CRYOLIFE INC
Form 10-Q
May 02, 2019
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UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 10-Q

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE

SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended **March 31, 2019**

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE

SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number: 1-13165

CRYOLIFE, INC.

(Exact name of registrant as specified in its charter)

Florida	**59-2417093**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
1655 Roberts Boulevard, NW, Kennesaw, Georgia	**30144**
(Address of principal executive offices)	(Zip Code)

(770) 419-3355

(Registrant s telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be

submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of large accelerated filer, accelerated filer, smaller reporting company, and emerging growth company in Rule 12b-2 of the Exchange Act.

Large accelerated filer	Accelerated filer
Non-accelerated filer	Smaller reporting company
	Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).Yes No

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.01 par value	CRY	New York Stock Exchange

Indicate the number of shares outstanding of each of the issuer s classes of common stock, as of the latest practicable date.

Class	Outstanding at April 26, 2019
Common Stock, $.01 par value	37,335,737

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Part I FINANCIAL INFORMATION

Item 1. Financial Statements.

CRYOLIFE, INC. AND SUBSIDIARIES

SUMMARY CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE (LOSS) INCOME

(IN THOUSANDS, EXCEPT PER SHARE DATA)

	Three Months Ended March 31,	
	2019	**2018**
	(Unaudited)	
Revenues:		
Products	$ 48,401	$ 43,598
Preservation services	19,104	18,350
Total revenues	**67,505**	**61,948**
Cost of products and preservation services:		
Products	13,826	14,157
Preservation services	9,406	8,563
Total cost of products and preservation services	**23,232**	**22,720**
Gross margin	**44,273**	**39,228**
Operating expenses:		
General, administrative, and marketing	36,520	37,348
Research and development	5,548	5,370
Total operating expenses	**42,068**	**42,718**
Operating income (loss)	**2,205**	**(3,490)**
Interest expense	3,894	3,656
Interest income	(116)	(59)

Other expense (income), net		77		(181)
Loss before income taxes		**(1,650)**		**(6,906)**
Income tax benefit		(1,353)		(3,051)
Net loss	**$**	**(297)**	**$**	**(3,855)**
Loss per common share:				
Basic	**$**	**(0.01)**	**$**	**(0.11)**
Diluted	**$**	**(0.01)**	**$**	**(0.11)**
Weighted-average common shares outstanding:				
Basic		36,778		36,146
Diluted		36,778		36,146
Net loss	**$**	**(297)**	**$**	**(3,855)**
Other comprehensive (loss) income:				
Foreign currency translation adjustments		(3,781)		7,139
Comprehensive (loss) income	**$**	**(4,078)**	**$**	**3,284**

See accompanying Notes to Summary Consolidated Financial Statements.

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CRYOLIFE, INC. AND SUBSIDIARIES

SUMMARY CONSOLIDATED BALANCE SHEETS

(IN THOUSANDS)

	March 31, 2019	December 31, 2018
	(Unaudited)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 40,344	$ 41,489
Restricted securities	731	747
Receivables, net	54,313	51,432
Inventories	44,124	45,478
Deferred preservation costs	32,635	33,174
Prepaid expenses and other	6,505	6,848
Total current assets	**178,652**	**179,168**
Property and equipment, net	30,254	31,028
Operating lease right-of-use assets, net	22,961	--
Goodwill	186,706	188,781
Acquired technology, net	114,479	118,184
Trademarks and other intangibles, net	41,333	41,897
Deferred income taxes	4,086	4,111
Other	8,457	7,922
Total assets	**$ 586,928**	**$ 571,091**
LIABILITIES AND SHAREHOLDERS EQUITY		
Current liabilities:		
Accounts payable	$ 5,425	$ 7,547
Accrued compensation	9,168	10,733
Current maturities of long-term debt	1,153	1,160
Current maturities of operating leases	4,982	--
Taxes payable	1,721	2,250
Accrued expenses and other	13,974	12,833
Total current liabilities	**36,423**	**34,523**

Long-term debt	215,260	215,721
Non-current maturities of operating leases	19,902	--
Deferred income taxes	26,331	27,267
Other	16,390	18,513
Total liabilities	**314,306**	**296,024**
Commitments and contingencies		
Shareholders equity:		
Preferred stock	--	--
Common stock (issued shares of 38,756 in 2019 and 38,463 in 2018)	388	385
Additional paid-in capital	261,991	260,361
Retained earnings	34,687	34,984
Accumulated other comprehensive loss	(9,853)	(6,072)
Treasury stock at cost (shares of 1,484 in 2019 and 1,484 in 2018)	(14,591)	(14,591)
Total shareholders equity	**272,622**	**275,067**
Total liabilities and shareholders equity	**$ 586,928**	**$ 571,091**

See accompanying Notes to Summary Consolidated Financial Statements.

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CRYOLIFE, INC. AND SUBSIDIARIES

SUMMARY CONSOLIDATED STATEMENTS OF CASH FLOWS

(IN THOUSANDS)

	Three Months Ended March 31,	
	2019	**2018**
	(Unaudited)	
Net cash flows from operating activities:		
Net loss	$ (297)	$ (3,855)
Adjustments to reconcile net loss to net cash from operating activities:		
Depreciation and amortization	4,351	4,376
Non-cash compensation	1,850	1,248
Deferred income taxes	(424)	(1,283)
Other non-cash adjustments to loss	737	810
Changes in operating assets and liabilities:		
Receivables	(3,292)	(3,346)
Inventories and deferred preservation costs	1,396	2,954
Prepaid expenses and other assets	627	(215)
Accounts payable, accrued expenses, and other liabilities	(3,787)	(10,416)
Net cash flows provided by (used in) operating activities	**1,161**	**(9,727)**
Net cash flows from investing activities:		
Capital expenditures	(1,194)	(2,116)
Other	(233)	(3)
Net cash flows used in investing activities	**(1,427)**	**(2,119)**
Net cash flows from financing activities:		
Repayment of term loan	(696)	(707)
Proceeds from exercise of stock options and issuance of common stock	2,029	606
Redemption and repurchase of stock to cover tax withholdings	(2,376)	(1,512)
Other	(172)	(341)
Net cash flows used in financing activities	**(1,215)**	**(1,954)**

Effect of exchange rate changes on cash		320		439
Decrease in cash, cash equivalents, and restricted securities		**(1,161)**		**(13,361)**
Cash, cash equivalents, and restricted securities beginning of period		42,236		40,753
Cash, cash equivalents, and restricted securities end of period	**$**	**41,075**	**$**	**27,392**

See accompanying Notes to Summary Consolidated Financial Statements.

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CRYOLIFE, INC. AND SUBSIDIARIES

SUMMARY CONSOLIDATED STATEMENTS OF SHAREHOLDERS EQUITY

(IN THOUSANDS)

	Common Stock		Additional Paid In Capital	Retained Earnings	Accumulated Other Comprehensive Income	Treasury Stock		Total Shareholders Equity
	Shares	Amount				Shares	Amount	
Balance at December 31, 2017	**37,618**	**$ 376**	**$ 249,935**	**$ 37,609**	**$ 1,857**	**(1,386)**	**$ (12,719)**	**$ 277,058**
Cumulative effect of ASC 606 Adjustment	--	--	--	215	--	--	--	215
Net loss	--	--	--	(3,855)	--	--	--	(3,855)
Other comprehensive income:								
Foreign currency translation income	--	--	--	--	7,139	--	--	7,139
Comprehensive income								3,284
Equity compensation	225	1	1,353	--	--	--	--	1,354
Exercise of options	317	4	1,886	--	--	(98)	(1,872)	18
Employee stock purchase plan	37	--	588	--	--	--	--	588
Redemption and repurchase of stock to cover tax withholdings	(82)	--	(1,511)	--	--	--	--	(1,511)

Balance at March 31, 2018	**38,115**	**$ 381**	**$ 252,251**	**$ 33,969**	**$ 8,996**	**(1,484)**	**$ (14,591)**	**$ 281,006**

	Common Stock		Additional Paid In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Treasury Stock		Total Shareholders Equity
	Shares	Amount				Shares	Amount	
Balance at December 31, 2018	**38,463**	**$ 385**	**$ 260,361**	**$ 34,984**	**$ (6,072)**	**(1,484)**	**$ (14,591)**	**$ 275,067**
Net loss	--	--	--	(297)	--	--	--	(297)
Other comprehensive loss:								
Foreign currency translation loss	--	--	--	--	(3,781)	--	--	(3,781)
Comprehensive loss								(4,078)
Equity compensation	205	2	1,978	--	--	--	--	1,980
Exercise of options	145	1	1,450	--	--	--	--	1,451
Employee stock purchase plan	25	--	578	--	--	--	--	578
Redemption and repurchase of stock to cover tax withholdings	(82)	--	(2,376)	--	--	--	--	(2,376)
Balance at March 31, 2019	**38,756**	**$ 388**	**$ 261,991**	**$ 34,687**	**$ (9,853)**	**(1,484)**	**$ (14,591)**	**$ 272,622**

See accompanying Notes to Consolidated Financial Statements.

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CRYOLIFE, INC. AND SUBSIDIARIES

NOTES TO SUMMARY CONSOLIDATED FINANCIAL STATEMENTS

(UNAUDITED)

1. Basis of Presentation

Overview

The accompanying summary consolidated financial statements include the accounts of CryoLife, Inc. and its subsidiaries (CryoLife, the Company, we, or us). All significant intercompany accounts and transactions have been eliminated in consolidation. The accompanying Summary Consolidated Balance Sheet as of December 31, 2018 has been derived from audited financial statements. The accompanying unaudited summary consolidated financial statements as of, and for the three months ended, March 31, 2019 and 2018 have been prepared in accordance with (i) accounting principles generally accepted in the U.S. for interim financial information and (ii) the instructions to Form 10-Q and Rule 10-01 of Regulation S-X of the U.S. Securities and Exchange Commission (SEC). Accordingly, such statements do not include all of the information and disclosures required by accounting principles generally accepted in the U.S. for a complete presentation of financial statements. In the opinion of management, all adjustments (including those of a normal, recurring nature) considered necessary for a fair presentation have been included. Operating results for the three months ended March 31, 2019 are not necessarily indicative of the results that may be expected for the year ending December 31, 2019. These summary consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto included in CryoLife s Annual Report on Form 10-K for the year ended December 31, 2018 filed with the SEC on February 26, 2019.

New Accounting Standards

Recently Adopted

As of January 1, 2019 we adopted the new Accounting Standards Codification (ASC) Topic 842, *Leases* (ASC 842). The final guidance requires lessees to recognize a right-of-use asset and a lease liability for all leases (with the exception of short-term leases) at the commencement date and recognize expenses on their income statements similar to the current Topic 840, *Leases*. We used the modified retrospective approach, which allows application of the standard at the adoption date rather than at the beginning of the earliest comparative period presented. The adoption of this standard resulted in the recognition of operating lease agreements with a net present value of $22.7 million and corresponding right-of-use assets obtained in the same amount at January 1, 2019. See Note 7 for further discussion of leases.

Not Yet Effective

In June 2016, the Financial Accounting Standards Board (FASB) issued ASC Update No. 2016-13, *Financial Instruments Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments.* The purpose of Update No. 2016-13 is to replace the current incurred loss impairment methodology for financial assets measured at amortized cost with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information, including forecasted information, to develop credit loss estimates. Update No. 2016-13 is effective for annual periods beginning after December 15, 2019, including interim periods within those annual periods and early adoption is permitted. We are in the process of evaluating the effect that the adoption of this standard will have on our financial position and results of operations.

2. Financial Instruments

The following is a summary of our financial instruments measured at fair value (in thousands):

March 31, 2019	**Level 1**	**Level 2**	**Level 3**	**Total**
Cash equivalents:				
Money market funds	$ 1,450	$ --	$ --	$ 1,450
Restricted securities:				
Money market funds	731	--	--	731
Total assets	**$ 2,181**	**$ --**	**$ --**	**$ 2,181**

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December 31, 2018	Level 1	Level 2	Level 3	Total
Cash equivalents:				
Money market funds	$ 1,445	$ --	$ --	$ 1,445
Restricted securities:				
Money market funds	747	--	--	747
Total assets	**$ 2,192**	**$ --**	**$ --**	**$ 2,192**

We used prices quoted from our investment advisors to determine the Level 1 valuation of our investments in money market funds.

3. Cash Equivalents and Restricted Securities

The following is a summary of cash equivalents and restricted securities (in thousands):

March 31, 2019	Cost Basis	Unrealized Holding Gains	Estimated Market Value
Cash equivalents:			
Money market funds	$ 1,450	$ --	$ 1,450
Restricted securities:			
Money market funds	731	--	731

December 31, 2018	Cost Basis	Unrealized Holding Gains	Estimated Market Value
Cash equivalents:			
Money market funds	$ 1,445	$ --	$ 1,445
Restricted securities:			
Money market funds	747	--	747

As of March 31, 2019 and December 31, 2018 $731,000 and $747,000, respectively, all of our money market funds were designated as short-term restricted securities due to a contractual commitment to hold the securities as pledged collateral relating primarily to international tax obligations.

There were no gross realized gains or losses on cash equivalents in the three months ended March 31, 2019 and 2018. As of March 31, 2019 $731,000 of our restricted securities had a maturity date within three months. As of December 31, 2018 $512,000 of our restricted securities had a maturity date within three months and $235,000 had a maturity date between three months and one year.

4. Inventories and Deferred Preservation Costs

Inventories at March 31, 2019 and December 31, 2018 were comprised of the following (in thousands):

	March 31,	December 31,

	2019	2018
Raw materials and supplies	$ 16,762	$ 17,381
Work-in-process	4,487	3,858
Finished goods	22,875	24,239
Total inventories	**$ 44,124**	**$ 45,478**

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Deferred preservation costs at March 31, 2019 and December 31, 2018 were comprised of the following (in thousands):

	March 31, 2019	December 31, 2018
Cardiac tissues	$ 16,223	$ 15,972
Vascular tissues	16,412	17,202
Total deferred preservation costs	**$ 32,635**	**$ 33,174**

We maintain consignment inventory of our On-X Life Technologies Holdings, Inc. (On-X) heart valves at domestic hospital locations and On-X heart valves and JOTEC products at international hospital locations to facilitate usage. We retain title to this consignment inventory until the device is implanted, at which time we invoice the hospital and recognize revenue. As of March 31, 2019 we had $11.3 million in consignment inventory, with approximately 54% in domestic locations and 46% in foreign locations. As of December 31, 2018 we had $11.2 million in consignment inventory, with approximately 55% in domestic locations and 45% in foreign locations.

5. Goodwill and Other Intangible Assets

Indefinite Lived Intangible Assets

As of March 31, 2019 and December 31, 2018 the carrying values of our indefinite lived intangible assets were as follows (in thousands):

	March 31, 2019	December 31, 2018
Goodwill	$ 186,706	$ 188,781
In-process R&D	9,206	9,382
Procurement contracts and agreements	2,013	2,013
Trademarks	844	844

We monitor the phases of development of our acquired in-process R&D projects, including the risks associated with further development and the amount and timing of benefits expected to be derived from the completed projects. Incremental costs associated with development are charged to expense as incurred. Capitalized costs are amortized over the estimated useful life of the developed asset once completed. Our in-process R&D projects are reviewed for impairment annually or more frequently if events or changes in circumstances indicate that the asset might be impaired.

Based on our experience with similar agreements, we believe that our acquired procurement contracts and agreements have indefinite useful lives, as we expect to continue to renew these contracts for the foreseeable future. We believe that our trademarks have indefinite useful lives as we currently anticipate that our trademarks will contribute to our cash flows indefinitely.

As of March 31, 2019 and December 31, 2018 our entire goodwill balance was related to our Medical Devices segment.

		Medical Devices Segment
Balance as of December 31, 2018	$	188,781
Revaluation of goodwill denominated in foreign currency		(2,075)
Balance as of March 31, 2019	**$**	**186,706**

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Definite Lived Intangible Assets

As of March 31, 2019 and December 31, 2018 the gross carrying values, accumulated amortization, and approximate amortization period of our definite lived intangible assets were as follows (in thousands):

March 31, 2019	Gross Value	Accumulated Amortization	Amortization Period
Acquired technology	$ 133,187	$ 18,708	11 22 Years
Customer lists and relationships	31,131	5,444	13 22 Years
Distribution and manufacturing rights and know-how	4,059	2,179	11 15 Years
Patents	3,622	2,979	17 Years
Other	1,350	290	3 5 Years

December 31, 2018	Gross Value	Accumulated Amortization	Amortization Period
Acquired technology	$ 134,999	$ 16,815	11 22 Years
Customer lists and relationships	31,169	5,068	13 22 Years
Distribution and manufacturing rights and know-how	4,059	2,107	11 15 Years
Patents	3,656	2,970	17 Years
Other	1,154	235	3 5 Years

Amortization Expense

The following is a summary of amortization expense as recorded in general, administrative, and marketing expenses on our Summary Consolidated Statement of Operations and Comprehensive (Loss) Income (in thousands):

	Three Months Ended March 31, 2019	2018
Amortization expense	$ 2,579	$ 2,735

As of March 31, 2019 scheduled amortization of intangible assets for the next five years is as follows (in thousands):

	Remainder of 2019	2020	2021	2022	2023	2024	Total
Amortization expense	$ 7,727	$ 10,151	$ 10,129	$ 9,583	$ 9,173	$ 8,948	$ 55,711

6. Income Taxes

Income Tax Expense

Our effective income tax rate was a benefit of 82% and 44% for the three months ended March 31, 2019 and 2018, respectively. Our income tax rate for the three months ended March 31, 2019 increased primarily due to excess tax benefit deductions related to stock compensation. The income tax rate was favorably impacted by the research and

development tax credit and losses in high rate jurisdictions, partially offset by unfavorable impacts of non-deductible operating expenses and executive compensation expenses.

Our income tax rate for the three months ended March 31, 2018 was favorably impacted by losses in high rate jurisdictions and excess tax benefit deductions related to stock compensation, partially offset by unfavorable impacts of non-deductible operating expenses and executive compensation expenses.

Deferred Income Taxes

We generate deferred tax assets primarily as a result of write-downs of inventory and deferred preservation costs, accruals for product and tissue processing liability claims, investment and asset impairments, and operating losses. We

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acquired significant deferred tax assets, primarily net operating loss carryforwards, from our acquisitions of JOTEC GmbH (JOTEC) and its subsidiaries in 2017, On-X in 2016, Hemosphere, Inc. in 2012, and Cardiogenesis Corporation in 2011. We believe utilization of these net operating losses will not have a material impact on income taxes for the 2019 tax year.

As of March 31, 2019 we maintained a total of $3.4 million in valuation allowances against deferred tax assets, primarily related to state net operating loss carryforwards, and had a net deferred tax liability of $22.2 million. As of December 31, 2018 we had a total of $3.4 million in valuation allowances against deferred tax assets, primarily related to state net operating loss carryforwards, and a net deferred tax liability of $23.2 million.

7. Leases

In February 2016 the FASB amended its ASC and created a new Topic 842, Leases. The final guidance requires lessees to recognize a right-of-use asset and a lease liability for all long-term leases at the commencement date and recognize expenses on their statements of income similar to the current Topic 840, Leases. It is effective for fiscal years and interim periods beginning after December 15, 2018 and early adoption was permitted. We adopted the new ASC 842, Leases effective January 1, 2019 using the modified retrospective approach, which allows application of the standard at the adoption date rather than at the beginning of the earliest comparative period presented. Therefore, no changes have been made to the 2018 financial statements.

The adoption of this standard resulted in the recognition of operating lease agreements with a net present value of $22.7 million, and corresponding right-of-use assets obtained in the same amount, at January 1, 2019. The leases were recognized with a weighted average discount rate of 5.5% and a weighted average remaining lease term of six years. In addition, deferred rent obligations of approximately $2.4 million recognized under prior lease rules were offset against the corresponding right-of-use asset and will be reflected in amortization over the remaining life of the lease.

Our operating and finance lease liabilities result from the lease of land and buildings that comprise our corporate headquarters, various manufacturing facilities and related space, leases on company vehicles, and leases on a variety of office and other equipment. Our leases do not include terms or conditions which would result in variable lease payments other than for small office equipment leases with an additional charge for volume of usage. These incremental payments are excluded from our calculation of lease liability and the related right-of-use asset.

Our leases have remaining lease terms of one year up to 11 years, some of which have options to extend the leases for up to 29 years and one lease contains a termination option with a two-year notice requirement. We do not include option terms in the determination of lease liabilities and the related right-of-use assets until we determine the exercise of the option is reasonably certain. Our leases do not contain residual value guarantee provisions or other restrictions or financial covenant provisions. The adoption of the new leasing standard had no significant impact on covenants or other provisions of our current term and revolver loan facility agreements.

We exercised judgment in the adoption of the new leasing standard, including the determination of whether a financial arrangement includes a lease and in determining the appropriate discount rates to be applied to leases based on our general collateralized credit standing and the geographical market considerations impacting lease rates across all locations. When available, we use the implicit discount rate in the lease contract to discount lease payments to present value. If an implicit discount rate is not available in the lease contract, we used our incremental borrowing rate. We have elected the package of practical expedients permitted under the transition guidance of the new leasing standard which includes a provision which allows us to carry forward the historical lease classification of identified leasing arrangements and not reassess (i) classification for any existing leases, (ii) whether any expired or existing agreements are or contain a lease, or (iii) whether any initial direct costs qualified for capitalization. We have also elected the

practical expedients that allow us to omit leases with initial terms of 12 months or less from our balance sheet, which are expensed on a straight-line basis over the life of the lease. We have elected not to separate lease and non-lease components for future leases.

On March 8, 2019 we executed a modification to extend the lease of our On-X manufacturing facilities. This modification resulted in an increase in the net present value and corresponding right-of-use asset of $3.7 million, using a discount rate of 5.83%. We have not executed any material lease arrangements which have not commenced. We do not have any related party leasing arrangements.

We sublease, on an operating lease basis, two small unused office space facilities near our corporate office. Total annual rental income for these facilities is approximately $910,000.

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Supplemental consolidated balance sheet information related to leases was as follows (in millions, except lease term and discount rate):

Operating leases:		**March 31, 2019**
Operating lease right-of-use assets	$	24,160
Accumulated amortization		(1,199)
Operating lease right-of-use assets, net	**$**	**22,961**
Current maturities of operating leases	$	4,982
Non-current maturities of operating lease		19,902
Total operating lease liabilities	**$**	**24,884**
Finance leases:		
Property and equipment, at cost	$	7,530
Accumulated amortization		(1,075)
Property and equipment, net	**$**	**6,455**
Current maturities of finance leases	$	678
Non-current maturities of finance leases		5,690
Total finance lease liabilities	**$**	**6,368**
Weighted average remaining lease term (in years):		
Operating leases		6.2
Finance leases		11.2
Weighted average discount rate:		
Operating leases		5.5%
Finance leases		2.0%

Current maturities of finance leases are included as a component of Accrued Expenses and Other and non-current maturities of finance leases are included as a component of Other Long-Term Liabilities on our Summary Consolidated Balance Sheets. A summary of lease expenses for our finance and operating leases included in General, Administrative, and Marketing Expenses on our Summary Consolidated Statements of Operations and Comprehensive (Loss) Income are as follows (in thousands):

	Three Months Ended March 31, 2019

Amortization of property and equipment	$	211
Interest expense on finance leases		32
Total finance lease expense		**243**
Operating lease expense		1,550
Sublease income		(228)
Total lease expense	**$**	**1,565**

A summary of our supplemental cash flow information is as follows (in thousands):

Cash paid for amounts included in the measurement of lease liabilities:		**Three Months Ended March 31, 2019**
Operating cash flows for finance leases	$	32
Operating cash flows for operating leases		1,636
Financing cash flows for finance leases		172

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Future minimum lease payments and sublease rental income are as follows (in thousands):

	Finance Leases	Operating Leases	Sublease Income
Remainder of 2019	$ 627	$ 4,396	$ 684
2020	675	6,046	921
2021	628	5,607	930
2022	575	3,343	380
2023	575	2,321	--
Thereafter	4,023	7,382	--
Total minimum lease payments	$ 7,103	$ 29,095	$ 2,915
Less amount representing interest	(735)	(4,211)	
Present value of net minimum lease payments	6,368	24,884	
Less current maturities	(678)	(4,982)	
Lease liabilities, less current maturities	**$ 5,690**	**$ 19,902**	

8. Debt

Credit Agreement

On December 1, 2017 we entered into a credit and guaranty agreement for a new $255.0 million senior secured credit facility, consisting of a $225.0 million secured term loan facility (the Term Loan Facility) and a $30.0 million secured revolving credit facility (the Revolving Credit Facility and, together with the Term Loan Facility, the Credit Agreement). We and each of our existing domestic subsidiaries (subject to certain exceptions and exclusions) guarantee the obligations under the Credit Agreement (the Guarantors). The Credit Agreement is secured by a security interest in substantially all existing and after-acquired real and personal property (subject to certain exceptions and exclusions) of us and the Guarantors.

On December 1, 2017 we borrowed the entire $225.0 million Term Loan Facility. The proceeds of the Term Loan Facility were used along with cash on hand and shares of CryoLife common stock to (i) fund the previously announced acquisition of JOTEC and its subsidiaries (the JOTEC Acquisition), (ii) pay certain fees and expenses related to the JOTEC Acquisition and the Credit Agreement, and (iii) pay the outstanding balance of our prior credit facility. The Revolving Credit Facility is undrawn following the JOTEC Acquisition and may be used for working capital, capital expenditures, acquisitions permitted under the Credit Agreement, and other general corporate purposes pursuant to the terms of the Credit Agreement.

The loan under the Term Loan Facility is repayable on a quarterly basis according to the amortization provisions set forth in the Credit Agreement. We have the right to repay the loan under the Credit Agreement in whole or in part at any time. Amounts repaid in respect of the loan under the Term Loan Facility may not be reborrowed. Amounts repaid in respect of the loan under the Revolving Credit Facility may be reborrowed. All outstanding principal and interest in respect of (i) the Term Loan Facility must be repaid on or before December 1, 2024 and (ii) the Revolving Credit Facility must be repaid on or before December 1, 2022.

In October 2018 we finalized an amendment to the Credit Agreement to reprice interest rates, resulting in a reduction in the interest rate margins over base rates on the Term Loan Facility. The loan under the Term Loan Facility bears interest, at our option, at a floating annual rate equal to either the base rate, plus a margin of 2.25%, or LIBOR, plus a margin of 3.25%. Prior to the repricing, the optional floating annual rate was equal to either the base rate plus a margin of 3.00%, or LIBOR, plus a margin of 4.00%. The loan under the Revolving Credit Facility bears interest, at our option, at a floating annual rate equal to either the base rate, plus a margin of between 3.00% and 3.25%, depending on our consolidated leverage ratio, or LIBOR, plus a margin of between 4.00% and 4.25%, depending on our consolidated leverage ratio. While a payment or bankruptcy event of default exists, we are obligated to pay a per annum default rate of interest of 2.00% in excess of the interest rate otherwise payable with respect to the overdue principal amount of any loans outstanding and overdue interest payments and other overdue fees and amounts. As of March 31, 2019 the aggregate interest rate was 5.85% per annum. We are obligated to pay an unused commitment fee equal to 0.50% of the unutilized portion of the revolving loans. In addition, we are also obligated to pay other customary fees for a credit facility of this size and type.

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The Credit Agreement contains certain customary affirmative and negative covenants, including covenants that limit our ability and the ability of our subsidiaries to, among other things, grant liens, incur debt, dispose of assets, make loans and investments, make acquisitions, make certain restricted payments, merge or consolidate, change their business or accounting or reporting practices, in each case subject to customary exceptions for a credit facility of this size and type. In addition, with respect to the Revolving Credit Facility, when the principal amount of loans outstanding thereunder is in excess of 25% of the Revolving Credit Facility, the Credit Agreement requires us to comply with a specified maximum first lien net leverage ratio. The Credit Agreement prohibits the payment of certain restricted payments, including cash dividends.

The Credit Agreement includes certain customary events of default that include, among other things, non-payment of principal, interest, or fees; inaccuracy of representations and warranties; breach of covenants; cross-default to certain material indebtedness; bankruptcy and insolvency; and change of control. Upon the occurrence and during the continuance of an event of default, the lenders may declare all outstanding principal and accrued but unpaid interest under the Credit Agreement immediately due and payable and may exercise the other rights and remedies provided under the Credit Agreement and related loan documents. As of March 31, 2019 and December 31, 2018 there were no outstanding balances on our Revolving Credit Facility and the remaining availability was $30.0 million.

Government Supported Bank Debt

In June 2015 JOTEC obtained two loans from Sparkasse Zollernalb, which are government sponsored by the Kreditanstalt für Wiederaufbau Bank (KFW). Both KFW loans have a term of nine years and the interest rates are 2.45% and 1.40%.

Loan Balances

The short-term and long-term balances of our term loan and other borrowings were as follows (in thousands):

	March 31, 2019	December 31, 2018
Term loan balance	$ 222,187	$ 222,750
2.45% Sparkasse Zollernalb (KFW Loan 1)	1,206	1,318
1.40% Sparkasse Zollernalb (KFW Loan 2)	1,683	1,885
Total loan balance	225,076	225,953
Less unamortized loan origination costs	(8,663)	(9,072)
Net borrowings	216,413	216,881
Less short-term loan balance	(1,153)	(1,160)
Long-term loan balance	**$ 215,260**	**$ 215,721**

Interest Expense

Interest expense was $3.9 million for the three months ended March 31, 2019, as compared to $3.7 million for the three months ended March 31, 2018. Interest expense includes interest on debt and uncertain tax positions in both periods.

9. Commitments and Contingencies

Liability Claims

Our estimated unreported loss liability was $1.8 million and $1.7 million as of March 31, 2019 and December 31, 2018, respectively. As of March 31, 2019 and December 31, 2018, the related recoverable insurance amounts were $853,000 and $693,000, respectively. We accrue our estimate of unreported product and tissue processing liability claims as a component of other long-term liabilities and record the related recoverable insurance amount as a component of other long-term assets, as appropriate. Further analysis indicated that the estimated liability as of March 31, 2019 could have been as high as $3.6 million, after including a reasonable margin for statistical fluctuations calculated based on actuarial simulation techniques.

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Employment Agreements

The employment agreement of our Chairman, President, and Chief Executive Officer (CEO), Mr. J. Patrick Mackin, provides for a severance payment, which would become payable upon the occurrence of certain employment termination events, including termination by us without cause.

PerClot Technology

On September 28, 2010 we entered into a worldwide distribution agreement (the Distribution Agreement) and a license and manufacturing agreement (the License Agreement) with Starch Medical, Inc. (SMI), for PerClot®, a polysaccharide hemostatic agent used in surgery. The Distribution Agreement has a term of 15 years but can be terminated for any reason before the expiration date by us by providing 180 days notice. The Distribution Agreement also contains minimum purchase requirements that expire upon the termination of the Distribution Agreement or following U.S. regulatory approval for PerClot. Separate and apart from the terms of the Distribution Agreement, pursuant to the License Agreement, as amended by a September 2, 2011 technology transfer agreement, we can manufacture and sell PerClot, assuming appropriate regulatory approvals, in the U.S. and certain other jurisdictions and may be required to pay royalties to SMI at certain rates on net revenues of products.

We may make contingent payments to SMI of up to $1.0 million if certain U.S. regulatory and certain commercial milestones are achieved.

We are conducting our pivotal clinical trial to gain approval to commercialize PerClot for surgical indications in the U.S. Enrollment was completed in January 2019. We anticipate Premarket Approval (PMA) submission to the U.S. Food and Drug Administration (FDA) in early 2020.

As of March 31, 2019 we had $1.5 million in prepaid royalties, $2.3 million in intangible assets, net, and $1.3 million in property and equipment, net on our Summary Consolidated Balance Sheets related to the PerClot product line. If we do not ultimately pursue or receive FDA approval to commercialize PerClot in the U.S., these assets could be materially impaired in future periods.

10. Revenue Recognition

Sources of Revenue

We have identified the following revenues disaggregated by revenue source:

Domestic Hospitals direct sales of products and preservation services.
International Hospitals direct sales of products and preservation services.
International Distributors generally these contracts specify a geographic area that the distributor will service, terms and conditions of the relationship, and purchase targets for the next calendar year.
CardioGenesis Cardiac Laser Console Trials and Sales CardioGenesis cardiac trialed laser consoles are delivered under separate agreements.

For the three months ended March 31, 2019 and 2018 the sources of revenue were as follows (in thousands):

	Three Months Ended March 31,	
	2019	**2018**
	(Unaudited)	
Domestic hospitals	$ 35,611	$ 33,543
International hospitals	20,570	19,008
International distributors	9,610	8,052
CardioGenesis cardiac laser therapy	1,714	1,345
Total sources of revenue	**$ 67,505**	**$ 61,948**

Also see segment and geographic disaggregation information in Note 13 below.

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Contract Balances

We may generate contract assets during the pre-delivery design and manufacturing stage of E-xtra DESIGN ENGINEERING product order fulfillment. We assess the balance related to any arrangements in process and determine if the enforceable right to payment creates a material contract asset requiring disclosure.

We also incur contract obligations on general customer purchase orders that have been accepted but unfulfilled. Due to the short duration of time between order acceptance and delivery of the related product or service, we have determined that the balance related to these contract obligations is generally immaterial at any point in time. We monitor the value of orders accepted but unfulfilled at the close of each reporting period to determine if disclosure is appropriate. The value of orders accepted but unfulfilled as of March 31, 2019 and 2018 were not material.

11. Stock Compensation

Overview

We have stock option and stock incentive plans for employees and non-employee Directors that provide for grants of restricted stock awards (RSAs), restricted stock units (RSUs), performance stock units (PSUs), and options to purchase shares of our common stock at exercise prices generally equal to the fair value of such stock at the dates of grant. We also maintain a shareholder-approved Employee Stock Purchase Plan (the ESPP) for the benefit of our employees. The ESPP allows eligible employees to purchase common stock on a regular basis at the lower of 85% of the market price at the beginning or end of each offering period.

Equity Grants

During the three months ended March 31, 2019 the Compensation Committee of our Board of Directors (the Committee) authorized awards from approved stock incentive plans of RSUs to certain employees and RSAs and PSUs to certain Company officers, which, assuming that performance under the PSUs were to be achieved at target levels, together totaled 453,000 shares and had an aggregate grant date market value of $13.4 million. Two types of PSUs were granted in 2019, one with a short-term performance component and the other with a long-term performance component. If performance thresholds are met, the short-term PSUs granted in 2019 represent the right to receive up to 150% of the target number of shares of common stock. The performance component of the short-term PSU awards granted in 2019 is based on attaining specified levels of adjusted earnings before interest, taxes, depreciation, and amortization, (EBITDA), as defined in the PSU grant documents, for the 2019 calendar year. If performance thresholds are met, the long-term PSUs granted in 2019 represent the right to receive up to 288% of the target number of shares of common stock. The performance component of the long-term PSU awards granted in 2019 is based on attaining specified levels of adjusted revenue growth and gross margin, as defined in the PSU grant document, for the years 2019 through 2023. We currently believe that achievement of the performance component for both types of PSUs is probable, and we reevaluate this likelihood on a quarterly basis.

During the three months ended March 31, 2018 the Committee authorized awards from approved stock incentive plans of RSUs to certain employees and RSAs and PSUs to certain Company officers, which, including PSUs at target levels, together totaled 273,000 shares of common stock and had an aggregate grant date market value of $5.9 million. The PSUs granted in 2018 represented the right to receive up to 150% of the target number of shares of common stock based on meeting performance thresholds. The performance component of PSU awards granted in 2018 was based on attaining specified levels of adjusted EBITDA, as defined in the PSU grant documents, for the 2018 calendar year. The PSUs granted in 2018 earned 80% of the target number of shares.

The Committee authorized, from approved stock incentive plans, grants of stock options to purchase a total of 169,000 and 219,000 shares to certain Company officers during the three months ended March 31, 2019 and 2018, respectively. The exercise prices of the options were equal to the closing stock prices on their respective grant dates.

Employees purchased common stock totaling 24,000 shares and 36,000 shares in the three months ended March 31, 2019 and 2018, respectively, through the ESPP.

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Stock Compensation Expense

The following weighted-average assumptions were used to determine the fair value of options:

	Three Months Ended March 31, 2019		Three Months Ended March 31, 2018	
	Stock Options	**ESPP Options**	**Stock Options**	**ESPP Options**
Expected life of options	5.0 Years	0.5 Years	5.0 Years	0.5 Years
Expected stock price volatility	0.40	0.39	0.40	0.35
Risk-free interest rate	2.54%	2.56%	2.64%	1.53%

The following table summarizes total stock compensation expenses prior to the capitalization of amounts into deferred preservation and inventory costs (in thousands):

	Three Months Ended March 31,	
	2019	**2018**
RSA, RSU, and PSU expense	$ 1,510	$ 948
Stock option and ESPP option expense	471	406
Total stock compensation expense	**$ 1,981**	**$ 1,354**

Included in the total stock compensation expense, as applicable in each period, were expenses related to RSAs, RSUs, PSUs, and stock options issued in each respective year, as well as those issued in prior periods that continue to vest during the period, and compensation related to the ESPP. These amounts were recorded as stock compensation expense and were subject to our normal allocation of expenses to inventory costs and deferred preservation costs. We capitalized $132,000 in the three months ended March 31, 2019 and $106,000 in the three months ended March 31, 2018, of the stock compensation expense into our inventory costs and deferred preservation costs.

As of March 31, 2019 we had total unrecognized compensation costs of $18.0 million related to RSAs, RSUs, and PSUs and $3.4 million related to unvested stock options. As of March 31, 2019 this expense is expected to be recognized over a weighted-average period of 3.1 years for PSUs, 2.2 years for stock options, 1.9 years for RSUs, and 1.6 years for RSAs.

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12. Loss Per Common Share

The following table sets forth the computation of basic and diluted loss per common share (in thousands, except per share data):

	Three Months Ended March 31,	
Basic loss per common share	**2019**	**2018**
Net loss	$ (297)	$ (3,855)
Net loss allocated to participating securities	2	38
Net loss allocated to common shareholders	**$ (295)**	**$ (3,817)**
Basic weighted-average common shares outstanding	**36,778**	**36,146**
Basic loss per common share	**$ (0.01)**	**$ (0.11)**

	Three Months Ended March 31,	
Diluted loss per common share	**2019**	**2018**
Net loss	$ (297)	$ (3,855)
Net loss allocated to participating securities	2	38
Net loss allocated to common shareholders	**$ (295)**	**$ (3,817)**
Basic weighted-average common shares outstanding	36,778	36,146
Effect of dilutive stock options and awards	--	--
Diluted weighted-average common shares outstanding	**36,778**	**36,146**
Diluted loss per common share	**$ (0.01)**	**$ (0.11)**

We excluded stock options from the calculation of diluted weighted-average common shares outstanding if the per share value, including the sum of (i) the exercise price of the options and (ii) the amount of the compensation cost attributed to future services and not yet recognized, was greater than the average market price of the shares because the inclusion of these stock options would be antidilutive to loss per common share. Accordingly, for the three months ended March 31, 2019 and 2018 all stock options and awards were excluded from the calculation of diluted weighted-average common shares outstanding as these would be antidilutive due to the net loss.

13. Segment Information

We have two reportable segments organized according to our products and services: Medical Devices and Preservation Services. The Medical Devices segment includes external revenues from product sales of BioGlue, JOTEC products, On-X products, CardioGenesis cardiac laser therapy, PerClot, and PhotoFix. The Preservation Services segment includes external services revenues from the preservation of cardiac and vascular tissues. There are no intersegment revenues.

The primary measure of segment performance, as viewed by our management, is segment gross margin or net external revenues less cost of products and preservation services. We do not segregate assets by segment; therefore, asset information is excluded from the segment disclosures below.

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The following table summarizes revenues, cost of products and preservation services, and gross margins for our operating segments (in thousands):

	Three Months Ended March 31,	
	2019	**2018**
Revenues:		
Medical devices	$ 48,401	$ 43,598
Preservation services	19,104	18,350
Total revenues	**67,505**	**61,948**
Cost of products and preservation services:		
Medical devices	13,826	14,157
Preservation services	9,406	8,563
Total cost of products and preservation services	**23,232**	**22,720**
Gross margin:		
Medical devices	34,575	29,441
Preservation services	9,698	9,787
Total gross margin	**$ 44,273**	**$ 39,228**

The following table summarizes net revenues by product and service (in thousands):

	Three Months Ended March 31,	
	2019	**2018**
Products:		
BioGlue	$ 17,222	$ 15,970
JOTEC	15,954	14,460
On-X	11,731	10,309
CardioGenesis cardiac laser therapy	1,714	1,346
PerClot	1,050	972
PhotoFix	730	541
Total products	**48,401**	**43,598**
Preservation services:		

Cardiac tissue	8,930	8,103
Vascular tissue	10,174	10,247
Total preservation services	**19,104**	**18,350**
Total revenues	**$ 67,505**	**$ 61,948**

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Forward-Looking Statements

This Form 10-Q includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934 (the Exchange Act). Forward-looking statements give our expectations or forecasts of future events as of the date of this Form 10-Q. The words could, may, might, will, would, shall, should, pro forma, potential, pending, intend, believe, expect, antic future, assume, and other similar expressions generally identify forward-looking statements. These forward-looking statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Readers are cautioned not to place undue reliance on these forward-looking statements, which are made as of the date of this Form 10-Q.

All statements included herein, other than statements of historical facts, that address activities, events, or developments that we expect or anticipate will or may occur in the future, or that reflect our beliefs about the future and/or expectations, are forward-looking statements, including statements about the following:

- Our belief that our distributors may delay or reduce purchases of products in U.S. Dollars depending on the relative price of goods in their local currencies;
- Our belief regarding the international growth opportunity that would be provided by obtaining regulatory approval for BioGlue in China;
- Our plans, costs, and expected timeline regarding regulatory approval for PerClot in the U.S. and additional international markets and the distribution of PerClot in those markets after the requisite regulatory approvals are obtained;
- Our belief that revenues for preservation services, particularly revenues for certain high-demand cardiac tissues, can vary from quarter to quarter and year to year due to a variety of factors including: quantity and type of incoming tissues, yields of tissue through the preservation process, timing of receipt of donor information, timing of the release of tissues to an implantable status, demand for certain tissue types due to the number and type of procedures being performed, and pressures from competing products or services;
- Our beliefs regarding the seasonal nature of the demand for some of our products and services and the reasons for such seasonality, if any;
- Our belief that our cash from operations and existing cash and cash equivalents will enable us to meet our current operational liquidity needs for at least the next twelve months, our expectations regarding future cash requirements, and the impact that our cash requirements might have on our cash flows for the next twelve months;
- Our expectation regarding the impact on cash flows of undertaking significant business development activities and the potential need to obtain additional borrowing capacity or financing;
- Our belief that the utilization of net operating loss carryforwards from our acquisitions of JOTEC, On-X, Hemosphere, Inc., and Cardiogenesis Corporation will not have a material impact on income taxes for the 2019 tax year; and
- Other statements regarding future plans and strategies, anticipated events, or trends.

These and other forward-looking statements reflect the views of management at the time such statements are made based on certain assumptions and analyses made by us in light of our experience and our perception of historical trends, current conditions, and expected future developments as well as other factors we believe are appropriate in the circumstances and are subject to a number of risks, uncertainties, estimates, and assumptions. Whether actual results and developments will conform with our expectations and predictions is subject to a number of risks and uncertainties which could cause actual results to differ materially from our expectations, including, without limitation, in addition to those specified in the text surrounding such statements, the risks described under Part II, Item 1A, Risks Factors in

this Form 10-Q and elsewhere throughout this report, the risks described under in Part I, Item 1A, Risks Factors in our Annual Report on Form 10-K for the year ended December 31, 2018 and elsewhere throughout that report, and other risks, many of which are beyond our control. Consequently, all of the forward-looking statements made in this Form 10-Q are qualified by these cautionary statements, and there can be no assurance that the actual results or developments anticipated by us will be realized or, even if substantially realized, that they will have the expected consequences to, or effects on, us or our business or operations. We assume no obligation, and expressly disclaim, any duty to update publicly any such forward-looking statements, whether as a result of new information, future events, or otherwise.

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PART I - FINANCIAL INFORMATION

Item 2. Management s Discussion and Analysis of Financial Condition and Results of Operations.

Overview

CryoLife, Inc. (CryoLife, the Company, we, or us), incorporated in 1984 in Florida, is a leader in the manufacturing processing, and distribution of medical devices and implantable human tissues used in cardiac and vascular surgical procedures focused on aortic repair. Our medical devices and processed tissues primarily include four product families: BioGlue® Surgical Adhesive (BioGlue); JOTEC GmbH (JOTEC) endovascular and surgical products; On-X Life Technologies Holdings, Inc. (On-X) mechanical heart valves and surgical products; and cardiac and vascular human tissues including the CryoValve® SG pulmonary heart valve (CryoValve SGPV) and the CryoPatch® SG pulmonary cardiac patch (CryoPatch SG), both of which are processed using our proprietary SynerGraft® technology. Additional products include CardioGenesis cardiac laser therapy, PerClot®, and PhotoFix™.

We reported quarterly revenues of $67.5 million in the three months ended March 31, 2019, a 9% increase from the quarter ended March 31, 2018 primarily due to an increase in revenues from JOTEC, On-X, and BioGlue products, and from preservation services. See the Results of Operations section below for additional analysis of the three months ended March 31, 2019.

Critical Accounting Policies

A summary of our significant accounting policies is included in Note 1 of the Notes to Consolidated Financial Statements contained in our Form 10-K for the year ended December 31, 2018. Management believes that the consistent application of these policies enables us to provide users of the financial statements with useful and reliable information about our operating results and financial condition. The summary consolidated financial statements are prepared in accordance with accounting principles generally accepted in the U.S., which require us to make estimates and assumptions. We did not experience any significant changes during the quarter ended March 31, 2019 in any of our Critical Accounting Policies from those contained in our Form 10-K for the year ended December 31, 2018.

New Accounting Pronouncements

See Note 1 of Notes to Summary Consolidated Financial Statements for further discussion of new accounting standards that have been adopted or are being evaluated for future adoption.

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Results of Operations

(Tables in thousands)

Revenues

	Revenues for the Three Months Ended March 31,		Percent Change From Prior Year	Revenues as a Percentage of Total Revenues for the Three Months Ended March 31,	
	2019	**2018**		**2019**	**2018**
Products:					
BioGlue	$ 17,222	$ 15,970	8%	26%	26%
JOTEC	15,954	14,460	10%	24%	23%
On-X	11,731	10,309	14%	17%	17%
CardioGenesis cardiac laser therapy	1,714	1,346	27%	3%	2%
PerClot	1,050	972	8%	1%	1%
PhotoFix	730	541	35%	1%	1%
Total products	**48,401**	**43,598**	**11%**	**72%**	**70%**
Preservation services:					
Cardiac tissue	8,930	8,103	10%	13%	13%
Vascular tissue	10,174	10,247	-1%	15%	17%
Total preservation services	**19,104**	**18,350**	**4%**	**28%**	**30%**
Total	**$ 67,505**	**$ 61,948**	**9%**	**100%**	**100%**

Revenues increased 9% for the three months ended March 31, 2019 as compared to the three months ended March 31, 2018. The increase in revenues for the three months ended March 31, 2019 was primarily due to increases in JOTEC, On-X, and BioGlue product revenues, as well as preservation services revenues. Excluding the effects for foreign exchange, revenues increased 11% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. A detailed discussion of the changes in product revenues and preservation services revenues for the three months ended March 31, 2019 is presented below.

Products

Revenues from products increased 11% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. The increase was primarily due to the increase in revenues from the sale of JOTEC, On-X, and BioGlue products. A detailed discussion of the changes in product revenues for BioGlue, JOTEC, On-X, CardioGenesis cardiac laser therapy, PerClot, and PhotoFix is presented below.

Sales of certain products through our direct sales force and distributors across Europe and various other countries are denominated in a variety of currencies, with a concentration in Euros but also including British Pounds, Polish Zloty, Swiss Francs, Brazilian Real, and Canadian Dollars which are subject to exchange rate fluctuations. For the three months ended March 31, 2019 as compared to the three months ended March 31, 2018, the U.S. Dollar strengthened in comparison to the major currencies, resulting in revenue decreases when these foreign currency denominated transactions were translated into U.S. Dollars. The impact on the results of operations was not material in either period. Future changes in these exchange rates could have a material, adverse effect on our revenues denominated in these currencies. Additionally, our sales to many distributors around the world are denominated in U.S. Dollars and, although these sales are not directly impacted by currency exchange rates, we believe that some of our distributors may delay or reduce purchases of products in U.S. Dollars depending on the relative price of these goods in their local currencies.

BioGlue

Revenues from the sale of BioGlue increased 8% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. This increase was primarily due to a 12% increase in the volume of milliliters sold, which increased revenues by 13%, partially offset by a decrease in average sales prices, which decreased revenues by 3%, and the impact of foreign exchange rates, which decreased revenues by 2%. Excluding the effects for foreign exchange, revenues increased 10% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018.

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Revenues for BioGlue increased in the first quarter of 2019 compared to the first quarter of 2018 in all markets worldwide with the largest growth in Asia Pacific and Latin America primarily due to changes in distributor buying patterns in those markets.

We are currently seeking regulatory approval for BioGlue in China, and if this effort is successful, management believes this will provide an additional international growth opportunity for BioGlue in future years.

Domestic revenues from BioGlue accounted for 53% and 57% of total BioGlue revenues for the three months ended March 31, 2019 and 2018, respectively.

JOTEC

The JOTEC catalogue of products are used in endovascular and open vascular surgery as well as for the treatment of complex aortic arch and thoracic aortic disease.

JOTEC revenues increased 10% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. This increase was primarily due to a 31% increase in volume of units sold, which increased revenues by 20%, partially offset by a decrease in average sales prices, which decreased revenues by 3%, and the impact of foreign exchange rates, which decreased revenues by 7%. Excluding the effects for foreign exchange, revenues increased 18% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018.

Revenues for JOTEC increased in the first quarter of 2019 compared to the first quarter of 2018 in the European Economic Area, Middle East, and Africa (EMEA), Asia Pacific, and Latin America with the largest growth in the EMEA due to growth in both direct and distributor markets. The decrease in average sales prices was primarily due to an increase in the percentage of sales in indirect markets, which have lower average sales prices than the direct markets.

On-X

The On-X catalogue of products includes the On-X prosthetic aortic and mitral heart valves and the On-X ascending aortic prosthesis (AAP). On-X product revenues also include revenues from the distribution of CarbonAid CO_2 diffusion catheters and from the sale of Chord-X ePTFE sutures for mitral chordal replacement. On-X also generates revenue from pyrolytic carbon coating products produced for other medical device manufacturers (OEM).

On-X product revenues, excluding OEM, increased 14% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. This increase was primarily due to a 12% increase in volume of units sold, which increased revenues by 14%, and an increase in average sales prices, which increased revenues by 1%, partially offset by the impact of foreign exchange rates, which decreased revenues by 1%.

The volume increase of On-X products for the three months ended March 31, 2019 was primarily due to an increase in volume in North America as a result of increases in market share, as well as an increase in volume in EMEA primarily due to increases of shipments in direct markets. On-X OEM sales accounted for less than 1% of product revenues for both the three months ended March 31, 2019 and 2018.

CardioGenesis Cardiac Laser Therapy

Revenues from our CardioGenesis cardiac laser therapy product line consist primarily of sales of handpieces and, in certain periods, the sale of laser consoles. Revenues from cardiac laser therapy increased 27% for the three months

ended March 31, 2019, as compared to the three months ended March 31, 2018. The increase in the three months ended March 31, 2019 was primarily due to a 30% increase in unit shipments of handpieces, which increased revenues by 30%, partially offset by a decrease in average sales prices, which decreased revenues by 7%. The remainder of the increase is due to an increase in service fees.

Cardiac laser therapy is generally used adjunctively with cardiac bypass surgery by a limited number of physicians who perform these procedures, which can cause period over period revenue fluctuations. There was an increase in physician usage during the first quarter of 2019 which increased shipments during this period.

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PerClot

Revenues from the sale of PerClot increased 8% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. The increase in the three months ended March 31, 2019 was primarily due to an increase in average sales prices, which increased revenues by 21%, partially offset by a decrease in the volume of grams sold, which decreased revenues by 10% and the impact of foreign exchange rates, which decreased revenues by 3%.

The increase in average selling prices for the three months ended March 31, 2019 was in both indirect and direct markets. The decrease in volume for the three months ended March 31, 2019 was primarily due to a decrease in sales of PerClot in EMEA.

We are conducting our pivotal clinical trial to gain approval to commercialize PerClot for surgical indications in the U.S. Enrollment was completed in January 2019. We anticipate Premarket Approval (PMA) submission to the U.S. Food and Drug Administration (FDA) in early 2020.

PhotoFix

PhotoFix revenues increased 35% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. The revenue increase was primarily due to an increase in units sold, which increased revenues by 35%, primarily due to an increase in the number of implanting physicians when compared to the prior year period, as this product continues to penetrate domestic markets. In addition, we introduced smaller PhotoFix sizes in 2018 which is contributing to the volume increases.

Preservation Services

Revenues from preservation services increased 4% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018.

We continue to evaluate modifications to our tissue processing procedures in an effort to improve tissue processing throughput, reduce costs, and maintain quality across our tissue processing business. Preservation services revenues, particularly revenues for certain high-demand cardiac tissues, can vary from quarter to quarter and year to year due to a variety of factors including: quantity and type of incoming tissues, yields of tissue through the preservation process, timing of receipt of donor information, timing of the release of tissues to an implantable status, demand for certain tissue types due to the number and type of procedures being performed, and pressures from competing products or services. See further discussion below of specific items affecting cardiac and vascular preservation services revenues for the three months ended March 31, 2019.

Cardiac Preservation Services

Revenues from cardiac preservation services, consisting of revenues from the distribution of heart valves and cardiac patch tissues, increased 10% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. The increase in the three months ended March 31, 2019 was primarily due to a 13% increase in unit shipments of cardiac tissues, which increased revenues by 12%, partially offset by a decrease in average service fees, which decreased revenues by 2%.

The increase in cardiac volume for the three months ended March 31, 2019 was primarily due to an increase in the volume of cardiac valve shipments and, to a lesser extent, cardiac patch shipments. The decrease in average service

fees was primarily due to fee differences related to physical characteristics of these tissues and the routine negotiation of pricing contracts with certain customers.

Our cardiac valves are primarily used in cardiac replacement and reconstruction surgeries, including the Ross procedure, for patients with endocarditis or congenital heart defects. Our cardiac tissues are primarily distributed in domestic markets.

Vascular Preservation Services

Revenues from vascular preservation services decreased 1% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. This decrease was primarily due to a decrease in average service fees, which decreased revenues by 3%, partially offset by a 2% increase in vascular tissue shipments, which increased revenues by 2%.

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The decrease in average service fees for the three months ended March 31, 2019 was primarily driven by fee differences due to physical characteristics of vascular tissues, the routine negotiation of pricing contracts with certain customers, as well as competitive pricing pressures. The increase in vascular volume for the three months ended March 31, 2019 was primarily due to increases in saphenous vein and aortoiliac shipments.

The majority of our vascular preservation services revenues are related to shipments of saphenous veins, which are mainly used in peripheral vascular reconstruction surgeries to avoid limb amputations. Competition with synthetic product alternatives and the availability of tissues for processing are key factors in revenue volume. These tissues are primarily distributed in domestic markets.

Cost of Products and Preservation Services

Cost of Products

	Three Months Ended March 31,	
	2019	**2018**
Cost of products	$ 13,826	$ 14,157

Cost of products decreased 2% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. Cost of products for the three months ended March 31, 2019 and 2018 included costs related to BioGlue, JOTEC, On-X, CardioGenesis cardiac laser therapy, PerClot, and PhotoFix.

Cost of products for the three months ended March 31, 2018 included $1.5 million in inventory basis step-up expense, primarily related to the JOTEC inventory fair value adjustment recorded in purchase accounting.

The decrease in cost of products for the three months ended March 31, 2019 was primarily due to a decrease of acquisition inventory basis step-up expense, as compared to the prior year period as discussed above, partially offset by increases in unit shipments.

Cost of Preservation Services

	Three Months Ended March 31,	
	2019	**2018**
Cost of preservation services	$ 9,406	$ 8,563

Cost of preservation services increased 10% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. Cost of preservation services includes costs for cardiac and vascular tissue preservation services.

Cost of preservation services increased in the three months ended March 31, 2019 primarily due to an increase in the unit shipment of tissues and a small increase in the unit cost of tissue.

Gross Margin

	Three Months Ended March 31,	
	2019	**2018**
Gross margin	$ 44,273	$ 39,228
Gross margin as a percentage of total revenues	66%	63%

Gross margin increased 13% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018, primarily due to increases in JOTEC, On-X, and BioGlue product revenues. Gross margin as a percentage of total revenues increased in the three months ended March 31, 2019, as compared to the three months ended March 31, 2018, primarily due to the additional costs in 2018 for the inventory fair value adjustment recorded in purchase accounting for the JOTEC acquisition.

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Operating Expenses

General, Administrative, and Marketing Expenses

	Three Months Ended March 31,	
	2019	2018
General, administrative, and marketing expenses	$ 36,520	$ 37,348
General, administrative, and marketing expenses as a percentage of total revenues	54%	60%

General, administrative, and marketing expenses decreased 2% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. The decrease in general, administrative, and marketing expenses for the three months ended March 31, 2019 was primarily due to decreased business development and integration expenses primarily related to the JOTEC Acquisition, offset by higher expenses to support our increased revenue base and employee headcount. General, administrative, and marketing expenses for the three months ended March 31, 2019 included $1.1 million in business development and integration expenses, as compared to $3.8 million for the three months ended March 31, 2018, primarily related to the JOTEC Acquisition.

Research and Development Expenses

	Three Months Ended March 31,	
	2019	2018
Research and development expenses	$ 5,548	$ 5,370
Research and development expenses as a percentage of total revenues	8%	9%

Research and development expenses increased 3% for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. Research and development spending in the three months ended March 31, 2019 was primarily focused on clinical work with respect to our pivotal clinical trial to gain approval to commercialize PerClot for surgical indications in the U.S., and JOTEC and On-X products. Research and development spending in the three months ended March 31, 2018 was primarily focused on JOTEC products and clinical work with respect to our pivotal clinical trial to gain approval to commercialize PerClot for surgical indications in the U.S., and to a lesser extent, On-X, BioGlue, and PhotoFix products.

Interest Expense

Interest expense was $3.9 million for the three months ended March 31, 2019, as compared to $3.7 million for the three months ended March 31, 2018. Interest expense in the three months ended March 31, 2019 and 2018 included interest on debt and uncertain tax positions.

Other Expense (Income), Net

Other expense was $77,000 for the three months ended March 31, 2019, as compared to other income of $181,000 for the three months ended March 31, 2018. Other income and other expense primarily includes the realized effect of foreign currency gains and losses.

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Earnings

	Three Months Ended March 31,	
	2019	**2018**
Loss before income taxes	$ (1,650)	$ (6,906)
Income tax benefit	(1,353)	(3,051)
Net loss	**$ (297)**	**$ (3,855)**
Diluted loss per common share	**$ (0.01)**	**$ (0.11)**
Diluted weighted-average common shares outstanding	**36,778**	**36,146**

Loss before income taxes decreased 76% in the three months ended March 31, 2019, as compared to the three months ended March 31, 2018 primarily due to a decrease in integration and business development expenses and inventory basis step-up expense related to the JOTEC Acquisition.

Our effective income tax rate was a benefit of 82% and 44% for the three months ended March 31, 2019 and 2018, respectively. Our income tax rate for the three months ended March 31, 2019 increased primarily due to excess tax benefit deductions related to stock compensation. The income tax rate was favorably impacted by the research and development tax credit and losses in high rate jurisdictions, partially offset by unfavorable impacts of non-deductible operating expenses and executive compensation expenses.

Our income tax rate for the three months ended March 31, 2018 was favorably impacted by losses in high rate jurisdictions and excess tax benefit deductions related to stock compensation, partially offset by unfavorable impacts of non-deductible operating expenses and executive compensation expenses.

Net loss and diluted loss per common share decreased for the three months ended March 31, 2019, as compared to the three months ended March 31, 2018. The decrease for the three months ended March 31, 2019 was primarily due to the decrease in the loss before income taxes, as discussed above.

Seasonality

We believe the demand for BioGlue and On-X products is seasonal, with a decline in demand generally occurring in the third quarter followed by stronger demand in the fourth quarter. We believe that this trend may be due to the summer holiday season in Europe and the U.S. We further believe that demand for BioGlue in Japan may continue to be lowest in the second quarter of each year due to distributor ordering patterns driven by the slower summer holiday season in Japan, although this trend could vary somewhat from year to year. We believe the seasonality for On-X products may be obscured as the On-X products have not fully penetrated many markets.

We believe the demand for JOTEC products is seasonal with a decline in demand generally occurring in the third quarter due to the summer holiday season in Europe. However, the nature of any seasonal trends may be obscured due

to integration activities subsequent to the JOTEC Acquisition including the distributor-to-direct strategy and the European sales force realignment.

We do not believe the demand for CardioGenesis cardiac laser therapy is seasonal, as our data does not indicate a significant trend.

We are uncertain whether the demand for PerClot or PhotoFix will be seasonal, as these products have not fully penetrated many markets and, therefore, the nature of any seasonal trends may be obscured.

Demand for our cardiac preservation services has traditionally been seasonal, with peak demand generally occurring in the third quarter. We believe this trend for cardiac preservation services is primarily due to the high number of surgeries scheduled during the summer months for school-aged patients. Based on experience in recent years, we believe that this trend is lessening as we are distributing a higher percentage of our tissues for use in adult populations.

Demand for our vascular preservation services is seasonal, with lowest demand generally occurring in the fourth quarter. We believe this trend for vascular preservation services is primarily due to fewer vascular surgeries being scheduled during the winter holiday months.

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Liquidity and Capital Resources

Net Working Capital

As of March 31, 2019 net working capital (current assets of $178.7 million less current liabilities of $36.4 million) was $142.3 million, with a current ratio (current assets divided by current liabilities) of 5 to 1, compared to net working capital of $144.7 million and a current ratio of 5 to 1 at December 31, 2018.

Overall Liquidity and Capital Resources

Our primary cash requirements for the three months ended March 31, 2019 were general working capital needs, interest and principal payments under our debt agreement, repurchases of stock to cover tax withholdings, business development and integration expenses, and capital expenditures for facilities and equipment. We funded our cash requirements through our existing cash reserves and proceeds from stock option exercises.

We believe our cash from operations and existing cash and cash equivalents will enable us to meet our current operational liquidity needs for at least the next twelve months. Our future cash requirements are expected to include interest and principal payments under our debt agreement, expenditures for clinical trials, additional research and development expenditures, general working capital needs, capital expenditures, and other corporate purposes and may include cash to fund business development activities. These items may have a significant effect on our future cash flows during the next twelve months. Subject to the terms of our credit facility, considering our revolving credit availability and other obligations, we may seek additional borrowing capacity or financing, pursuant to our current or any future shelf registration statement, for general corporate purposes or to fund other future cash requirements. If we undertake any further significant business development activity, we may need to finance such activities by drawing down monies under our credit agreement, discussed below, obtaining additional debt financing, or using a registration statement to sell equities. There can be no assurance that we will be able to obtain any additional debt or equity financing at the time needed or that such financing will be available on terms that are favorable or acceptable to us.

Significant Sources and Uses of Liquidity

In connection with the closing of the JOTEC Acquisition, we entered into a credit and guaranty agreement for a new $255.0 million senior secured credit facility, consisting of a $225.0 million secured term loan facility (the Term Loan Facility) and a $30.0 million secured revolving credit facility (the Revolving Credit Facility and, together with the Term Loan Facility, the Credit Agreement). We and each of our existing domestic subsidiaries (subject to certain exceptions and exclusions) guarantee the obligations under the Credit Agreement (the Guarantors). The Credit Agreement is secured by a security interest in substantially all existing and after-acquired real and personal property (subject to certain exceptions and exclusions) of us and the Guarantors.

On December 1, 2017 CryoLife borrowed the entire $225.0 million Term Loan Facility. The proceeds of the Term Loan Facility were used along with cash on hand and shares of CryoLife common stock to (i) fund the JOTEC Acquisition, (ii) pay certain fees and expenses related to the JOTEC Acquisition and the Credit Agreement, and (iii) pay the outstanding balance of our prior credit facility.

In October 2018 we finalized an amendment to the Credit Agreement to reprice interest rates, resulting in a reduction in the interest rate margins over base rates on the Term Loan Facility. The loan under the Term Loan Facility bears interest, at our option, at a floating annual rate equal to either the base rate, plus a margin of 2.25%, or LIBOR, plus a margin of 3.25%. Prior to the repricing, the optional floating annual rate was equal to either the base rate, plus a margin of 3.00%, or LIBOR, plus a margin of 4.00%. The loan under the Revolving Credit Facility bears interest, at

our option, at a floating annual rate equal to either the base rate, plus a margin of between 3.00% and 3.25%, depending on our consolidated leverage ratio, or LIBOR, plus a margin of between 4.00% and 4.25%, depending on our consolidated leverage ratio. While a payment or bankruptcy event of default exists, we are obligated to pay a per annum default rate of interest of 2.00% in excess of the interest rate otherwise payable with respect to the overdue principal amount of any loans outstanding and overdue interest payments and other overdue fees and amounts. As of March 31, 2019 the remaining availability on our revolving credit facility was $30.0 million.

We are conducting our pivotal clinical trial to gain approval to commercialize PerClot for surgical indications in the U.S. Enrollment was completed in January 2019. We anticipate PMA submission to the FDA in early 2020. See also Part II, Item 1A, Risk Factors Risks Relating To Our Business Our investment in PerClot is subject to significant risks, including our

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ability to fully realize our investment by obtaining FDA approval and to successfully commercialize PerClot in the U.S. either directly or indirectly.

We believe utilization of net operating loss carryforwards from our acquisitions of JOTEC, On-X, Hemosphere, Inc., and Cardiogenesis Corporation will not have a material impact on income taxes for the 2019 tax year.

As of March 31, 2019 approximately 17% of our cash and cash equivalents were held in foreign jurisdictions.

Net Cash Flows from Operating Activities

Net cash provided by operating activities was $1.2 million for the three months ended March 31, 2019, as compared to net cash used in operating activities of $9.7 million for the three months ended March 31, 2018. The prior year cash used in operating activities was largely a result of increased integration and business development costs resulting in a higher net loss, primarily related to the JOTEC Acquisition. These expenses made up a large portion of the $10.4 million unfavorable adjustment due to the timing differences between recording accounts payable, accrued expenses, and other liabilities and the payment of cash.

We use the indirect method to prepare our cash flow statement and, accordingly, the operating cash flows are based on our net loss, which is then adjusted to remove non-cash items, items classified as investing and financing cash flows, and for changes in operating assets and liabilities from the prior year end. For the three months ended March 31, 2019 these non-cash items included $4.4 million in depreciation and amortization expenses and $1.9 million in non-cash compensation.

Our working capital needs, or changes in operating assets and liabilities, also affected cash from operations. For the three months ended March 31, 2019 these changes included unfavorable adjustments of $3.3 million due to the timing difference between recording receivables and the receipt of cash and $3.8 million due to timing differences between recording accounts payable, accrued expenses, and other liabilities and the payment of cash, partially offset by $1.4 million due to decreases in inventory balances and deferred preservation costs.

Net Cash Flows from Investing Activities

Net cash used in investing activities was $1.4 million for the three months ended March 31, 2019, as compared to $2.1 million for the three months ended March 31, 2018 primarily due to capital expenditures in both years.

Net Cash Flows from Financing Activities

Net cash used in financing activities was $1.2 million for the three months ended March 31, 2019, as compared to $2.0 million for the three months ended March 31, 2018. The current year cash used was primarily due to $2.4 million for repurchases of common stock to cover tax withholdings and $696,000 in principal payments on debt, partially offset by $2.0 million in proceeds from the exercise of options and issuance of common stock.

Off-Balance Sheet Arrangements

We have no off-balance sheet arrangements.

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Scheduled Contractual Obligations and Future Payments

Scheduled contractual obligations and the related future payments as of March 31, 2019 were as follows (in thousands):

	Total	Remainder of 2019	2020	2021	2022	2023	Thereafter
Long-term debt obligations	$ 225,262	$ 2,085	$ 2,781	$ 2,781	$ 2,781	$ 2,781	$ 212,053
Interest on long-term debt	71,753	9,757	12,886	12,744	12,603	12,461	11,302
Operating leases	29,095	4,396	6,046	5,607	3,343	2,321	7,382
Purchase commitments	8,539	6,150	1,975	243	138	18	15
Finance leases	7,103	627	675	628	575	575	4,023
Research obligations	4,043	1,807	760	531	466	325	154
Contingent payments	1,000	--	--	1,000	--	--	--
Total contractual obligations	**$ 346,795**	**$ 24,822**	**$ 25,123**	**$ 23,534**	**$ 19,906**	**$ 18,481**	**$ 234,929**

Our long-term debt obligations and interest payments above result from scheduled principal payments and anticipated interest payments related to our Credit Agreement and the JOTEC governmental loans.

Our operating and finance lease obligations result from the lease of land and buildings that comprise our corporate headquarters and our various manufacturing facilities, leases related to additional manufacturing, office, and warehouse space, leases on Company vehicles, and leases on a variety of office equipment and other equipment. The operating and finance lease obligations in this schedule are based on actual payments which includes both interest and lease liability.

Our purchase commitments include obligations from agreements with suppliers, one of which is the minimum purchase requirements for PerClot under a distribution agreement with Starch Medical, Inc. (SMI). Pursuant to the terms of the distribution agreement, we may terminate that agreement, including the minimum purchase requirements set forth in the agreement for various reasons, one of which is if we obtain FDA approval for PerClot. These minimum purchases are included in the table above through 2019, based on the assumption that we will not terminate the distribution agreement before its target date for receiving FDA approval for PerClot in 2020. However, if we do not obtain FDA approval for PerClot and choose not to terminate the distribution agreement, we may have minimum purchase obligations of up to $1.75 million per year through the end of the contract term in 2025.

Our research obligations represent commitments for ongoing studies and payments to support research and development activities.

The contingent payments obligation includes payments that we may make if certain U.S. regulatory approvals and certain commercial milestones are achieved related to our transaction with SMI for PerClot.

The schedule of contractual obligations above excludes (i) obligations for estimated liability claims unless they are due as a result of a settlement agreement or other contractual obligation, as no assessments have been made for specific litigation, and (ii) any estimated liability for uncertain tax positions and interest and penalties, currently estimated to be $4.3 million, as no specific assessments have been made by any taxing authorities.

Capital Expenditures

Capital expenditures were $1.2 million and $2.1 million for the three months ended March 31, 2019 and 2018, respectively. Capital expenditures in the three months ended March 31, 2019 were primarily related to the routine purchases of manufacturing and tissue processing equipment, leasehold improvements needed to support our business, computer software, and computer and office equipment.

Risks and Uncertainties

See the risks identified in Part II, Item 1A of this Form 10-Q.

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Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Interest Rate Risk

Our interest income and interest expense are sensitive to changes in the general level of U.S. interest rates. In this regard, changes in U.S. interest rates affect the interest earned on our cash and cash equivalents of $40.3 million as of March 31, 2019 and interest paid on the outstanding balances, if any, of our variable rate Revolving Credit Facility and $225.0 million secured Term Loan Facility. A 10% adverse change in interest rates, as compared to the rates experienced by us in the three months ended March 31, 2019, affecting our cash and cash equivalents, restricted cash and securities, $225.0 million secured Term Loan Facility, and Revolving Credit Facility would not have a material effect on our financial position, results of operations, or cash flows.

Foreign Currency Exchange Rate Risk

We have balances, such as cash, accounts receivable, accounts payable, and accruals that are denominated in foreign currencies. These foreign currency denominated balances are sensitive to changes in exchange rates. In this regard, changes in exchange rates could cause a change in the U.S. Dollar equivalent of cash or funds that we will receive in payment for assets or that we would have to pay to settle liabilities. As a result, we could be required to record these changes as gains or losses on foreign currency translation.

We have revenues and expenses that are denominated in foreign currencies. Specifically, a portion of our international BioGlue, On-X, PerClot, and JOTEC revenues are denominated in Euros, British Pounds, Swiss Francs, Polish Zloty, Canadian Dollars, and Brazilian Reals, and a portion of our general, administrative, and marketing expenses are denominated in Euros, British Pounds, Swiss Francs, Polish Zloty, Canadian Dollars, Brazilian Reals, and Singapore Dollars. These foreign currency transactions are sensitive to changes in exchange rates. In this regard, changes in exchange rates could cause a change in the U.S. Dollar equivalent of net income from transactions conducted in other currencies. As a result, we could recognize a reduction in revenues or an increase in expenses related to a change in exchange rates.

An additional 10% adverse change in exchange rates from the exchange rates in effect on March 31, 2019, affecting our balances denominated in foreign currencies, would not have had a material effect on our financial position, results of operations, or cash flows. An additional 10% adverse change in exchange rates from the weighted-average exchange rates experienced by us for the three months ended March 31, 2019, affecting our revenue and expense transactions denominated in foreign currencies, would not have had a material effect on our financial position, results of operations, or cash flows.

Item 4. Controls and Procedures.

We maintain disclosure controls and procedures (Disclosure Controls) as such term is defined under Rule 13a-15(e) promulgated under the Exchange Act. These Disclosure Controls are designed to ensure that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized, and reported within the time periods specified in the Securities and Exchange Commission s rules and forms, and that such information is accumulated and communicated to management, including the Chief Executive Officer (CEO) and Chief Financial Officer (CFO), as appropriate, to allow timely decisions regarding required disclosures.

Our management, including our President and CEO and our Executive Vice President of Finance, Chief Operating Officer, and CFO, does not expect that our Disclosure Controls will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of

the control system are met. The design of any system of controls is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving our stated goals under all potential future conditions. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Due to the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within CryoLife have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Our Disclosure Controls have been designed to provide reasonable assurance of achieving their objectives.

Our management utilizes the criteria set forth in Internal Control-Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission to evaluate the effectiveness of our Disclosure Controls over financial reporting. Based upon the most recent Disclosure Controls evaluation conducted by management

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with the participation of the CEO and CFO, as of March 31, 2019, the CEO and CFO have concluded that our Disclosure Controls were effective at the reasonable assurance level to satisfy their objectives and to ensure that the information required to be disclosed by us in our periodic reports is accumulated and communicated to management, including the CEO and CFO, as appropriate to allow timely decisions regarding disclosure and is recorded, processed, summarized, and reported within the time periods specified in the U.S. Securities and Exchange Commission s rules and forms.

Part II - OTHER INFORMATION

Item 1. Legal Proceedings.

From time to time, we are involved in legal proceedings concerning matters arising from the conduct of our business activities. We regularly evaluate the status of legal proceedings in which we are involved in order to assess whether a loss is probable or whether there is a reasonable possibility that a loss or additional loss may have been incurred and to determine if accruals are appropriate. We further evaluate each legal proceeding to assess whether an estimate of possible loss or range of loss can be made.

Based on current knowledge, we do not believe that there are any pending matters that could potentially have a material adverse effect on our business, financial condition, results of operations, or cash flows. We are, however, engaged in various legal actions in the normal course of business. There can be no assurances in light of the inherent uncertainties involved in any potential legal proceedings, some of which are beyond our control, and an adverse outcome in any legal proceeding could be material to our results of operations or cash flows for any particular reporting period.

Item 1A. Risk Factors.

Risks Relating To Our Business

We may not realize all of the anticipated benefits of the JOTEC Acquisition.

On December 1, 2017 we acquired JOTEC AG, a Swiss entity that we converted to JOTEC GmbH and subsequently merged with our Swiss acquisition entity, Jolly Buyer Acquisition GmbH (JOTEC), and its subsidiaries (the JOTEC Acquisition) for $169.1 million in cash and 2,682,754 shares of CryoLife common stock with a value of $53.1 million on the date of closing, for a total purchase price of approximately $222.2 million, including debt and cash acquired on the date of closing. We paid part of the cash portion of the purchase price using available cash on hand and financed the remainder of the cash portion of the purchase price and related expenses and refinanced our then existing approximately $69.0 million term loan, with a new $255.0 million senior secured credit facility, consisting of a $225.0 million secured term loan facility and a $30.0 million undrawn secured revolving credit facility.

Our ability to realize the anticipated business opportunities, growth prospects, cost savings, synergies, and other benefits of the JOTEC Acquisition depends on a number of factors including:

- The continued growth of the global market for stent grafts used in endovascular and open repair of aortic disease;
- Our ability to leverage our global infrastructure, including in the markets in which JOTEC is already direct; minimize difficulties and costs associated with transitioning away from distributors in key markets; and

accelerate our ability to go direct in Europe in developed markets with the CryoLife and JOTEC product portfolios;
Our ability to foster cross-selling opportunities between the CryoLife and JOTEC product portfolios;
Our ability to bring JOTEC products to the U.S. market;
Our ability to harness the JOTEC new product pipeline and R&D capabilities to drive long-term growth, including our ability to obtain Conformité Européene Mark product certification (CE Mark) for pipeline products;
Our ability to drive gross margin expansion;
Our ability to successfully integrate the JOTEC business with ours, including integrating the combined European sales force;
Our ability to compete effectively;
Our ability to carry, service, and manage significantly more debt and repayment obligations; and
Our ability to manage the unforeseen risks and uncertainties related to JOTEC s business, including any related to intellectual property rights.

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Many of these factors are outside of our control and any one of them could result in increased costs, decreased revenues, and diversion of management s time and energy, which could materially, adversely impact our business, financial condition, profitability, and cash flows. These benefits may not be achieved within the anticipated time frame or at all. Any of these factors could negatively impact our earnings per share, decrease or delay the expected accretive effect of the acquisition, and negatively impact the price of our common stock. In addition, if we fail to realize the anticipated benefits of the acquisition, we could experience an interruption or loss of momentum in our existing business activities, which could adversely affect our revenues, financial condition, profitability, and cash flows.

Our indebtedness could adversely affect our ability to raise additional capital to fund our operations and limit our ability to react to changes in the economy or our industry.

Our current and future levels of indebtedness could:

- Limit our ability to borrow money for our working capital, capital expenditures, development projects, strategic initiatives, or other purposes;
- Require us to dedicate a substantial portion of our cash flow from operations to the repayment of our indebtedness, thereby reducing funds available to us for other purposes;
- Limit our flexibility in planning for, or reacting to, changes in our operations or business;
- Make us more vulnerable to downturns in our business, the economy, or the industry in which we operate;
- Restrict us from making strategic acquisitions, introducing new technologies, or exploiting business opportunities; and