 30 days.

If any Borrower or Guarantor is a partnership, you must deliver to the Lender prior to the loan closing, a certified copy of the Partnership/Operating Agreement and all amendments thereto, together with Loss of Rents and/or Business Interruption Insurance. Loss of rents and/or business interruption insurance covering a minimum of 12 months' income.

**Due-on-Sale Clause:** The Mortgage will contain a "due-on-sale" clause which authorizes Lender to accelerate the indebtedness if you sell or transfer the property or any interest in the property without Lenders prior written consent.

**Site Inspection:** Lender reserves the right to inspect the property from time to time. "ECLLC, LLC, its successors and assigns, as their interests may appear."

#### 16. **Opinion of Counsel**

At closing, Lender will require Borrower's counsel to provide Lender with a favorable written opinion in such form and content as is satisfactory to the Lender addressing the following matters:

Confirmation that each individual who signed Loan Documents was, at the time of signing, (i) competent, (ii) of legal age, (iii) acting freely and voluntarily, and (iv) not acting under duress or undue influence.

Confirmation that each corporation, partnership, limited partnership, and limited liability company executing the Loan Documents was, at the time of execution, (i) validly organized and in good standing in the state of its organization and (ii) duly authorized to transact business in the State of Illinois and in any other state in which it is engaged in business.

Confirmation that those individuals who signed the Loan Documents on behalf of any corporation, partnership, limited partnership, or limited liability company did so with full and proper authority in such manner as to legally bind the business entity.

Confirmation that the Loan Documents have been properly executed and delivered and constitute the legal, valid and binding obligations of the parties thereto enforceable in accordance with their terms.

**LOAN DOCUMENTS:** The closing of the loan is contingent upon the proper execution and delivery of all of the loan documents the Lender believes are reasonably appropriate or required for this loan transaction (the "Loan Documents"). The Lender, in its sole discretion, will determine the form, terms and conditions of the Loan Documents. The Loan Documents routinely used in connection with loan closings include the note; security instruments (to include Mortgage, security Commitments, pledges, assignments, financing statements, etc.) guaranty Agreements, and various verifications and certifications. At the present time, the Lender has not identified all of the Loan Documents which it may be required in connection with this loan transaction.

17. **Confidentiality**

The terms of this loan Commitment are confidential. You agree not to disclose the contents of this Commitment to any other lender or third party.

18. **Survival of Commitment**

The terms and conditions of this Commitment shall continue in effect as long as any part of the Loan Amount remains outstanding and shall bind the personal representatives, heirs, successors and assigns of the Lender, Borrower and each Additional Guarantor if any, and shall inure to the benefit of the successors and assigns of the Lender, the Borrower, and each Additional Guarantor. In the event of any express conflict or inconsistency between the provisions of this Commitment and the provisions of the Security Documents, the Lender shall be entitled to choose which provisions shall prevail.

19. **Assignment**

Neither this Commitment nor any of the Loan proceeds may be assigned by the Borrower. This Commitment and the Loan may be assigned by the Lender without the consent of the Borrower and upon effective assignment, the undersigned shall no longer be liable or obligated at law or otherwise. The Borrower and each Additional Guarantor, if any, acknowledges that the Loan (or securities or certificates backed by or representing any interest in the Loan or a pool of Loans which includes the Loan) may be sold or securitized into the secondary market without restriction and without notice to or consent of the Borrower or any Additional Guarantor. The Borrower and each additional Guarantor hereby irrevocably consents to the release and disclosure of any financial or other information concerning the Borrower, any Additional Guarantor, the Property or the Loan in the course of any such assignment, sale or securitization.

20. No Agency

The Borrower acknowledges that the Lender may assign this Commitment to a third party and if it does so may receive a fee or commission in connection with such assignment. The Lender is not acting as the Borrower's agent or otherwise in any fiduciary capacity in relation to the Borrower in connection with the Loan.

21. Further Assurances

The Borrower and each Additional Guarantor, shall, at the Lender's request, execute or deliver such further documentation and enter into such other Agreements as are necessary or desirable for the securing of the Loan and the fulfillment of the terms contained herein.

22. Credit Investigations

The Borrower and each Additional Guarantor, if any, hereby authorizes the Lender or its representatives to make inquiries concerning its character, general reputation, personal characteristics, financial and credit date, including that of its respective directors, officers, shareholders and principals and to verify any information provided to the Lender hereunder through WestLaw and credit bureaus, all for the purpose of underwriting the Loan. The Lender must be satisfied at the Lender's sole discretion.

23. Proceeds of Crime (Money Laundering) and Terrorist Financial Act

Pursuant to the *Proceeds of Crime (Money Laundering) and Terrorist Financing Act and/or The Patriot Act* (the "Act"), the Lender is required to ask for "identification" of the Borrower, the Additional Guarantors and any third party involved in the transaction, and for information with respect to the source of funds used in connection with the Borrower's equity in the Property. The Borrower and each Additional Guarantor hereby covenant and agree to provide, within 5 days of acceptance of this Commitment, such "identification" and information as may be reasonably required to ensure the Lender's compliance with the Act.

24. Material Changes

If at any time before the Date of Advance there is or has been any material change, discrepancy or inaccuracy in any information, statements,

representations or warranties made or furnished to the Lender by or on behalf of the Borrower or upon the occurrence of any Event of Default under this Commitment which cannot be or is not rectified or nullified by the Borrower to the Lender's satisfaction within ten (10) days after written notification thereby by the Lender to the Borrower or the Lender's due diligence investigations regarding the *The Patriot Act* produces a materially adverse result, the Lender shall be entitled forthwith to withdraw and cancel its obligations hereunder and to declare any funds which have been advanced, together with interest and other amounts, to be forthwith due and repayable in full.

25. Privacy

The Borrower and each additional Guarantor agrees that the Lender may share any information concerning the Borrower or any Additional Guarantor, as the case may be, with (a) any assignee or proposed assignee of this Commitment or the Loan, (b) the Lender's duly authorized agents or representatives who are engaged in the processing or servicing of the Loan and (c) organizations with which the Lender has strategic alliances who may use such information to provide the Borrower or any additional Guarantor with information on certain financial products which may be of interest to them. If the Borrower or any Additional Guarantor decides it does not wish its personal information shared with any party referred to in subsection (c) of this Section 25, it may so advise the Lender in writing at any time and the information will not be so shared.

26. Governing Law

This Commitment shall be governed by the laws of the State of Georgia in Fulton County.

27. Interpretation

- (a) The necessary grammatical changes required to apply to the parties hereto shall be assumed as though expressed.
- (b) The headings of all provisions herein are inserted as a matter of convenience only and are not intended to define the intent of this document.
- (c) "Hereto", "herein", "hereunder", "hereof", "hereby", "this Commitment", "this Commitment" and similar expressions used in this Commitment mean or refer to this Commitment as a whole and not to any particular provisions, section or paragraph or other

portion of this Commitment and include any instruments supplemental or auxiliary hereto.

- (d) "Identification" documents that provide full legal name must accompany this Commitment (*do not provide original documents*). They will not be returned. A Notary Public or Commissioner for Taking Affidavits must certify copies of the documents as true copies. You must submit three of the following documents with this Commitment.
  - (i) Birth Certificate
  - (ii) Passport
  - (iii) Driver's License
  - (iv) Social Security Card
  - (v) Certificate of Naturalization

If you have changed your name, you must also submit one of the following documents:

- (vi) Official Name Change - Borrowers/Guarantors must also submit three of (i), (ii), (iii), (iv) or (v).
  - (vii) Marriage Certificate - Must only be submitted by those applicants who adopted spousal surname. Borrowers/Guarantors must also submit three of (i), (ii), (iii), (iv) or (v).
- (e) Time shall be of the essence hereof.

## 28. Counterparts

This Commitment may be executed in counterparts and/or delivered by email transmission and if so executed and/or delivered it shall be as binding as if all the parties had executed the same document and/or delivered original copies thereof.

29. **Syndication:**

Borrower(s) understands that ECLLC intends to syndicate the Facility to other investors through direct assignments and agrees to actively assist ECLLC in achieving a successful syndication of the Facility.

30. **Non-Disparagement:**

Borrower(s) and Guarantor(s) shall not make any false or disparaging statement regarding ECLLC or Lender or its business, officers, directors, or employees, whether in writing, verbally, or by electronic media (e.g., Internet websites, Twitter, Facebook, etc.). Borrowers and Guarantors will also use their best efforts to prevent any third parties from making such statements on the internet and agree that these dealings with Eastern are confidential and cannot be disclosed without the written consent of both parties. By directly or indirectly making such statements Borrowers and Guarantors waive your rights to the confidentiality of your information provided to Eastern.

31. **Disclaimer:**

The Borrower(s)/Guarantor(s) agree hereto that no oral or verbal representations have been made whatsoever between the parties herein regarding the terms, conditions, and intent of this Commitment, other than what is written herein. Borrower(s)/Guarantor(s) are prohibited from transferring, conveying, or assigning any of its rights, title, or interest in this Commitment without first obtaining the express approval of Lender, which approval may be unreasonably withheld.

In the event any disputes arise between the parties to this Commitment, the parties irrevocably agree to have any such dispute settled by a court of competent jurisdiction located in Fulton County, Georgia. This Commitment shall be governed solely by the laws of the State of Georgia.

If any action, suit, proceeding, or investigation is commenced, as to which ECLLC proposes to demand indemnification, it shall notify Borrower(s) with reasonable promptness; provided, however, that any failure by ECLLC to notify Borrower(s) shall not relieve Borrower(s) from its obligations hereunder. ECLLC shall have the right to retain counsel of its own choice to represent it, and Borrower(s) shall pay the fees, expenses, and disbursements of such counsel; and such counsel shall, to

extent consistent with its professional responsibilities, cooperate with Borrower(s) and any counsel designated by Borrower(s). Borrower(s) shall be liable for any settlement of any claim against ECLLC made with Borrower(s)' written consent, which consent shall not be unreasonably withheld. Borrower(s) shall not, without the prior written consent of ECLLC, settle or compromise any claim, or permit a default or consent to the entry of any judgment in respect thereof, unless such settlement, compromise, or consent includes, as an unconditional term thereof, the giving by the claimant to ECLLC of an unconditional release from all liability in respect of such claim.

Neither termination nor completion of the engagement of ECLLC referred to above shall affect these Indemnification Provisions which shall then remain operative and in full force and effect.

Borrower(s)/Guarantor(s) agree and acknowledge that the estimates contained in this Commitment and the particulars thereto and engagement of the parties hereto are approximate and Borrower(s)/Guarantor(s) will place no reliance whatsoever on the above rates and terms until such time that a final and formal loan commitment and/or formal loan approval is issued. Borrower(s)/Guarantor(s) acknowledge that Lender expressly reserves the right to syndicate or to participate in this transaction.

Borrower(s) and Guarantor(s) acknowledge and agree that they will not attempt to contact any agent, appraiser, broker, participant, and/or fund manager that may or will participate in the funding of this project. Also, Borrower(s) and Guarantor(s) acknowledge and agree that their broker/agents will not attempt to contact any agent, appraiser, broker, participant, and/or fund manager that may or will participate in the funding of this project. If such an attempt is made this transaction will be cancelled and all fees paid will be deemed earned. There will be no changes, alterations, amendments, or modifications to this Commitment of any kind as none are permitted and the particulars as stated herein are non-negotiable, unless agreed to in writing by all applicable parties.

Borrower(s)/Guarantor(s) agree that all judgments and bankruptcies, now existing or at any time in the past have been disclosed, as well as if there has ever been a judgment, lien or a dispute with the IRS and the present status or resolution of same.

All monetary amounts listed in this agreement are United States Dollars (USD).

32. Commitment Expiration

This Commitment will expire unless it has been accepted by you and each named Guarantor in writing and the acceptance received by the undersigned on or before November 29, 2013.

**COMMITMENT:** This Commitment letter will constitute the Commitment between the parties.

This Commitment is communicated only to the Borrower and may not be transferred by the Borrower to anyone else. If the terms and conditions outlined in this letter are acceptable, please evidence your acceptance by signing and returning the original copy of this letter via email. Unless we receive your written acceptance with the time specified in this letter, your application and our Commitment will be considered withdrawn.

Commitment

If the enclosed copy of this Commitment is not executed by the Borrower and each Additional Guarantor and delivered to ECLLC together with the Commitment, and Commitment deposit no later than November 29, 2013 by 04:00 p.m. local time, this Commitment shall be null and void and at an end and the ECLLC shall have no further obligations hereunder, unless Lender shall otherwise expressly agree in writing whether before, on, or after such date.

Yours very truly,

A. Joseph Tomasso  
Director  
Eastern Capital, LLC  
Direct: (404) 935-4189  
Member: Better Business Bureau  
Member: American Association of Private Lenders  
Member: Mortgage Bankers Association

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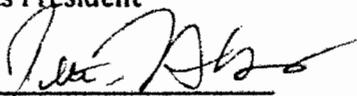
**Acceptance**

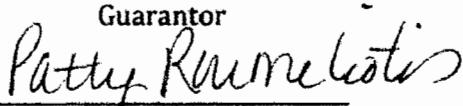
**The undersigned hereby accept(s) the foregoing Commitment and agree(s) to be bound hereby and to accept the loan if offered on the terms and conditions of this Commitment.**

Accepted this 29<sup>th</sup> day of November, 2013

I/WE have the authority to bind the Corporation.

  
\_\_\_\_\_  
AegeanMed Holdings Inc. Signature

By: Its President  
  
\_\_\_\_\_  
Peter Roumeliotis Signature  
Guarantor

  
\_\_\_\_\_  
Patty Roumeliotis Signature

By: Its  
\_\_\_\_\_  
Signature  
Guarantor

**WIRE INSTRUCTIONS**

**BANK NAME:** WELLS FARGO BANK, N.A.  
420 MONTGOMERY STREET  
SAN FRANCISCO, CA 94104

**ACCOUNT NAME:** EASTERN CAPITAL, LLC  
1230 PEACHTREE STREET  
SUITE 1900  
ATLANTA, GA 30309

**ACCOUNT #:** 5613990745

**ABA#** 121000248

Upon wiring please send wire confirmation with the project name to  
[kated@eastern-cap.com](mailto:kated@eastern-cap.com)

**THIS HELPS US TO IDENTIFY WHAT YOUR DEAL IS.**

**THANK YOU**

Eastern Capital, LLC  
1230 Peachtree Street N.E. | Suite 1900 Atlanta, GA 30309  
Phone: (404) 942-3338 Toll Free: 1-855-505-0508  
[www.eastern-cap.com](http://www.eastern-cap.com)



15 January 2014

Illinois Health Facilities and Services Review Board  
525 West Jefferson Street, Second Floor  
Springfield, IL 62761

To Whom It May Concern:

I am writing this letter in support of the proposed AegeanMed Transitional Care Center of Lockport's application to construct and operate a 110-bed skilled nursing facility in Will County, Illinois.

As a physician serving Lockport and the surrounding communities, I am familiar with the growing population of this area and the corresponding need to ensure quality health care for a growing population of residents.

Being able to discharge our patients to skilled nursing facilities closer to home is surely a desired goal for patients and the families that care for them. We are confident as well that AegeanMed Transitional Care Center of Lockport will provide a valuable service to the community members of the area.

Based on recent experience, I could refer over 50 patients per year from this area to the AegeanMed Transitional Care Center of Lockport for skilled nursing and/or rehabilitation. I have served over 300 patients who have received care at existing skilled nursing facilities in the past year.

The prospective resident referrals used in this application for AegeanMed Transitional Care Center of Lockport have not been used to support another pending or approved CON application for general long-term care services.

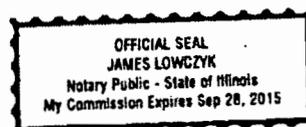
AegeanMed Healthcare Project Number 13-048

I fully support the proposed facility.

Sincerely

 A handwritten signature in black ink, appearing to read 'Bhavesh Gandhi'.
 

Dr. Bhavesh Gandhi



A handwritten signature in black ink, appearing to read 'James Lowczyk'.

16151 Weber Road, Suite 101 Crest Hill, Illinois 60403

815.773.7827

presencehealth.org

Sponsored by the Franciscan Sisters of the Sacred Heart, the Servants of the Holy Heart of Mary, the Sisters of the Holy Family of Nazareth, the Sisters of Mercy of the Americas and the Sisters of the Resurrection

This fax was received by GFI FaxMaker fax server. For more information, visit: <http://www.gfi.com>

**INDIVIDUAL ACKNOWLEDGMENT**

State/Commonwealth of IL } ss.  
County of Will }

On this the 15th day of JANUARY, 2014, before me,  
Day Month Year

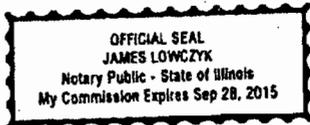
JAMES LOWCZYK, the undersigned, Notary Public,

personally appeared Bhavesh Gordi  
Name of Notary Public Name(s) of Signer(s)

- personally known to me - OR -
- proved to me on the basis of satisfactory evidence

to be the person(s) whose name(s) is/are subscribed to the within instrument, and acknowledged to me that he/she/they executed the same for the purposes therein stated.

WITNESS my hand and official seal.



James Lowczyk  
Signature of Notary Public

Place Notary Seal/Stamp Above

Any Other Required Information  
(Printed Name of Notary, Expiration Date, etc.)

**OPTIONAL**

Not required by law, this information can be useful to those relying on the document and prevent fraud.

**Description of Any Attached Document**

Title or Type of Document: \_\_\_\_\_

Document Date: \_\_\_\_\_ Number of Pages: \_\_\_\_\_

Signer(s) Other Than Named Above: \_\_\_\_\_

RIGHT THUMBPRINT OF SIGNER #1	RIGHT THUMBPRINT OF SIGNER #2
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15 January 2014

Illinois Health Facilities and Services Review Board  
525 West Jefferson Street, Second Floor  
Springfield, IL 62761

To Whom It May Concern:

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As a physician serving Lockport and the surrounding communities, I am familiar with the growing population of this area and the corresponding need to ensure quality health care for a growing population of residents.

Being able to discharge our patients to skilled nursing facilities closer to home is surely a desired goal for patients and the families that care for them. We are confident as well that AegeanMed Transitional Care Center of Lockport will provide a valuable service to the community members of the area.

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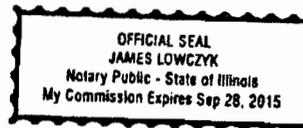
The prospective resident referrals used in this application for AegeanMed Transitional Care Center of Lockport have not been used to support another pending or approved CON application for general long-term care services.

AegeanMed Healthcare Project Number 13-048

I fully support the proposed facility.

Sincerely,

  
Dr. Marc Kantar





**INDIVIDUAL ACKNOWLEDGMENT**

State/Commonwealth of IL } ss.  
County of Will }

On this the 15th day of January, 2014, before me,  
Day Month Year

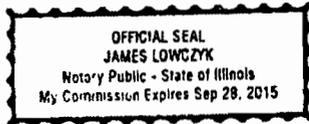
James Lowczyk, the undersigned Notary Public,  
Name of Notary Public

personally appeared Marc Kantar  
Name(s) of Signer(s)

- personally known to me - OR -
- proved to me on the basis of satisfactory evidence

to be the person(s) whose name(s) is/are subscribed to the within instrument, and acknowledged to me that he/she/they executed the same for the purposes therein stated.

WITNESS my hand and official seal.



James Lowczyk  
Signature of Notary Public

Place Notary Seal/Stamp Above

Any Other Required Information  
(Printed Name of Notary, Expiration Date, etc.)

**OPTIONAL**

Not required by law, this information can be useful to those relying on the document and prevent fraud.

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Signer(s) Other Than Named Above: \_\_\_\_\_

RIGHT THUMBPRINT OF SIGNER #1	RIGHT THUMBPRINT OF SIGNER #2
Top of thumb here	Top of thumb here

## **Purpose of Project**

1. The Applicant proposes to construct and operate AegeanMed Transitional Care Center of Lockport, a short-term skilled rehabilitation skilled nursing facility offering post-acute rehabilitation services for patients with high rehabilitation and complex care needs, focusing on high acuity patients. This facility will consist of 110 beds permitted under the general long-term care category and 30 recovery suites to be licensed as assisted living. AegeanMed Transitional Care Center of Lockport will be located near the intersection of 167<sup>th</sup> Street and Prime Boulevard in Lockport, Will County, Illinois.

AegeanMed Transitional Care Center will be a state-of-the art facility with coordination of care across acute and post-acute settings with the goal of generating positive outcomes at a substantially lower cost. The facility will be differentiated from other traditional skilled nursing facilities in that we will offer mainly private rooms with a hospitality-focused design. AegeanMed is innovative in its approach to partner with hospitals and physicians in offering intensive therapy through patient-focused clinical pathways with the ultimate goal of improving outcomes, preventing readmissions, and returning the patients home.

Our specialized services will include cardiopulmonary rehabilitation; neurological and physical rehabilitation, including strokes, neuromuscular diseases; orthopedic rehabilitation; post-operative surgical care, including general surgery, ENT; cardiac and neurological surgeries; nutritional support, including enteral feedings, diabetic teaching; infectious diseases, including IV infusion therapy, wound care; and oncological patients requiring strengthening.

2. The market area is planning area 9 - Will County Illinois.

3. Existing problems that exist that will be addressed by the proposed project include:

- Readmission to hospitals from nursing homes is too high. ObamaCare has created an incentive for hospitals to choose high quality post-acute care providers capable of accepting high acuity patients without abnormally high levels of readmissions.
- Since 1980 the average length of stay (ALOS) in a hospital for those over the age of 65 decreased from 10.7 days to 5.5 days. As a result of the shortened stays, patients are being discharged more quickly and with more intense post-acute care needs. This trend will continue as cost containment efforts are refined.
- Approximately 35% of the rapidly growing age 65+ population are admitted to a hospital each year. In the market area, this population will grow from 69,807 in 2013 to 83,427 in 2018 for a growth of 19.5%. This is on top of dramatic growth from 2000 of 68%!
- In 2009 SNF revenue for short-term stays (generally less than 30 days, paid for by insurers, managed care companies and Medicare) will exceed \$40B (28% of their total revenue). By 2018 expenditures on short-term SNF stays are projected to grow to \$60B (25%). Rehab Hospitals and Long Term Hospitals generate another \$15B in revenue as providers of post-acute.
- Many existing skilled nursing facilities have an undesirable product, particularly for the patient age under 65 years. For example, these facilities typically have semi-private rooms and shared showers.

4. Sources of information for above:

Centers for Medicare & Medicaid Services  
Nielsen Claritas, Inc.

5. Detail of how the proposed project will address the above listed problems:

AegeanMed Transitional Care Center will focus on high acuity patients treated in coordination with hospitals and physicians. The delivery of care across the acute and post-acute continuum will be highly coordinated and generate positive outcomes at a lower cost.

- Purpose-built, state-of-the-art physical plant that is differentiated from traditional skilled nursing facilities.
- Specialized clinical pathways working within the health care continuum to properly manage care for each patient.
- Licensed as skilled nursing but with quality and service mix unlike existing SNFs.

Some traditional skilled nursing facilities currently serve patients that may approach the acuity levels AegeanMed Transitional Care Center contemplates, but AegeanMed will have competitive advantages relative to the traditional nursing home including:

- AegeanMed Transitional Care Center's strategic partnerships with hospitals and physicians enable AegeanMed Transitional Care Center to admit patients with higher care needs than the traditional SNF while still generating positive outcomes.
- AegeanMed Transitional Care Center's high acuity focus does not require payers (Medicare, Managed Care, Private Insurance) to subsidize long term patients in the facility who are reimbursed by lesser payers.
- AegeanMed Transitional Care Center's state-of-the-art physical plant with a rehab focus versus the traditional model that is dated (semi-private rooms, no in-room showers, limited therapy space/equipment) and combines a mix of high acuity patients with long term indigent patients.

AegeanMed Transitional Care Center's delivery model will offer seamless, high quality post-acute care to patients that also benefits the strategic partners who influence referrals and or control reimbursements including:

- Physicians – seek positive outcomes in a systematic manner enabling them to effectively manage and grow their practices.
- Hospitals – seek positive outcomes while managing capacity and reimbursement.
- Payers - motivated to provide positive outcomes in a cost effective manner.

AegeanMed Transitional Care Center's role in the health care continuum will be that of a post-acute "relief-valve" for all of its strategic partners; AegeanMed Transitional Care Center provides high acuity care that is:

- ✓ At a lower cost than other settings such as hospitals, rehab hospitals, or long term acute care hospitals; and

- ✓ In a more coordinated manner, located in a physical plant far more desirable than the typical skilled nursing facility.

AegeanMed Transitional Care Center's role as the low-cost provider of high acuity post-acute services positions the facility to capitalize on efforts to reform health care. AegeanMed Transitional Care Center will be poised for success in an environment that may include bundling, a single post-acute reimbursement system, or a managed care model.

6. Goals with measurable objectives and timeframes:

Serve 180 residents requiring skilled nursing and rehabilitative services and discharge to home by 2017.

# ***AegeanMed Healthcare***

## ***Transitional Care and Restorative Care Centers***

***Owners: Peter & Patty Roumeliotis***

***Qualifications:***

**Peter: 20 years of practicing Internal Medicine in Morris**

**-Private Practice: Allen Medical Center**

**-Hospital Practice: Morris Hospital**

**\*former Chief of Staff**

**\*active member of several hospital committees**

**\*present Member of Board of Directors**

**-Medical Director of 3 skilled nursing facilities**

**-Medical Director of 3 Home Healthcare Agencies**

**-Medical Director of 2 Hospices**

**-Will-Grundy Free Medial Clinic supporter (professionally & financially)**

**Patty: Registered Nurse for 25 years**

**-NICU Edward Hospital for last 12 years**

***Purpose:***

**Our intent first and foremost is to serve the needs of the local community of Lockport for patients, ages 18 to 108. AegeanMed will be providing many rehabilitation services that no other skilled nursing facility in the area provides.**

***Bed Need:***

- The closest skilled nursing facility is ~20 minutes away.**
- It is common practice for nursing facilities, particularly older ones, to change semi-private rooms to private rooms due to patient demand & due to the prevalence of super-infections requiring more and more isolation beds.**
- All of the facilities, within 30 minutes, except for one, are functioning at above 80% capacity. This includes facilities that have converted semi-private rooms to private rooms and, therefore, we believe that there is a true demand for more licensed beds in the area.**
- We have the overwhelming support of the local hospitals & physicians, the City of Lockport, the local community, local veterans and even the Will-Grundy Free Medical Clinic.**
- There is clearly a need in Lockport for a new skilled nursing/transitional care facility, particularly one that provides the services that can't be offered by any of the existing facilities in the region.**

***Project Highlights:***

**State-of-the art facility**

**Focus on the high-acuity patient**

**Spacious private & semi-private rooms**

**Hospitality-focused design**

***Mission:* Partner with hospitals, rehabilitation facilities and physicians in offering intensive therapy through patient-focused clinical pathways with the ultimate goal of returning the patients home to their families.**

***Our Goal:* Intensive short-term care with length of stays less than 6 weeks.**

**-Traditional skilled nursing facilities have been associated with nursing homes.**

**-AegeanMed Healthcare will clearly be a short-term facility that will benefit patients both physically and psychologically.**

**-Patients will know that their ultimate goal will be to return home to be with their families.**

**Our traditional services will include, but not be limited to:**

**-Neurological and physical rehabilitation, including strokes, neuromuscular diseases, etc.**

**-Orthopedic rehabilitation**

**-Cardiopulmonary rehabilitation**

**-Post-operative surgical care, including general surgery, ENT, cardiac and neurological surgeries, etc.**

**-Nutritional support, including enteral feedings, diabetic teaching.**

**-Infectious diseases, including IV infusion therapy, wound care, etc.**

**-Oncological patients requiring strengthening, etc.**

**-Hospice care**

**Innovative Therapies (*what makes us different*)**

- Hydrotherapy with underwater treadmill for non-weight-bearing and partial weight-bearing patients. No sitting around for 6 weeks without therapy.**
- Occupational Therapy including in-house automobile for training purposes and help promote independence.**
- Specialized Wound Care, including hydrotherapy.**
- Outdoor Therapy Garden for physical & emotional therapy including koi pond, gardening & other outdoor activities, different quality pavements for maneuverability training purposes (walkers, wheelchairs, crutches, etc.).**
- Non-traditional therapies including: massage therapy, acupuncture, chiropractic, tai chi, yoga, positive feedback, salon, spa, etc.**
- Physical & social activities throughout the entire day and night. No sitting in rooms for 22 hours per day.**
- State-of-the-art fitness center where family members will also be invited to participate.**
- Sports Pub and Game Room for socialization.**
- Open-seating dining rooms with choice of buffet vs. made-to-order meals from menu. 2-hour window for serving meals.**

## **Problems addressed by our Transitional Care model:**

- The population with chronic conditions is projected to reach 125 million by 2020.
- This population may see up to 16 different physicians in one year's time.
- One in five discharged home from the hospital experienced an adverse event within three weeks of discharge.
- About 60% were medication related.
- Approximately 20% of all Medicare beneficiaries were re-hospitalized within 30 days, which in turn cost the program \$17.4 billion ... 13% of those readmissions were potentially avoidable.
- Medication errors affected 1.5 million people at a cost of \$3.5 billion a year. An estimated 60% of medication errors occur during times of transition: admission, transfer, discharge.
- When discharged from the hospital, direct communication between hospital and primary care occurred 3% of the time and a summary was provided 12% of the time. Communication was still poor at four weeks post-discharge, with 51% of practitioners providing a summary. This affected quality of care in 25% of cases.

Transitional Care is the leading model for addressing these problems for older adults with multiple chronic conditions:

- The transitional care model showed statistically significant positive effects in 70% of studies conducted according to *Improving Patient Handovers from Hospital to Primary Care: A Systematic Review* published in the **Annals of Internal Medicine**, September 2012.

- The nurse practitioner driven model of transitional care is the focus of one current and three completed National Institutes of Health funded clinical trials.
- Three quarters of studies on the transitional care model showed statistically significant reductions in readmission rates. A reduction in readmission rates is mandated by the Affordable Care Act and will lead to a reduction of cost to the Medicare program and improved health outcomes for the patient.
- Citation: *Some transitional care interventions reduce 30-day readmissions and emergency department visits: Patient Safety and Quality. September 2013. Agency for Healthcare Research and Quality, Rockville, MD.*

**Challenge is to provide high quality care cost-effectively.**

- Work with discharge planners & physicians at regional hospitals to assure that all documentation and medication reconciliation is available prior to the patients' arriving to AegeanMed thereby assuring continuity of care.**
- Streamlined care with proven clinical pathways that will be personalized for each patient.**
- Insurances are transitioning to pay-for-performance reimbursement models. That's a good thing!**
- Healthcare providers that can provide quality care efficiently and effectively will be rewarded.**
- We plan accepting more acutely ill patients sooner, thus decreasing overall healthcare costs. In 2010 in Illinois, the average cost of hospitalization in Illinois is \$2049 per day, vs. \$152 per day for a skilled nursing facility.**
- With more intensive therapy treatments, patients will go home sooner, again reducing costs.**
- Reduce readmission rates (first 60 days are most critical)**
- Knee-jerk reaction of physicians is to send patients to the hospital for evaluation when there is a change of condition.**
- Ambulance ride alone is over \$700 each way!**
- Nurse practitioners on-site for immediate evaluation of patients to prevent readmissions and get treatments started sooner.**
- When readmissions must occur, we will make every possible effort to return the patients to their origination hospital to ensure continuity of care.**
- CARF accreditation (Committee on Accreditation of Rehabilitation Facilities)**
- Providing therapy 7 days a week will also get patients home sooner.**

**Insurances accepted:**

- Private pay**
- Medicare**
- Medicaid**
- Veterans' Administration**
- Charity care (Will-Grundy Free Medical Clinic)**

**Union Construction Jobs: 18-24 months of construction**  
**Permanent New Jobs: 110-120**

REVIEW ARTICLE (META-ANALYSIS)

## Early Aquatic Physical Therapy Improves Function and Does Not Increase Risk of Wound-Related Adverse Events for Adults After Orthopedic Surgery: A Systematic Review and Meta-Analysis

Elizabeth M. Villalta, BPhys,<sup>a</sup> Casey L. Peiris, BPhys<sup>a,b</sup>

From the <sup>a</sup>Allied Health Clinical Research Office, Eastern Health; and <sup>b</sup>School of Physiotherapy, La Trobe University, Victoria, Australia.

### Abstract

**Objectives:** To investigate whether early postoperative aquatic physical therapy is a low-risk and effective form of physical therapy to improve functional outcomes after orthopedic surgery.

**Data Sources:** Databases MEDLINE, CINAHL, AMED, Embase, and PEDro were searched from the earliest date available until October 2011. Additional trials were identified by searching reference lists and citation tracking.

**Study Selection:** Controlled trials evaluating the effects of aquatic physical therapy on adverse events for adults <3 months after orthopedic surgery. Two reviewers independently applied inclusion and exclusion criteria, and any disagreements were discussed until consensus could be reached. Searching identified 5069 potentially relevant articles, of which 8 controlled trials with 287 participants met inclusion criteria.

**Data Extraction:** A predefined data extraction form was completed in detail for each included study by 1 reviewer and checked for accuracy by another. Methodologic quality of included trials was assessed independently by 2 reviewers using the PEDro scale.

**Data Synthesis:** Pooled analyses were performed using random effects model with inverse variance methods to calculate standardized mean differences (SMDs) and 95% confidence intervals (CIs) (continuous outcomes) and risk difference and 95% CIs (dichotomous outcomes). When compared with land-based physical therapy, early aquatic physical therapy does not increase the risk of wound-related adverse events (risk difference = .01, 95% CI = -.05 to .07) and results in improved performance of activities of daily living (SMD = .33, 95% CI = .07-.58,  $I^2 = 0\%$ ). There were no significant differences in edema (SMD = -.27, 95% CI = -.81 to .27,  $I^2 = 58\%$ ) or pain (SMD = -.06, 95% CI = -.50 to .38,  $I^2 = 32\%$ ).

**Conclusions:** After orthopedic surgery aquatic physical therapy improves function and does not increase the risk of wound-related adverse events and is as effective as land-based therapy in terms of pain, edema, strength, and range of motion in the early postoperative period.

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The importance of early mobilization after orthopedic surgery has been well documented,<sup>1-3</sup> and there is evidence to suggest that the earlier subjects can commence mobilization and strengthening after orthopedic surgery, the quicker their return to functional activities.<sup>2</sup> Early mobilization, however, can be limited by pain and reduced muscle coordination, strength, and ability to bear weight in the early postoperative period.<sup>4</sup> In addition, an intensive land-based physical therapy program may result in high dropout rates in older adults.<sup>5</sup>

Hydrotherapy can be defined as exercise in warm water<sup>6</sup> and can be used for muscle strengthening, flexibility, cardiovascular

fitness, and improved psychological effects.<sup>7</sup> The physical properties of water in a hydrotherapy pool make it a medium that provides the support and comfort in which to commence exercising in early rehabilitation postsurgery: buoyancy decreases apparent body weight<sup>8,9</sup> and lower limb internal joint forces,<sup>10</sup> allowing postoperative subjects to practice walking unaided in water early in their rehabilitation. Drag forces provide resistance to movement,<sup>7,11</sup> which allows the progression of exercises throughout rehabilitation. When immersed, the body has fluid pressure (which increases with depth) exerted on all surfaces.<sup>12</sup> The resulting hydrostatic pressure gradients produced during immersion cause a shift in fluid from the lower limbs to the cardiothoracic compartment, which can result in a reduction of edema in the legs.<sup>13,14</sup>

No commercial party having a direct financial interest in the results of the research supporting this article has or will confer a benefit on the authors or on any organization with which the authors are associated.

The aquatic environment can therefore be used to regain mobility, strengthen muscles, commence early weight bearing, and help reduce pain and perceived discomfort,<sup>3</sup> allowing the subject to achieve more than he or she usually can on land and may even eliminate the need for any other form of physical therapy.<sup>15</sup> A systematic review comparing the effects of aquatic physical therapy and land-based exercise for people with arthritis found that aquatic exercise was comparable to land-based exercise in terms of functional outcomes and recommended aquatic physical therapy as an alternative to land-based physical therapy when people are unable to exercise comfortably on land.<sup>16</sup>

Despite the rationale for early aquatic physical therapy in rehabilitation and anecdotal popularity with subjects,<sup>17</sup> there is conflicting information on how soon wounds can be immersed after orthopedic surgery and when the optimal time to commence aquatic physical therapy is. Some recommend that subjects must wait until 2 weeks postoperation to allow for wounds to heal,<sup>18,19</sup> others suggest that subjects be allowed to submerge in water 1 week after surgery,<sup>1</sup> and yet others have documented that it is common practice to commence aquatic physical therapy as early as 4 days postoperatively.<sup>15,20,21</sup>

Precautions and contraindications associated with aquatic physical therapy may explain some of the variability in recommendations found in the literature. For example, open wounds are contraindicated<sup>22</sup> (but may be immersed if they are covered with an occlusive waterproof dressing<sup>23</sup>) because there may be concerns for delayed wound healing and increased susceptibility of wound infections.<sup>24</sup> In addition, the physiological changes that occur during immersion such as increased central blood volume due to hydrostatic pressure gradients<sup>6</sup> means that certain medical conditions such as cardiovascular disease may contraindicate aquatic therapy or require modification of the program for subject comfort and safety.<sup>22</sup>

Aquatic physical therapy, used alone or in combination with land-based physical therapy, is widely used as part of rehabilitation after orthopedic surgery<sup>2,17</sup>; however, we were unable to locate any reviews that have synthesized data on the risks and effects of early aquatic physical therapy within 3 months after orthopedic surgery. A systematic review completed in 2002 concludes that there exists high- to moderate-quality evidence on the benefits of aquatic physical therapy for adults with rheumatic conditions and chronic low back pain but adds that aquatic physical therapy after orthopedic surgery has "received little attention from researchers to date."<sup>17(p519)</sup> Adverse events after aquatic therapy are not well documented, and it is not clear whether there is a risk difference (RD) between aquatic physical therapy and land-based physical therapy. Therefore, the research questions for this review were: is early aquatic physical therapy for adults after orthopedic surgery low risk in terms of wound-related adverse events and beneficial (in regard to reducing

impairment and increasing activity and participation) when compared with land-based physical therapy?

## Methods

This review was conducted and reported with reference to PRISMA<sup>25</sup> guidelines for high-quality reporting of systematic reviews and meta-analyses and has been registered with PROSPERO (registration no.: CRD42011001587 www.crd.york.ac.uk).

### Identification and selection of trials

Relevant articles were identified using a search method with 2 main constructs ("aquatic physical therapy" and "orthopedic surgery") and using synonyms for these terms (appendix 1) to search the following databases from the earliest date available until October 2011: MEDLINE, CINAHL, AMED, Embase, and PEDro. A reviewer (E.V.) also manually searched reference lists of included articles and of reviews in the field of aquatic physical therapy and completed citation tracking (via Google Scholar) to ensure that all relevant studies were captured. The search was limited to English-language texts. Two reviewers independently screened titles and abstracts of the studies retrieved and applied the inclusion and exclusion criteria (table 1). Any that clearly did not fulfill the criteria were excluded. Where it was not clear, the full-text articles were obtained for detailed examination. When the full text was obtained, second-stage screening was performed independently by 2 reviewers and any disagreements were resolved by discussion between the 2 reviewers until consensus was reached. If a consensus could not be reached, a third party was consulted.

### Inclusion criteria

The trials needed to be controlled trials published in a peer review journal involving adult participants ( $\geq 18$ y old) in the early postoperative period ( $\leq 3$ mo) after any orthopedic surgery. The trials had to compare aquatic physical therapy with land-based physical therapy. For the purpose of this review, aquatic physical therapy refers to any water-based therapy as described by Bartels et al.<sup>26</sup> This may include stretching, strengthening, range of motion (ROM), and aerobic exercises. Studies were excluded if the participants had not had orthopedic surgery, if treatment occurred after the early postoperative period (more than 3mo postoperatively), if they included a healthy (nonmatched) comparison group, if they did not use aquatic physical therapy as a treatment modality, and if data on adverse events could not be obtained. Authors of studies without published data on adverse events were contacted directly to obtain this information and where authors responded, these (unpublished) data were included in the review.

### Assessment of characteristics of trials

#### Quality assessment of trials and risk of bias

Quality of the studies was assessed using the 10-point scale of the Physiotherapy Evidence Database (PEDro, www.pedro.org.au): a validated quality assessment tool for randomized controlled trials.<sup>27</sup> The PEDro scale assesses bias in clinical trials by scoring items such as concealed allocation, patient and therapist blinding, and use of intention-to-treat analysis. Two reviewers

#### List of abbreviations:

ACL	anterior cruciate ligament
ADL	activities of daily living
CI	confidence interval
QOL	quality of life
RD	risk difference
ROM	range of motion
SMD	standardized mean difference
THR	total hip replacement
TKR	total knee replacement

**Table 1** Inclusion criteria

<b>Design</b>	<ul style="list-style-type: none"> <li>• Controlled trial</li> <li>• English text</li> <li>• Published in peer-reviewed journal</li> </ul>
<b>Participants</b>	<ul style="list-style-type: none"> <li>• Adults aged <math>\geq 18</math>y old</li> <li>• <math>\leq 3</math>mo after any orthopedic surgery</li> </ul>
<b>Intervention</b>	<ul style="list-style-type: none"> <li>• Aquatic physical therapy</li> </ul>
<b>Outcome measures</b>	<ul style="list-style-type: none"> <li>• Adverse events</li> <li>• Measures of function, activity, or participation</li> </ul>
<b>Comparisons</b>	<ul style="list-style-type: none"> <li>• Aquatic physical therapy versus appropriately matched (ie, postsurgical) land-based physical therapy</li> </ul>

independently applied the criteria to each article. Interrater agreement was recorded, and any disagreement was resolved through discussion between the 2 reviewers. Where consensus could not be reached, a third reviewer was consulted. Trials were not excluded on the basis of quality; however, this was taken into account when interpreting the results.

#### Data extraction

A customized data extraction form was developed (available on request) on the basis of Cochrane Consumers and Communication Review Group's Data Extraction form.<sup>28</sup> The form was completed in detail for each included study by 1 reviewer (E.V.) and checked for accuracy by another reviewer (C.P.). If any discrepancies were evident, the reviewers referred back to the original trial report. Attempts were made to contact the authors of any trial with missing data. Information was extracted from each trial on participant characteristics (age, details of orthopedic surgery undergone), trial setting (inpatient, outpatient), intervention (type, duration, frequency, and when commenced), outcomes (primary and secondary outcomes, timing of assessment), and adverse events.

#### Outcomes

The primary outcome was adverse events in relation to wound healing. For the purpose of this review, adverse events were defined as any event resulting in a deep or superficial surgical site infection or delayed wound healing. Any reported adverse events that were not associated with the wound site were not included in the analysis (eg, symptomatic anemia).

Where authors did not specify the type of adverse event they had investigated, the entire number of adverse events was used in analysis. RD was used to measure the difference in the observed risk of events between the aquatic and land-based groups and was chosen because it could be used even when there were no adverse events in either group.<sup>29</sup> Secondary outcomes were measures of impairment (edema, pain, strength, and ROM), activity (activities of daily living [ADL]), and participation, as indicated by quality of life (QOL).

Edema and pain are common after orthopedic surgery and can impede recovery<sup>1</sup>; thus, it is important to control these factors to enable subjects to participate fully in their rehabilitation program to regain function. Strength and ROM will play a major role in determining functional capacity and are important outcomes to

assess after therapy to monitor treatment effect. ADL were selected because the main aim of rehabilitation is to help subjects reach their functional goals and achieve independence as much as possible. QOL can cover broad domains such as physical and psychological health, social relationships, and the environment<sup>30</sup> and can be used as a measure of participation in life situations important to the individual.

#### Data analysis

Data were synthesized by using postintervention means and SDs, and meta-analyses were completed where possible. Meta-analyses were performed using a random effects model for outcomes using inverse variance methods using RevMan (version 5.0).<sup>8</sup> Trial results were pooled only if they measured similar outcomes. Statistical heterogeneity was assessed using the  $I^2$  statistic, with values of more than 50% representing substantial levels of heterogeneity.<sup>31</sup> Where substantial levels of heterogeneity were present, subgroup analyses were performed post hoc to attempt to explain the heterogeneity—for example, by separating different measuring techniques when assessing edema. Meta-analysis of dichotomous outcomes (presence or absence of adverse events) was expressed as an RD and 95% confidence interval (CI) and for continuous outcomes was expressed as a standardized mean difference (SMD) and 95% CI. Where weighted means were calculated, they were weighted according to participant numbers.

## Results

### Study selection

The initial database search yielded 5067 articles. Two additional articles were identified through reference scanning and citation tracking.<sup>32,33</sup> After removal of duplicates, 3493 studies were screened on title and abstract. There was very good agreement between reviewers ( $\kappa = .81$ , 95% CI = .67–.95) in regard to which trials did and did not fulfill selection criteria. Full-text copies of 20 studies were retrieved for further analysis. When evaluating the full-text trials, consensus was reached to retain a total of 8 trials for inclusion in the systematic review (fig 1).

### Characteristics of included trials

#### Methods

All 8 trials included in the review were controlled trials, of which 5 were randomized controlled trials. The included trials had a mean PEDro score of 5.3, ranging from 2<sup>34</sup> to 8.<sup>18</sup> None of the included studies had participant or therapist blinding. Four studies used random allocation, 3 used concealed allocation, 5 had blinded assessors, and all used intention-to-treat analysis except for 2.<sup>32,34</sup> (PEDro quality assessment table is available on request.) There was good agreement between reviewers when rating individual items on the PEDro scale ( $\kappa = .78$ , 95% CI = .64–.92).

#### Participants

The review included 287 participants (55% women), of whom 146 received aquatic physical therapy treatment (51%). Participants had a weighted mean age of 65 years. One trial included adults

after rotator cuff repair (n=18), 2 trials included adults after anterior cruciate ligament (ACL) reconstruction (n=30), 2 trials included adults after total hip replacement (THR), 2 trials included adults after total knee replacement (TKR), and 1 trial included a combination of adults after THR and TKR (THR n=87, TKR n=152). Some of the participants post-ACL reconstruction were in a younger age bracket than the other participants with an age range of 18 to 88 years<sup>32,34</sup> (table 2).

**Intervention**

In all trials, 1 group received aquatic physical therapy while the control group received land-based physical therapy only. In 4 trials,<sup>20,21,35,36</sup> the aquatic physical therapy group received a combination of land and aquatic physical therapy; participants in

1 study undertook aquatic therapy followed by land-based therapy<sup>36</sup>—the other 3 studies did not specify the order in which they structured their programs. Three trials reported that they used individualized programs different from land-based exercises for subjects in the aquatic group,<sup>20,21,35</sup> while the rest of the trials reported that the aquatic group participants performed the same exercises that the land-based participants did, in the pool rather than on land. Three trials provided individual 1:1 aquatic physical therapy,<sup>20,21,32</sup> and the others provided group sessions only. The 4 studies<sup>21,34-36</sup> that described their aquatic exercise programs all used equipment in the aquatic environment.

The programs ran between 2 and 3 times per week for 6 to 12 weeks and were well matched in terms of the amount of therapy provided for control and experimental groups within each study.

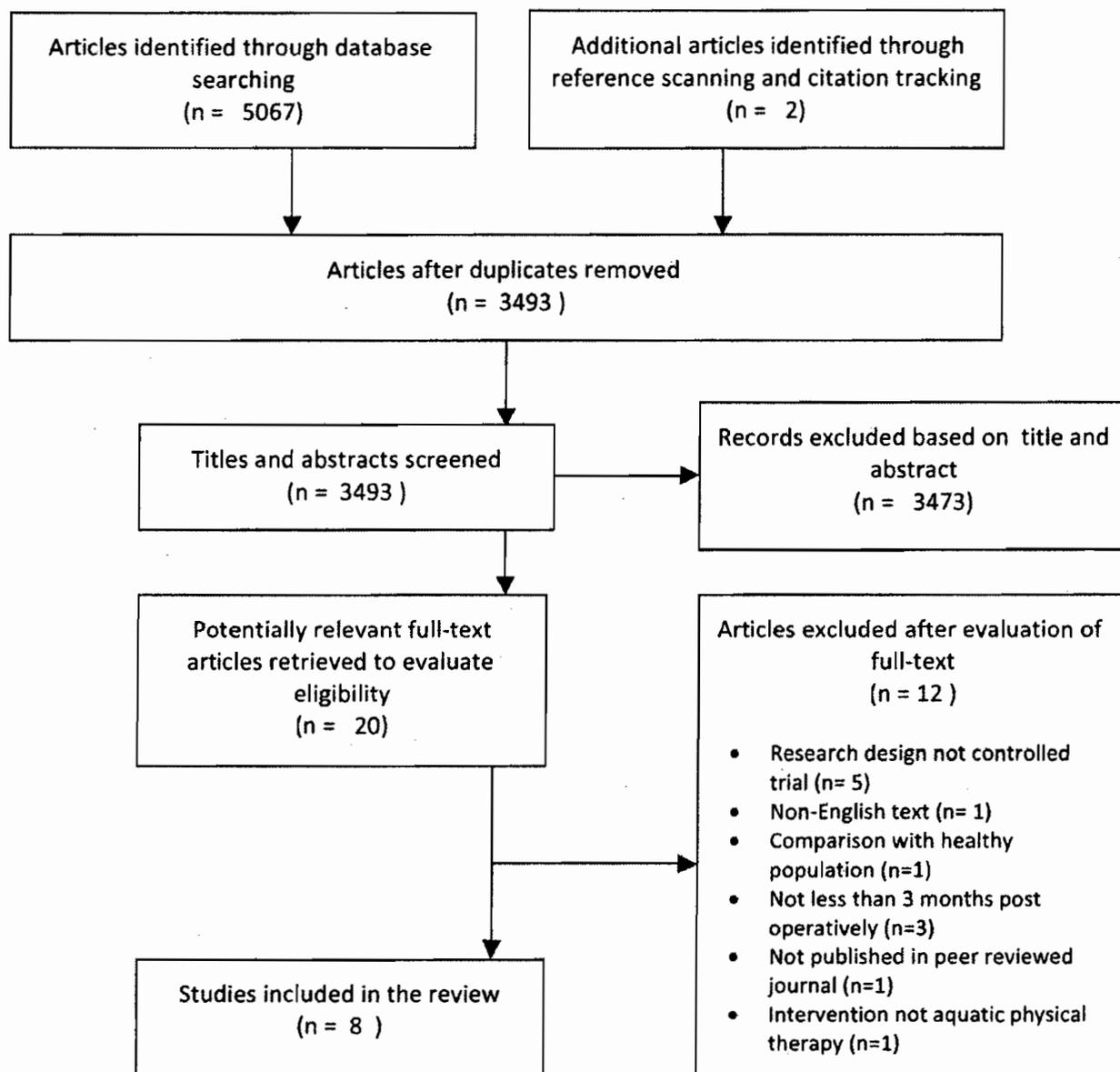


Fig 1 Flow of studies through the review.

Table 2 Summary of included studies (n = 8)

Authors	Patient Health Condition	Setting	Design	PEDro Score	No. of Participants (Aquatic/Land)	Mean Age (y) (Aquatic/Land)	Days Postoperative When Commenced Aquatic Therapy	Aquatic Therapy Group	Land-Based Group	Outcomes
Brady <sup>35</sup>	Rotator cuff repair	Outpatient	Controlled trial	6	12/6	56.3/53.5	10	Delivery: Group Frequency: 2x week Duration: 12/52 Additional land therapy: YES	Delivery: 1:1 Frequency: 2x week Duration: 12/52	Adverse events HR00L (WORCT) PROM shoulder F and ER
Harme <sup>18</sup>	TKR	Outpatient	RCT	8	53/49	68.7/67.8	14	Delivery: Group Frequency: 1 h 2x week Duration: 6/52 Additional land therapy: NO	Delivery: Group Frequency: 2x week Duration: 6/52	Adverse events 6-min walk test Stair-climbing power WOMAC
Jakovljevic and Vautinik <sup>33</sup>	THR	Inpatient	Controlled trial	5	12/12	83.7/82	14-21	Delivery: Group Frequency: 45 min 3x week Duration: 8/52 Additional land therapy: NO	Delivery: Group Frequency: 45 min 3x week Duration: 8/52	Edema (circumference) TUGT(s) Harris Hip Score: total, pain, function, and motion
McAvoy <sup>36</sup>	TKR	Outpatient	RCT	6	15/15	ND	ND	Delivery: Group Frequency: 30 min 2x week Duration: 6/52 Additional land therapy: YES	Delivery: Group Frequency: 60 min 2x week Duration: 6/52	Pain (NPRS) Edema (circumference) Knee AROM and PROM KOOS (Symptoms, QOL, ADL)
Stockton and Mengersen <sup>20</sup>	THR	Inpatient acute hospital	Controlled trial	6	21/27	65.5/62.8	4	Delivery: 1:1 Frequency: daily Duration: until discharge Additional land therapy: YES	Delivery: 1:1 Frequency: daily Duration: until discharge	Towa Level of Assistance
Rahmann <sup>21</sup>	THR and TKR	Inpatient acute hospital	RCT	5	18/17	69.4/70.4	4	Delivery: 1:1 Frequency: daily Duration: until discharge Additional land therapy: YES	Delivery: 1:1 Frequency: 40 min 1x daily Duration: until discharge	Adverse events 10m walk WOMAC Quads, Hamstrings, and Hip abd strength (HHD) AROM knee flex Edema (circumference) PSFS

(continued on next page)

Table 2 (continued)

Authors	Patient Health Condition	Setting	Design	PEDro Score	No. of Participants (Aquatic/Land)	Mean Age (y) (Aquatic/Land)	Days Postoperative When Commenced Aquatic Therapy	Aquatic Therapy Group	Land-Based Group	Outcomes
Tovin <sup>34</sup>	ACL reconstruction	Outpatient	RCT	2	10/10	29/29	14	Delivery: ND Frequency: 3x week Duration: 6/52 Additional land therapy: NO	Delivery: ND Frequency: 3x week Duration: 6/52	Function (Lysholm scale) Edema (circumference) Knee flex strength Knee ext strength
Zamariotti <sup>32</sup>	ACL reconstruction	Outpatient	RCT	4	5/5	ND	ND	Delivery: 1:1 Frequency: 50 min 2x week Duration: 9/52 Additional land therapy: NO	Delivery: 1:1 Frequency: 50 min 2x week Duration: 9/52	Adverse events Pain (NPRS) Edema (circumference) Knee flex strength Knee ext strength Knee PROM flex and ext

Abbreviations: Abd, abduction; AROM, active range of motion; ext, extension; flex, flexion; HRQOL, health-related quality of life; K005, Knee Osteoarthritis Outcome Score; ND, no data; NPRS, Numeric Pain Rating Scale; PROM, passive range of motion; PSFS, Patient Specific Functional Scale; Quads, quadriceps muscle; RCT, randomized controlled trial; shoulder F and ER, shoulder flexion and external rotation; TUGT, timed up and go test; WOMAC, Western Ontario and McMaster Universities Osteoarthritis Index; WORCI, Western Ontario Rotator Cuff Index.

There was no difference between the aquatic group and the land-based group in terms of adherence rates in any of the studies included. The studies that ran their program twice a week went for 6 weeks,<sup>18,36</sup> 9 weeks,<sup>32</sup> and 12 weeks.<sup>35</sup> Two studies ran sessions daily until discharge from hospital.<sup>20,21</sup> Other studies ran sessions 3 times per week for 6 weeks<sup>34</sup> and 8 weeks.<sup>33</sup> Most studies progressed participants according to ability, strength, and ROM as required, and some specified altering the water depth in which participants exercised to challenge or assist the subject. Depth used was described as being from waist to chest deep (0.5–1.6m).<sup>18,21,34</sup>

Of the included studies, 2 of the trials commenced aquatic therapy at day 4 postoperatively,<sup>20,21</sup> 1 commenced aquatic therapy 10 days postoperation,<sup>35</sup> 3 commenced at day 14 post-surgery,<sup>18,33,34</sup> and 2 studies<sup>32,36</sup> did not specify how long post-operative aquatic therapy was commenced.

**Outcomes measures**

All included trials provided information on the number of adverse events related to wound healing. One study<sup>18</sup> also documented adverse events such as death and respiratory, cardiac, and other medical complications; however, these data were not used in our analysis because we were interested in surgical site infections and wound complications as our primary adverse outcomes measure.

Six studies measured ADL using a variety of measurement tools (Iowa Level of Assistance, Patient Specific Functional Scale, Lysholm scale and function/ADL subscales of Harris Hip Score, Knee Osteoarthritis Outcome Score, and the Western Ontario and McMaster Universities Osteoarthritis Index). Four studies measured edema (circumference), and 4 studies measured pain (Visual Analog Scale, Numerical Pain Rating Scale, and the pain subscales of Harris Hip Score and Western Ontario and McMaster Universities Osteoarthritis Index). Other impairment measures used were ROM of the operated joint (measured with a goniometer) and muscle strength (measured with a hand-held dynamometer or with manual muscle testing technique). QOL was measured using the Western Ontario Rotator Cuff Index, the QOL subscale of the Knee Osteoarthritis Outcome Score, and 2 subscales of the Arthritis Self-Efficacy scale (the self-efficacy to achieve outcomes and the self-efficacy to manage symptoms).

**Effects of aquatic physical therapy versus land-based therapy**

Attempts were made via e-mails to contact authors for missing data. Responses and additional data were received in 4 instances.<sup>20,33,34,36</sup>

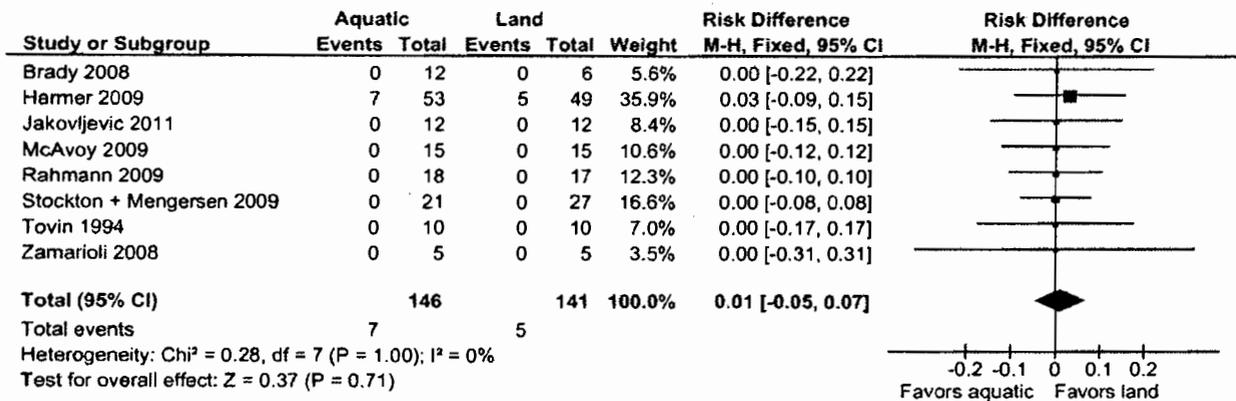
**Adverse events**

Meta-analysis of 8 trials and 287 participants provided evidence that aquatic physical therapy did not increase the risk of wound-related adverse events compared with land-based therapy (RD = .01, 95% CI = -.05 to .07, I<sup>2</sup> = 0%) (fig 2).

Seven trials reported no adverse events for both the experimental and control groups during the length of their trial and follow-up period. One trial reported the number of deep and superficial surgical site infections, and there were no differences between groups in this trial.<sup>18</sup>

**Activities of daily living**

When compared with standard land-based physical therapy in 6 trials (n = 134), aquatic physical therapy resulted in a significant



**Fig 2** RD (95% CI) for the effect of aquatic physical therapy compared with land-based physical therapy on adverse events. Data obtained from 8 trials (n = 287). Abbreviation: M-H, Mantel-Haenszel.

improvement in measures of ADL (SMD = .33, 95% CI = .07–.58, I<sup>2</sup> 0%) (fig 3).

**Pain**

When comparing pain levels in 4 trials (n = 149), the differences between groups did not reach statistical significance (SMD = -.06, 95% CI = -.50 to .38, I<sup>2</sup> = 32%) (fig 4).

**Edema**

When comparing the amount of edema in 4 trials (n = 173), the differences between groups did not reach statistical significance (SMD = -.27, 95% CI = -.81 to .27, I<sup>2</sup> = 58%). There was a moderate degree of heterogeneity in the data. In 1 trial,<sup>18</sup> circumferential measurements were taken at 4 locations and averaged to obtain the edema measurement while the other 3 trials used 1 measurement closer to the knee joint. When this trial<sup>18</sup> was removed from the analysis, aquatic physical therapy resulted in significantly reduced edema (SMD = -.58, 95% CI = -1.05 to -.11, I<sup>2</sup> = 0%) (fig 5).

**Muscle strength**

There was no statistically significant difference in knee extension or flexion strength between the aquatic and land-based groups in the 2 trials reporting on effects post-ACL reconstruction.<sup>32,34</sup> One trial on adults after THR and TKR reported increased knee extension strength (P = .03) and significantly increased hip abduction strength (P = .001) when compared with land-based physical

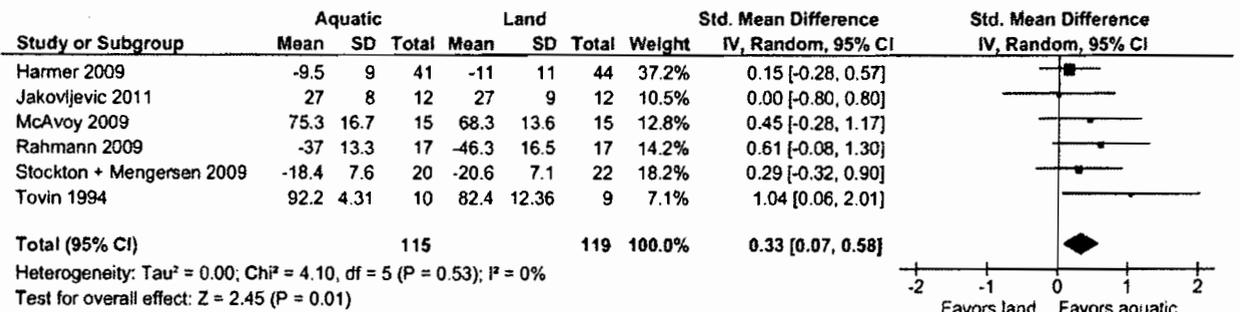
therapy after 2 weeks of aquatic physical therapy commenced at 4 days postoperation.<sup>21</sup> One study used stair-climbing power as a measure of strength and reported that both the aquatic group and the land-based group improved over time; however, the aquatic group demonstrated significantly more improvement than the land-based group between 8 and 26 weeks postsurgery (P = .005).<sup>18</sup>

**Joint ROM**

Seven trials recorded joint ROM. These were not combined into a meta-analysis because there was clinical heterogeneity in joints measured and surgical procedures. Brady et al<sup>35</sup> reported that the aquatic physical therapy group made significantly more improvement in shoulder flexion range than did the land-based physical therapy group after rotator cuff repair at 3 and 6 weeks postoperatively (P = .005 and .01, respectively), and McAvoy<sup>36</sup> reported that subjects in the aquatic physical therapy group had significantly greater improvements in knee flexion active ROM after total knee arthroplasty (P = .045) compared with land-based therapy only. The other 5 trials found no significant differences between the aquatic therapy group and the land-based therapy group in terms of ROM.<sup>21,32-34,36</sup>

**Quality of life**

The 3 studies that measured QOL found no significant differences between the aquatic and land-therapy groups when assessing QOL. These were not combined in a meta-analysis because of heterogeneity in the outcome measures used.



**Fig 3** SMD (95% CI) for the effect of aquatic physical therapy on ADL by pooling data from 6 trials (n = 134). Abbreviations: IV, inverse variance; Std., standard.

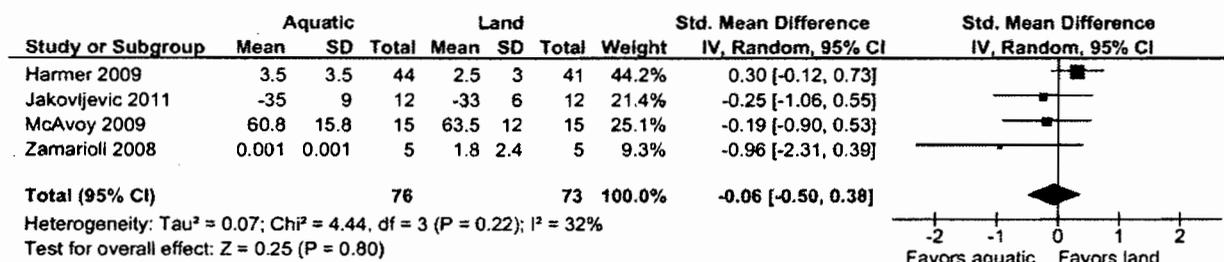


Fig 4 SMD (95% CI) for the effect of aquatic physical therapy on pain by pooling data from 4 trials (n = 149). Abbreviations: IV, inverse variance; Std., standard.

Discussion

The results from this systematic review provide evidence from 8 controlled trials, with 287 participants, that there was no increased risk of wound-related adverse events for subjects undertaking aquatic physical therapy in the early postoperative period after orthopedic surgery compared with land-based therapy. This is in accordance with results from Giaquinto et al<sup>37,38</sup> who reported that an aquatic program had significantly fewer adverse events compared with a land-based program in subjects after TKR and THR. A recent randomized controlled trial concluded that early aquatic physical therapy (commenced day 6 postoperatively) leads to clinically important improvements in health-related QOL for adults after TKR and resulted in slight increases in adverse events for adults after THR when compared with aquatic physical therapy commenced at day 14.<sup>39</sup> Both groups in this trial actually started aquatic physical therapy quite early postoperatively (at day 6 or day 14).

There is electromyographic evidence that exercising in water after shoulder injury such as rotator cuff tear can be considered relatively safer than exercising on land because of the reduction in muscle activity levels when immersed<sup>40</sup> and that immersion of limbs with external fixators does not increase the rate of adverse events.<sup>24,41</sup> However, in practice, orthopedic surgeons and physical therapists alike are still reluctant to immerse an orthopedic wound in the early postoperative period for fear of reduced wound healing and/or surgical site infection.<sup>24</sup> After THR or TKR, the rate of deep surgical site infection is between 0.2% and 2.7%.<sup>42,43</sup> Up-to-date infection rates are not well reported in the literature; however, infections were reported to be between 2.1% and 7.1% in 1991.<sup>44</sup> This review provides evidence that there is no increased risk of infection or other adverse events when immersing a wound

as early as 4 days after orthopedic surgery<sup>20,21</sup> as long as it is covered with an appropriate waterproof dressing that is able to conform to the area in question and allow full movement.<sup>1,21</sup> Dressings were checked prior to immersion and changed as soon as possible on return to the ward as per an immersion protocol in 1 study.<sup>21</sup> For outcomes such as surgical site infection, very large samples may be needed before it can confidently be said that aquatic physical therapy is safe. Even though information on adverse events was collected on a relatively small number of subjects in this review, participants took part in a combined total of 1779 aquatic physical therapy sessions with no increased risk of adverse events.

When compared with standard land-based physical therapy, aquatic therapy resulted in a significant improvement on measures of ADL. Improvement in ADL has also been noted after participation in an aquatic therapy program in older adults with arthritis.<sup>45</sup> This is a clinically significant finding because the ability to perform ADL with less pain and difficulty is a major priority for the older population with arthritis.<sup>46</sup>

It was hypothesized that participants in the aquatic therapy group would demonstrate an even greater effect in terms of reduced swelling compared with the control group because of the effects of hydrostatic pressure in water, but this hypothesis was not supported by our results. There was no significant difference between the aquatic group and the land-based group in terms of swelling or edema; however, both groups demonstrated an improvement in swelling over time, suggesting that early mobilization in either an aquatic environment or a land environment will result in reduced swelling via the pumping action of the involved muscles and that the possible expected hydrostatic effects of immersion may be counteracted by the dilation of vessels due to the water's warm temperature.

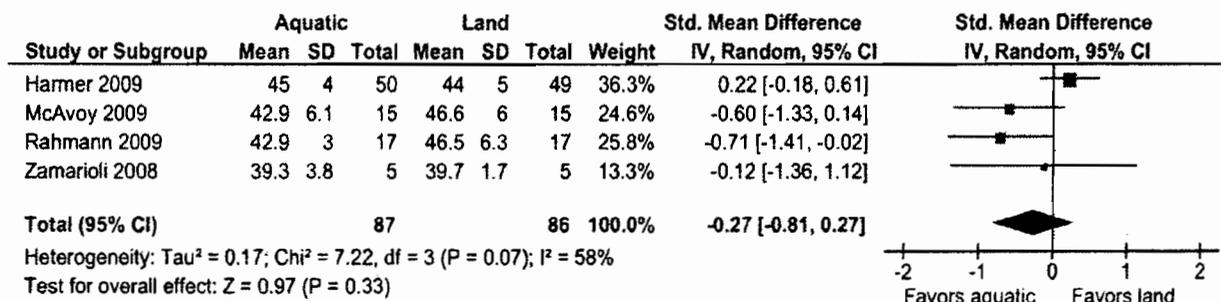


Fig 5 SMD (95% CI) for the effect of aquatic physical therapy on edema by pooling data from 4 trials (n = 173). Abbreviations: IV, inverse variance; Std., standard.

Although all trials demonstrated an improvement in muscle strength over time, this review found no significant differences between the aquatic and land-based groups in terms of strength and mobility in the early postoperative period for most of the trials. However, Rahmann et al<sup>21</sup> found strength benefits to be evident as early as 2 weeks postoperatively when aquatic physical therapy was commenced 4 days postoperatively. This study was different from other included studies because they had very early commencement of aquatic therapy and used 1:1 therapy with an experienced aquatic physical therapist trained to use the properties of water to produce maximal strength gains. These differences may have led to greater strength benefits observed in that trial.

There is evidence that aquatic exercise can be effective in reducing pain for adults suffering from back pain<sup>47</sup> and fibromyalgia.<sup>48</sup> However, we found no significant difference in terms of pain between the aquatic and land-based groups. Three of the 4 studies had a trend toward less pain after aquatic therapy; however, these studies each had small sample sizes and were of a medium quality. A recent systematic review found that aquatic therapy relieved pain for adults with neurologic and musculoskeletal disease when compared with no therapy but not when compared with land-based therapy<sup>49</sup> (which was the comparison made in our review).

Health-related QOL is a broad term that includes the subject's physical, mental, and social effects of illness and has been shown to improve after total hip and knee arthroplasty,<sup>50</sup> and this review did not find that QOL improvements were different between adults who completed aquatic physical therapy versus land-based physical therapy.

### Study limitations

This review limited articles to English language; therefore, an English language bias is present. However, Wright et al stated that "the effect of language bias minimally impacts the conclusions of systematic reviews"<sup>51(p25)</sup>; thus, this is likely to be a minor limitation in this review. It was difficult, if not impossible, to establish the physical therapist's skills in assessment and aquatic therapy and how this may have had an impact on outcomes of the included trials. Because of the specialized nature of aquatic therapy and the need to understand the hydrodynamics of water, this skill may have an impact on how well participants do. Some studies also included a cointervention of land therapy<sup>21,35,36</sup> that made it difficult to interpret results and establish what part of the treatment was causing the effect seen; however, this replicates clinical practice. There was only 1 study investigating the effects after an upper limb intervention; thus, these findings are more characteristic for subjects after lower limb orthopedic surgery. However, the adverse event of surgical site infection can occur equally with upper limb and lower limb surgery because both involve a surgical wound. Other adverse events such as falls or increased pain were not investigated in this review because we were limited by the lack of detail provided in some studies. Most of the trials had small numbers of participants, thus making it difficult to generalize the results to the general subject population.

### Conclusions

Aquatic physical therapy can be used as an adjunct to, or instead of, land-based physical therapy to enhance motion in early stages after orthopedic surgery, particularly for rotator cuff repair, TKR,

THR, and post-ACL reconstruction. Early aquatic physical therapy does not increase the risk of wound-related adverse events compared with land-based therapy and can result in improved measures of activity. No differences between aquatic and land-based physical therapy were found for pain, edema, strength, ROM, or QOL in the early postoperative period after orthopedic surgery.

### Supplier

a. The Cochrane IMS. Available at: <http://ims.cochrane.org/revman>.

### Keywords

Hydrotherapy; Meta-analysis; Orthopedic surgery; Rehabilitation; Review, systematic

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### Acknowledgments

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### Appendix 1. Search Strategy

Database: MEDLINE

Example of search used (in this case MEDLINE). Searches were optimized by using synonyms for "orthopedic surgery" and using the terms used in previous systematic reviews for the intervention ("aquatic physiotherapy").

1. "Hydrotherapy" OR "Aquatic therapy"
2. (MH "Hydrotherapy") OR "Hydrotherapy" OR (MH "Aquatic Exercises")
3. (MH "Aquatic Exercises") OR "Aquatic Exercise"
4. "Water exercise"
5. "Hot tub"
6. (MH "Balneology") OR "Balneology" OR (MH "Bathing and Baths")
7. (MH "Swimming") OR "Swimming"
8. (MH "Rehabilitation") OR "rehabilitation"
9. (MH "Orthopedics") OR "orthopedic"
10. "Orthopedic Surgery"
11. (MH "Inpatients") OR "inpatient"
12. "Subacute"
13. (MH "Arthroplasty") OR "Arthroplasty" OR (MH "Arthroplasty, Knee, Unicompartmental") OR (MH "Arthroplasty, Reverse Total, Shoulder") OR (MH "Arthroplasty, Replacement, Shoulder") OR (MH "Arthroplasty, Replacement, Knee") OR (MH "Arthroplasty, Replacement, Hip") OR (MH "Arthroplasty, Replacement, Elbow") OR (MH "Arthroplasty, Replacement, Ankle") OR (MH "Arthroplasty, Replacement")
14. "Replacement"

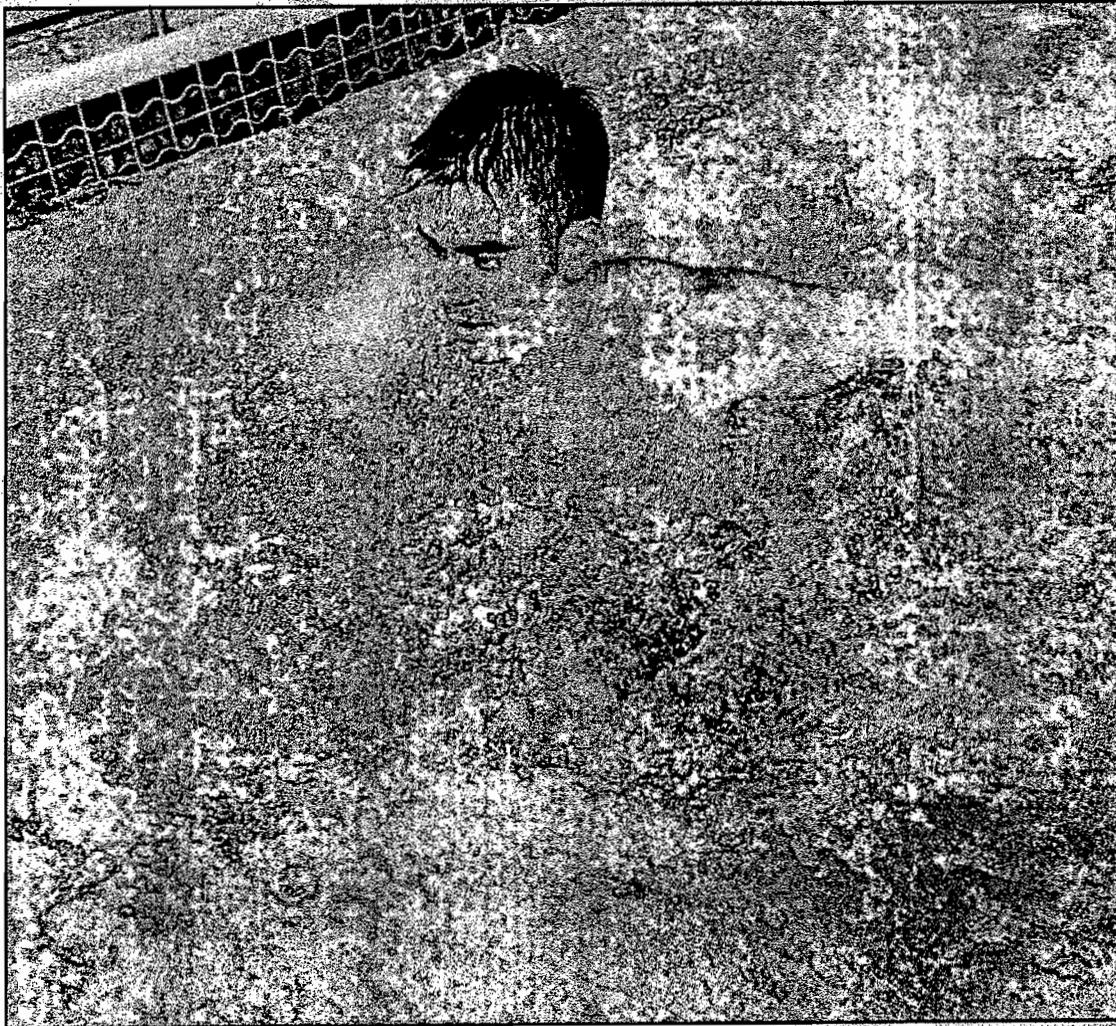
15. "Postsurgical"
16. "Allogenic"
17. S8 or S9 or S10 or S11 or S12 or S13 or S14 or S15 or S16
18. S1 or S2 or S3 or S4 or S5 or S6 or S7
19. S17 and S18

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# HydroWorx and Running Study

## Water Treadmill Parameters Needed to Obtain Land Treadmill Intensities in Runners



Rachel K. Rife, Joseph William Myrer, Pat Vehrs, Jeffery Brent Feland, Iain Hunter, and Gilbert W. Fellingham

Department of Exercise Sciences, Brigham Young University

### Purpose:

This study was conducted to establish water treadmill running parameters with shoes and without shoes needed to obtain known land treadmill running cardiorespiratory responses.

### Method:

Eighteen trained college-aged runners participated in three running conditions. Subjects performed workouts on a land treadmill, on a HydroWorx underwater treadmill with shoes, and a HydroWorx underwater treadmill without shoes.



### Results:

All subjects were able to exercise on an underwater treadmill at intensities equivalent to 80% of oxygen consumption on land treadmills. This study reveals that participants can select a treadmill speed in underwater treadmills that elicits a heart rate of seven beats per minute less than their land treadmill rate. Participants took twenty-two fewer strides per minute during the underwater treadmill workout than during the land treadmill workout. Wearing shoes created more resistance for the underwater treadmill workouts, creating a slower stride and increasing oxygen consumption.

### Conclusion:

The water treadmill provides athletes an alternative method of training to maintain cardiovascular fitness without the weight bearing demands of land running. Subjects should select water treadmill speeds that elicit a heart rate response that is seven beats per minute less than typical training heart rate during land based running.

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# HydroWorx and Running Study

## Peak Cardiorespiratory Responses during Aquatic and Land Treadmill Exercise



W. Matthew Silvers, Erin R. Rutledge, and Dennis G. Dolny

Division of Health, Physical Education, Recreation, and Dance, University of Idaho

### Purpose:

This study investigated the cardiorespiratory responses elicited during maximal-effort protocols using an underwater treadmill and a land treadmill.

### Method:

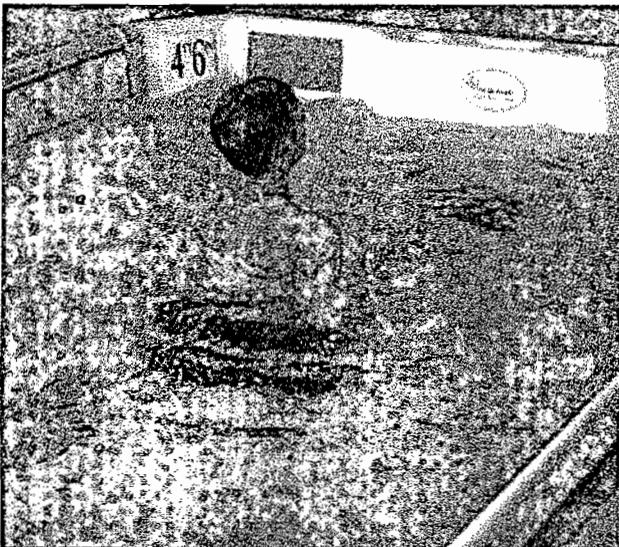
Participants consisted of twenty-three recreationally competitive male and female runners. Subjects performed two maximal-exertion runs, one on a land treadmill, and the other on a HydroWorx underwater treadmill, measuring cardiorespiratory rates, perceived exertion, and blood lactate after each run. Runs were separated by a forty-eight hour period.

### Results:

Underwater treadmills can elicit similar peak cardiorespiratory responses compared with land treadmill running during maximal-exertion testing. Heart rate decreased during underwater treadmill exercise due to an increase in central venous return, preload, and stroke volume as a result from a shift in blood volume from the hydrostatic pressure of water.

### Conclusion:

Underwater treadmill and jets elicit comparable responses to inclined land treadmill in fit individuals. Underwater treadmill training may be a viable training alternative to maintain or improve fitness levels for injured and healthy athletes alike.



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# HydroWorx and Running Study

## Metabolic-Cost Comparison of Submaximal Land and Aquatic Treadmill Exercise



M Erin Rutledge, W. Matt Silvers, Kathy Browder, and Dennis Dolny

Department of Health, Physical Education, Recreation and Dance, University of Idaho

### Purpose:

This study was conducted in order to evaluate the metabolic cost of varying aquatic treadmill exercise speed and water-jet resistance and compare with land treadmill conditions at similar running speeds.

### Method:

Fifteen male and female college aged track and field athletes participated in the study. Subjects completed nine, five minute submaximal underwater treadmill workouts with jets at varying resistance using a HydroWorx pool.

### Results:

Limb loading was reduced significantly in the underwater treadmill sessions. The energy expenditure per stride ranged from 30%- 56% greater during underwater running than in land running.



### Conclusion:

Underwater treadmill training offers viable exercise alternatives to land treadmill running as a way to maintain or improve fitness for injured and healthy individuals.



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# HydroWorx Used to Treat Osteoarthritis Study

## Underwater Treadmill Exercise as a Potential Treatment for Adults with Osteoarthritis



William M. Denning, Eadric Bressel, and Dennis G. Doiny

Utah State University Health, PE, and Recreation Department

### Purpose:

This study examined the levels of perceived pain and mobility in osteoarthritis patients after using underwater and land treadmills.

### Method:

Nineteen patients, diagnosed with osteoarthritis in the knee, hip or ankle participated in the study. All participants were over thirty five years old and had a clinical history of the disease. Each participant performed three consecutive exercise sessions on a HydroWorx treadmill and a land treadmill, separating exercise periods by twenty four hours and exercise mode by one week. Each exercise period was twenty minutes and consisted of four, five minute stages. Joint pain was measured immediately before and after each exercise session. "Timed Up and Go" assessed basic mobility and balance before each exercise method and after the third exercise session.

### Results:

Results of this study indicated that patients diagnosed with OA may walk on an underwater treadmill at a moderate intensity with less pain and equivalent energy expenditures, compared with walking on a land based treadmill at a similar moderate intensity. Patients revealed that pain was 140% greater during land treadmill exercise sessions than during underwater treadmill exercise sessions. The "Timed Up and Go", which measured the ability for patients to arise from a chair and walk a set distance was 240% greater after land treadmill exercise sessions.



### Conclusion:

Patients diagnosed with osteoarthritis may receive the same aerobic conditioning with less joint pain and greater improvements in mobility by utilizing underwater treadmills opposed to land treadmills.

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# HydroWorx Used to Decrease Obesity Study

## Comparative Efficacy of Water and Land Treadmill Training for Overweight of Obese Adults



Nicholas P. Greene, Brad S. Lambert, Elizabeth S. Greene, Aaron F. Carbuhn,  
John S. Green, and Stephen F. Crouse

Department of Health and Kinesiology, Texas A & M University, College Station, TX

### Purpose:

This study was conducted in order to explore the efficacy of underwater treadmill exercise training programs by comparing changes in physical fitness, body weight, and body composition in physically inactive, overweight, and obese men and women.

### Method:

Fifty-seven overweight men and women participated in this study. Subjects maintained dietary logs during the twelve week test period, making no alterations to diet or physical activity outside of the exercise training protocol. Participants exercised three times a week during the twelve week testing period in a HydroWorx pool.



### Results:

Underwater treadmill exercise training programs performed by overweight and obese men and women is an effective training modality, producing beneficial changes in body composition and improvements in physical fitness. Health benefits were comparable to those of land-based treadmill training programs. More lean body mass was gained in the underwater treadmill training program compared to a land treadmill training program. Body mass index, percent body fat, and waist-to-hip ratio were significantly reduced in participants. Additional advantages of underwater treadmill training programs are the lower risk of pain and injury.

### Conclusion:

This study shows that underwater treadmill training is a viable alternative to traditional land treadmill training for overweight users. Underwater treadmill training produces modest reductions in body weight, improvement in body composition, and aerobic capacity in a twelve week period without dietary intervention. The non-weight-bearing exercise reduces pain and risk of injury in overweight and obese people.



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# HydroWorx Increases Lean Mass Study

## Lean Body Mass Increases following 12-Week Aerobic Training with Underwater but not Land Treadmill



Elizabeth S. Greene, Nicholas P. Greene, Aaron F. Carbuhn, John S. Green, FACSM, Stephen F. Crouse, FACSM

Texas A&M University

### Purpose:

This study was conducted in order to compare the changes in body composition following twelve weeks of exercise training using either a land treadmill or an underwater treadmill.

### Method:

Forty-seven overweight and obese men and women participated in this study. Subjects were randomly assigned to exercise three times a week on either a land treadmill or a HydroWorx underwater treadmill. Exercise intensities and durations were calculated such that subjects in both groups had the same caloric expenditure during each bout. Before and after the twelve week period, weight, percent body fat, fat mass, lean body mass and regional fat and lean mass were assessed.

### Results:

There was no difference in oxygen uptake in either workout programs. Participants in both the underwater treadmill and land treadmill groups saw decreases in weight, percent body fat, and fat mass. Lean body mass increased in the underwater treadmill workouts, primarily in the legs while lean body mass did not increase in the land treadmill workouts.

### Conclusion:

Aerobic exercise training on the underwater treadmill is able to elicit similar decreases in weight, percent body fat, and fat mass as the land treadmills. However, lean body mass increases with underwater treadmill training, with gains seen mainly in the legs.



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# HydroWorx used in ACL Recovery Program

## In the Pool: Knee Anterior Cruciate Ligament Recovery Program

Mary E. Sanders, Ph. D. FACSM, RCEP, and B aryl Lawson, PT, D.Sc.

### Summary:

An aquatic environment may be ideal during all phases of ACL rehabilitation post surgery. The reduced weight-bearing environment can provide a safe environment for the patient's range of motion and neuromuscular recovery activities that are not possible on land.

A thirty five year old world-class soccer player who sustained a complete tear of his ACL was able to return to play within ninety days of surgery due to aquatic therapy six days per week, twice a day.



Twenty patients with intra-particle ACL reconstructions were randomly assigned to a land or water exercise group. Participants in the water exercise group noted a greater minimization of joint effusion and greater self reports of functional improvements. Participants also found greater muscle girth at the calf and thigh, greater quadriceps strength, and better range of motion at the knee for those doing the water treadmill workout.

Clinical results show that athletes who participate in water rehabilitation and land-based post-rehabilitation have better scores on postural sway, indicating better balance. They also experienced fewer episodes of re-injury after return on play.

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# HydroWorx Benefits in Active Aging Study

## Health Benefits of Underwater Treadmill Exercise for Active Adults



Amanda Desmond, Ashley Bayliss, Heather Jacobson, Hillary Hardy,  
Kristen Jarvey, and Don Bredle PhD

Department of Kinesiology, University of Wisconsin

### Purpose:

This study was conducted in order to assess the health benefits of hydrotherapy in active adults.

### Method:

Fourteen adults, who already exercised three days a week, participated in the five week study. Each participant had a history of physical ailments. Participants exercised on a HydroWorx underwater treadmill two days a week for forty minutes performing both aerobic exercise and aquatic resistance training. Participants also took a quality of life survey that measured changes in flexibility, the ability to perform daily activities, energy levels, and overall sleep patterns.

### Results:

Subjects expressed feeling better both physically and psychologically during the exercise period. Eleven reported decreased joint pain while seven reported better quality of sleep. The group average for flexibility improved about twenty percent after the test period.

### Conclusion:

Hydrotherapy is a positive way to improve flexibility, sleep patterns, and reduce muscle and joint pain in middle-aged and older adults with a history of orthopedic limitations and discomfort.



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# HydroWorx and Walking Study

## The Effect of Water Depth on Energy Expenditure and Perception of Effort in Female Subjects While Walking



Wafa Alkurdi, David R. Paul, Kelsey Sadowski, and Denis G. Dolny

Health, PE, and Recreation and Dance Department at University of Idaho

### Purpose:

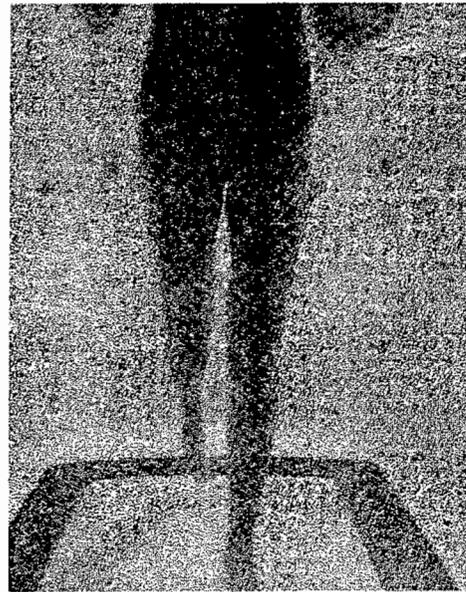
This study was conducted in order to compare energy expenditures, heart rate, and perceived effort during walking in water at several depths versus land in female participants.

### Method:

Eighteen females participated in this study. Participants on three separate days in one week on a land treadmill, walking six, five minute bouts at different speeds with a three minute rest period between each bout. Participants walked followed the same procedures at different depths on a HydroWorx underwater treadmill on a different week. During each walking bout heart rate, oxygen consumption, and carbon dioxide production were recorded continuously.

### Results:

Minor changes in water depth significantly influenced cardiorespiratory variables and the subject's perception of effort during walking on an aquatic treadmill. Heart rate, energy expenditure, and rate of perceived effort increased significantly as water depth was lowered by twenty centimeters.



### Conclusion:

These results suggest water depth can be used to selectively adjust exercise intensity during water walking. Therefore, substituting aquatic treadmill walking for land walking might be beneficial for overweight individuals as they strive to incorporate physical activity into their lifestyle.



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## Pending Study with HydroWorx

### Aquatic treadmill running reduces muscle soreness following intense sprint exercise in trained men

Brad S. Lambert, Charles R. Hewitt, Craig M. Lowrie, Melissa C. Milner, John S. Green, (FACSM), Stephen F. Crouse (FACSM)

#### Purpose:

This study was conducted to determine if short duration aquatic treadmill running reduces muscle soreness following intense sprint exercise in trained men.

#### Method:

Twenty trained men participated in the study. Participants were randomly assigned to underwater treadmill recovery or passive recovery. Subjects performed a variety of cutback runs and sprints with sharp change in directions. Those in the underwater treadmill group performed running in a HydroWorx pool. Level of soreness was rated immediately following exercise.

#### Conclusion:

Aquatic treadmill running significantly reduces perceived muscle soreness and may enhance recovery following intense sprint exercise in trained men.



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# Pending Study with HydroWorx

## Resistance Training & Underwater treadmill Study at Texas A & M University



### Method:

This study is in the process of recruiting 48-64 healthy adult men and women as subjects. Participants will undergo a twelve week training program. Blood draws and muscle biopsies will be analyzed in order to determine the effects of the study.

### Hypothesis to be tested:

1. Muscle soreness and inflammation will be reduced while recover of muscle strength and power will be enhanced when HydroWorx exercise follows a single session of resistance exercise compared to resistance exercise followed by land treadmill exercise to resistance exercise performed alone.
2. HydroWorx and resistance training performed concurrently will result in greater gains in muscle mass and strength than other methods of training tested in this study.
3. Concurrent HydroWorx and resistance training will result in the greatest reductions in body fat and at least equivalent gains in cardiovascular fitness compared with other training practices in this study.



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**Congress of the United States**  
**House of Representatives**  
Washington, DC 20515-1303

January 16, 2014

Ms. Courtney Avery  
Administrator  
Illinois Department of Public Health  
Health Facilities and Services Review Board  
525 West Jefferson Street, Second Floor  
Springfield, IL 62761

Dear Ms. Avery:

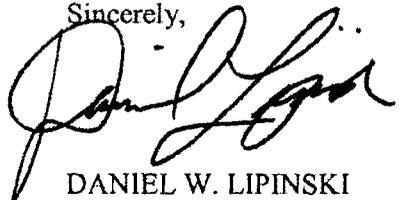
I write to express my interest in the application of AegeanMed Healthcare, LLC to establish a transitional skilled nursing care center in Lockport, Illinois.

As you know, AegeanMed is currently seeking a Certificate of Need from the Department of Public Health in order to construct a transitional care center in Lockport, Illinois. 140 beds will be available at the facility to help patients transition out of hospital care. Because there is no similar facility currently located in Lockport, a new skilled nursing center would help residents of this growing community access the services they and their families need more quickly and conveniently. As a result, the facility proposal is strongly supported by local stakeholders.

I urge you to give full and fair consideration to AegeanMed's application for a Certificate of Need, consistent with the State's laws and guidelines. Should you have any questions or concerns regarding this request, please contact Sofya Leonova of my staff at (202)225-5701 or [sofya.leonova@mail.house.gov](mailto:sofya.leonova@mail.house.gov).

Thank you for your consideration.

Sincerely,



DANIEL W. LIPINSKI  
Member of Congress

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