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 **June 30, 2020**

OR

o 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)

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 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 x No o

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 x No o

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	x	Accelerated Filer	o
Non-accelerated Filer	o	Smaller Reporting Company	o
		Emerging Growth Company	o

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 o No x

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 July 24, 2020
Common Stock, $0.01 par value	37,858,008

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Part I – FINANCIAL INFORMATION

Item 1. Financial Statements.

CryoLife, Inc. and Subsidiaries
Summary Consolidated Statements of Operations and Comprehensive Income (Loss)
In Thousands, Except Per Share Data
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
Revenues:				
Products	$ 37,268	$ 51,168	$ 83,688	$ 99,569
Preservation services	16,503	19,971	36,512	39,075
Total revenues	**53,771**	**71,139**	**120,200**	**138,644**
Cost of products and preservation services:				
Products	10,040	14,489	23,080	28,315
Preservation services	7,841	9,684	17,059	19,090
Total cost of products and preservation services	**17,881**	**24,173**	**40,139**	**47,405**
Gross margin	**35,890**	**46,966**	**80,061**	**91,239**
Operating expenses:				
General, administrative, and marketing	32,288	34,623	71,290	71,143
Research and development	5,522	5,841	11,878	11,389
Total operating expenses	**37,810**	**40,464**	**83,168**	**82,532**
Operating (loss) income	**(1,920)**	**6,502**	**(3,107)**	**8,707**
Interest expense	3,652	3,811	7,040	7,705
Interest income	(66)	(233)	(168)	(349)
Other (income) expense, net	(740)	185	2,922	262
(Loss) income before income taxes	**(4,766)**	**2,739**	**(12,901)**	**1,089**
Income tax benefit	(1,077)	(93)	(2,547)	(1,446)
Net (loss) income	$ **(3,689)**	$ **2,832**	$ **(10,354)**	$ **2,535**
(Loss) income per common share:				
Basic	$ **(0.10)**	$ **0.08**	$ **(0.27)**	$ **0.07**
Diluted	$ **(0.10)**	$ **0.07**	$ **(0.27)**	$ **0.07**
Weighted-average common shares outstanding:				
Basic	37,520	37,156	37,455	36,968
Diluted	37,520	37,838	37,455	37,789
Net (loss) income	$ **(3,689)**	$ **2,832**	$ **(10,354)**	$ **2,535**
Other comprehensive income (loss):				
Foreign currency translation adjustments	4,434	2,995	(29)	(786)
Comprehensive income (loss)	$ **745**	$ **5,827**	$ **(10,383)**	$ **1,749**

See accompanying Notes to Summary Consolidated Financial Statements

CryoLife, Inc. and Subsidiaries
Summary Consolidated Balance Sheets
In Thousands

	June 30, 2020	December 31, 2019
	(Unaudited)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 125,627	$ 33,766
Restricted securities	491	528
Trade receivables, net	45,218	52,940
Other receivables	3,042	2,921
Inventories	62,708	53,071
Deferred preservation costs	34,808	32,551
Prepaid expenses and other	15,227	11,613
Total current assets	**287,121**	**187,390**
Property and equipment, net	31,527	32,150
Operating lease right-of-use assets, net	20,007	21,994
Goodwill	186,349	186,697
Acquired technology, net	110,935	115,415
Other intangibles, net	40,884	42,319
Deferred income taxes	2,422	5,481
Other assets	14,009	14,208
Total assets	**$ 693,254**	**$ 605,654**
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 10,079	$ 9,796
Accrued compensation	10,129	12,260
Accrued procurement fees	3,631	4,362
Current maturities of operating leases	5,522	5,487
Current portion of long-term debt	1,138	1,164
Taxes payable	4,244	2,984
Accrued expenses and other	14,190	9,142
Total current liabilities	**48,933**	**45,195**
Long-term debt	288,946	214,571
Deferred income taxes	25,886	25,844
Non-current maturities of operating leases	15,797	17,918
Deferred compensation liability	4,645	4,434
Other	12,491	11,996
Total liabilities	**$ 396,698**	**$ 319,958**
Commitments and contingencies		
Shareholders' equity:		
Preferred stock	--	--
Common stock (issued shares of 39,288 in 2020 and 39,018 in 2019)	393	390
Additional paid-in capital	293,022	271,782
Retained earnings	26,350	36,704
Accumulated other comprehensive loss	(8,618)	(8,589)
Treasury stock at cost (shares of 1,484 in each of 2020 and 2019)	(14,591)	(14,591)
Total shareholders' equity	**296,556**	**285,696**
Total liabilities and shareholders' equity	**$ 693,254**	**$ 605,654**

See accompanying Notes to Summary Consolidated Financial Statements.

CryoLife, Inc. and Subsidiaries
Summary Consolidated Statements of Cash Flows
In Thousands
(Unaudited)

	Six Months Ended June 30,	
	2020	**2019**
Net cash flows from operating activities:		
Net (loss) income	$ (10,354)	$ 2,535
Adjustments to reconcile net (loss) income to net cash from operating activities:		
Depreciation and amortization	9,642	8,731
Non-cash compensation	5,074	4,119
Deferred income taxes	(1,894)	(301)
Other non-cash adjustments to net (loss) income	5,594	4,032
Changes in operating assets and liabilities:		
Receivables	7,644	(10,446)
Inventories and deferred preservation costs	(12,902)	262
Prepaid expenses and other assets	(3,422)	(3,131)
Accounts payable, accrued expenses, and other liabilities	(142)	(3,894)
Net cash flows (used in) provided by operating activities	**(760)**	**1,907**
Net cash flows from investing activities:		
Capital expenditures	(3,776)	(3,344)
Other	(705)	(302)
Net cash flows used in investing activities	**(4,481)**	**(3,646)**
Net cash flows from financing activities:		
Proceeds from issuance of convertible debt	100,000	--
Proceeds from revolving line of credit	30,000	--
Proceeds from financing insurance premiums	2,816	--
Repayment of revolving line of credit	(30,000)	--
Payment of debt issuance costs	(3,647)	--
Repayment of term loan	(1,389)	(1,393)
Proceeds from exercise of stock options and issuance of common stock	1,175	3,582
Redemption and repurchase of stock to cover tax withholdings	(1,728)	(2,664)
Other	(1,041)	(349)
Net cash flows provided by (used in) financing activities	**96,186**	**(824)**
Effect of exchange rate changes on cash, cash equivalents, and restricted securities	879	582
Increase (decrease) in cash, cash equivalents, and restricted securities	**91,824**	**(1,981)**
Cash, cash equivalents, and restricted securities beginning of period	34,294	42,236
Cash, cash equivalents, and restricted securities end of period	**$ 126,118**	**$ 40,255**

See accompanying Notes to Summary Consolidated Financial Statements

CryoLife, Inc. and Subsidiaries
Summary Consolidated Statements of Shareholders' Equity
In Thousands
(Unaudited)

	Common Stock		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Treasury Stock		Total Shareholders' Equity
	Shares	Amount				Shares	Amount	
Balance at March 31, 2020	**39,219**	**392**	**273,821**	**30,039**	**(13,052)**	**(1,484)**	**(14,591)**	**276,609**
Net loss	--	--	--	(3,689)	--	--	--	(3,689)
Other comprehensive income:								
Foreign currency translation adjustment	--	--	--	--	4,434	--	--	4,434
Comprehensive income								745
Equity component of the convertible note issuance	--	--	16,426	--	--	--	--	16,426
Equity compensation	59	1	2,680	--	--	--	--	2,681
Exercise of options	11	1	110	--	--	--	--	111
Redemption and repurchase of stock to cover tax withholdings	(1)	(1)	(15)	--	--	--	--	(16)
Balance at June 30, 2020	**39,288**	**$ 393**	**$ 293,022**	**$ 26,350**	**$ (8,618)**	**(1,484)**	**$ (14,591)**	**$ 296,556**

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	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, 2019	**39,018**	**390**	**271,782**	**36,704**	**(8,589)**	**(1,484)**	**(14,591)**	**$ 285,696**
Net loss	--	--	--	(10,354)	--	--	--	(10,354)
Other comprehensive loss:								
Foreign currency translation adjustment	--	--	--	--	(29)	--	--	(29)
Comprehensive loss								(10,383)
Equity component of the convertible note issuance	--	--	16,426	--	--	--	--	16,426
Equity compensation	267	3	5,367	--	--	--	--	5,370
Exercise of options	44	1	486	--	--	--	--	487
Employee stock purchase plan	30	--	688	--	--	--	--	688
Redemption and repurchase of stock to cover tax withholdings	(71)	(1)	(1,727)	--	--	--	--	(1,728)
Balance at June 30, 2020	**39,288**	**$ 393**	**$ 293,022**	**$ 26,350**	**$ (8,618)**	**(1,484)**	**$ (14,591)**	**$ 296,556**

See accompanying Notes to Consolidated Financial Statements

CryoLife, Inc. and Subsidiaries
Summary Consolidated Statements of Shareholders' Equity
In Thousands
(Unaudited)

	Common Stock		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Treasury Stock		Total Shareholders' Equity
	Shares	Amount				Shares	Amount	
Balance at March 31, 2019	**38,756**	**$ 388**	**$ 261,991**	**$ 34,687**	**$ (9,853)**	**(1,484)**	**$ (14,591)**	**$ 272,622**
Net income	--	--	--	2,832	--	--	--	2,832
Other comprehensive income:								
Foreign currency translation adjustment	--	--	--	--	2,995	--	--	2,995
Comprehensive income								5,827
Equity compensation	40	--	2,439	--	--	--	--	2,439
Exercise of options	156	2	1,551	--	--	--	--	1,553
Redemption and repurchase of stock to cover tax withholdings	(9)	(1)	(287)	--	--	--	--	(288)
Balance at June 30, 2019	**38,943**	**$ 389**	**$ 265,694**	**$ 37,519**	**$ (6,858)**	**(1,484)**	**$ (14,591)**	**$ 282,153**

	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 income	--	--	--	2,535		--	--	2,535
Other comprehensive income:								
Foreign currency translation adjustment	--	--	--	--	(786)	--	--	(786)
Comprehensive income								1,749
Equity compensation	245	2	4,417	--	--	--	--	4,419
Exercise of options	301	3	3,001	--	--			3,004
Employee stock purchase plan	25	--	578	--	--	--	--	578
Redemption and repurchase of stock to cover tax withholdings	(91)	(1)	(2,663)	--	--	--	--	(2,664)
Balance at June 30, 2019	**38,943**	**$ 389**	**$ 265,694**	**$ 37,519**	**$ (6,858)**	**(1,484)**	**$ (14,591)**	**$ 282,153**

See accompanying Notes to Consolidated Financial Statements

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, 2019 has been derived from audited financial statements. The accompanying unaudited summary consolidated financial statements as of, and for the three and six months ended, June 30, 2020 and 2019 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 the information and disclosures that are 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 and six months ended June 30, 2020 are not necessarily indicative of the results that may be expected for the year ending December 31, 2020. These summary consolidated financial statements should be read in conjunction with the consolidated financial statements and notes included in CryoLife's Annual Report on Form 10-K for the year ended December 31, 2019 filed with the SEC on February 19, 2020.

New Accounting Standards

Recently Adopted

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* ("ASU 2016-13"). 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. The Company adopted this new guidance on January 1, 2020. The adoption of ASU 2016-13 did not result in a material effect on the Company's financial condition, results of operations, or cash flows.

2. Agreements with Endospan

Exclusive Distribution Agreement and Securities Purchase Option Agreement

On September 11, 2019 CryoLife, Inc.'s wholly owned subsidiary, JOTEC GmbH, ("JOTEC"), entered into an exclusive distribution agreement ("Endospan Distribution Agreement") with Endospan Ltd. ("Endospan"), an Israeli corporation, pursuant to which JOTEC obtained exclusive distribution rights for Endospan's Nexus ^{TM} stent graft system ("NEXUS") and accessories in certain countries in Europe in exchange for a fixed distribution fee of $9.0 million paid in September 2019.

CryoLife also entered into a securities purchase option agreement ("Endospan Option Agreement") with Endospan for $1.0 million paid in September 2019. The Endospan Option Agreement provides CryoLife the option to purchase all the outstanding securities of Endospan from Endospan's securityholders at the time of acquisition, or the option to acquire all of Endospan's assets, in each case, for a price between $350.0 and $450.0 million before, or within a certain period of time or after U.S. Food and Drug Administration ("FDA") approval of NEXUS, with such option expiring if not exercised within 90 days after receiving notice that Endospan has received approval from the FDA for NEXUS.

Loan Agreement

CryoLife and Endospan also entered into a loan agreement (“Endospan Loan”), dated September 11, 2019, in which CryoLife agreed to provide Endospan a secured loan of up to $15.0 million to be funded in three tranches of $5.0 million each.

The first tranche of the Endospan Loan was funded upon execution of the agreement in September 2019. The second tranche is required to be funded generally under the same terms as the first tranche, upon certification of Investigational Device Exemption (“IDE”) approval from the FDA of NEXUS, and the third tranche is required to be funded upon certification of enrollment of at least 50% of the required number of patients in the primary arm of the FDA approved clinical trial for NEXUS, in each case subject to Endospan’s continued compliance with the Endospan Loan and certain other conditions. If a termination fee becomes payable by Endospan under the Endospan Distribution Agreement, it will be added to the amount payable to CryoLife under the Endospan Loan.

Variable Interest Entity

We consolidate the results of a variable interest entity ("VIE") when it is determined that we are the primary beneficiary. Based on our evaluation of Endospan and the related agreements with Endospan, we determined that Endospan is a VIE. Although the arrangement with Endospan resulted in our holding a variable interest, it did not empower us to direct those activities of Endospan that most significantly impact the VIE economic performance. Therefore, we are not the primary beneficiary, and we have not consolidated Endospan into our financial results. Our payments to Endospan in September 2019 totaled $15.0 million which included a $9.0 million distribution fee, a $1.0 million securities purchase option, and $5.0 million for the first tranche of the Endospan Loan. No additional amounts have been paid to Endospan under these agreements during the three and six months ended June 30, 2020. Our payments to date, including any loans, guarantees, and other subordinated financial support related to this VIE, totaled $15.0 million as of June 30, 2020, representing our maximum exposure to loss, and were not individually significant to our consolidated financial statements.

Valuation

The agreements with Endospan were entered into concurrently and had certain terms that are interrelated. In our evaluation of the initial relative fair value of each of the Endospan agreements to determine the amount to record, we utilized discounted cash flows to estimate the fair market value for the Endospan Loan and for the Endospan Distribution Agreement. We estimated the fair value of the Endospan Option Agreement utilizing the Monte Carlo simulation. Inputs in our valuation of the Endospan agreements included cash payments and anticipated payments based on the executed agreements with Endospan, projected discounted cash flows in connection with the Endospan transaction, our expected internal rate of return and discount rates, and our assessed probability and timing of receipt of certification of certain approvals and milestones in obtaining FDA approval. Based on the initial fair value of the Endospan Loan and the relative fair values of the Endospan Distribution Agreement and Endospan Option Agreement, we recorded the Endospan Loan value of $358,000 and the Endospan Option Agreement of $4.8 million in Other long-term assets in the Summary Consolidated Balance Sheets as of June 30, 2020 and December 31, 2019. We recorded the Endospan Distribution Agreement of $8.2 million and $9.8 million in Other Intangibles, net in the Summary Consolidated Balance Sheets as of June 30, 2020 and December 31, 2019, respectively.

We elected the fair value option for recording the Endospan Loan. We assess the fair value of the Endospan Loan based on quantitative and qualitative characteristics, and adjust the amount recorded to its current fair market value at each reporting period. We performed an assessment of the fair value of the Endospan Loan as of June 30, 2020 and concluded that an adjustment to the fair value as a result of this assessment was not material.

3. Financial Instruments

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

June 30, 2020	Level 1	Level 2	Level 3	Total
Cash equivalents:				
Money market funds	$ 11,481	$ --	$ --	$ 11,481
Restricted securities:				
Money market funds	491	--	--	491
Endospan loan	--	--	358	358
Total assets	**$ 11,972**	**$ --**	**$ 358**	**$ 12,330**

December 31, 2019	Level 1	Level 2	Level 3	Total
Cash equivalents:				
Money market funds	$ 1,472	$ --	$ --	$ 1,472
Restricted securities:				
Money market funds	528	--	--	528
Endospan loan	--	--	358	358
Total assets	**$ 2,000**	**$ --**	**$ 358**	**$ 2,358**

We used prices quoted from our investment advisors to determine the Level 1 valuation of our investments in money market funds. We recorded the Endospan Loan, classified as Level 3, as a result of an agreement with Endospan in September 2019. See Note 2 for further discussion of the Endospan Loan. Changes in fair value of Level 3 assets are listed in the table below (in thousands):

	Endospan Loan
Balance as of December 31, 2019	$ 358
Change in valuation of Endospan Loan	--
Balance as of June 30, 2020	**$ 358**

4. Cash Equivalents and Restricted Securities

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

June 30, 2020	Cost Basis	Unrealized Holding Gains	Estimated Market Value
Cash equivalents:			
Money market funds	$ 11,481	$ --	$ 11,481
Restricted securities:			
Money market funds	491	--	491
Total	$ 11,972	$ --	$ 11,972

December 31, 2019	Cost Basis	Unrealized Holding Gains	Estimated Market Value
Cash equivalents:			
Money market funds	$ 1,472	$ --	$ 1,472
Restricted securities:			
Money market funds	528	--	528
Total	$ 2,000	$ --	$ 2,000

As of June 30, 2020 and December 31, 2019 certain 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 and restricted securities in the three and six months ended June 30, 2020 and 2019. As of June 30, 2020 $491,000 of our restricted securities had a maturity date within three months. As of December 31, 2019 $528,000 of our restricted securities had a maturity date within three months.

5. Inventories and Deferred Preservation Costs

Inventories at June 30, 2020 and December 31, 2019 were comprised of the following (in thousands):

	June 30, 2020	December 31, 2019
Raw materials and supplies	$ 25,828	$ 21,180
Work-in-process	6,927	5,127
Finished goods	29,953	26,764
Total inventories	**$ 62,708**	**$ 53,071**

Deferred preservation costs at June 30, 2020 and December 31, 2019 were comprised of the following (in thousands):

	June 30, 2020	December 31, 2019
Cardiac tissues	$ 16,393	$ 15,365
Vascular tissues	18,415	17,186
Total deferred preservation costs	**$ 34,808**	**$ 32,551**

To facilitate product usage, we maintain consignment inventory of our On-X heart valves at domestic hospital locations and both On-X heart valves and JOTEC products at international hospital locations. We retain title and control over this consignment inventory until the device is implanted, at which time we invoice the hospital and recognize revenue. As of June 30, 2020 we had $12.5 million in consignment inventory, with approximately 49% in domestic locations and 51% in international locations. As of December 31, 2019 we had $12.0 million in consignment inventory, with approximately 51% in domestic locations and 49% in international locations.

6. Goodwill and Other Intangible Assets

Indefinite Lived Intangible Assets

As of June 30, 2020 and December 31, 2019 the carrying values of our indefinite lived intangible assets were as follows (in thousands):

	June 30, 2020	December 31, 2019
Goodwill	$ 186,349	$ 186,697
In-process R&D	2,183	2,190
Procurement contracts and agreements	2,013	2,013
Trademarks	765	844

We monitor the phases of development of our acquired in-process research and development 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 research and development 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.

We evaluate our goodwill and non-amortizing intangible assets for impairment on an annual basis during the fourth quarter of the year, and, if necessary, during interim periods if factors indicate that an impairment review is warranted. As of June 30, 2020 we concluded that our assessment of current factors did not indicate that goodwill or non-amortizing intangible assets are more likely than not to be impaired. We will continue to evaluate the recoverability of these non-amortizing intangible assets in future periods as necessary.

As of June 30, 2020 and December 31, 2019 our entire goodwill balance was related to our Medical Devices segment.

	Medical Devices Segment
Balance as of December 31, 2019	$ 186,697
Revaluation of goodwill denominated in foreign currency	(348)
Balance as of June 30, 2020	**$ 186,349**

Definite Lived Intangible Assets

As of June 30, 2020 and December 31, 2019 the gross carrying values, accumulated amortization, and approximate amortization period of our definite lived intangible assets were as follows (in thousands):

June 30, 2020	Gross Carrying Value	Accumulated Amortization	Amortization Period
Acquired technology	$ 139,867	$ 28,932	11 – 22 Years
Customer lists and relationships	31,124	7,338	13 – 22 Years
Distribution and manufacturing rights and know-how	13,796	4,060	5 – 15 Years
Patents	3,800	3,098	17 Years
Other	2,452	753	4 – 10 Years

December 31, 2019	Gross Carrying Value	Accumulated Amortization	Amortization Period
Acquired technology	$ 140,193	$ 24,778	11 – 22 Years
Customer lists and relationships	31,131	6,581	13 – 22 Years
Distribution and manufacturing rights and know-how	13,826	3,005	5 – 15 Years
Patents	3,664	3,074	17 Years
Other	1,919	608	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 (Income) Loss (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Amortization expense	$ 3,000	$ 2,557	$ 6,033	$ 5,136

As of June 30, 2020 scheduled amortization of intangible assets for the next five years is as follows (in thousands):

	Remainder of 2020	2021	2022	2023	2024	2025	Total
Amortization expense	$ 6,169	12,440	11,894	11,368	11,141	9,147	$ 62,159

7. Income Taxes

Income Tax Expense

Our effective income tax rate was a benefit of 23% and 20% for the three and six months ended June 30, 2020, respectively, as compared to a benefit of 3% and 133% for the three and six months ended June 30, 2019, respectively. The change in the tax rate for the three and six months ended June 30, 2020 is primarily due to a change in pre-tax book loss, as well as a reduction in the excess tax benefit related to stock compensation for the three and six months ended June 30, 2020, as compared to the three and six months ended June 30, 2019.

The income tax rate for the three and six months ended June 30, 2020 was favorably impacted by excess tax benefit deductions related to stock compensation, the research and development tax credit, and losses in high rate jurisdictions. These factors were partially offset by the unfavorable impacts of non-deductible operating expenses and executive compensation expenses.

The income tax rate for the three and six months ended June 30, 2019 was favorably impacted by excess tax benefit deductions related to stock compensation, the research and development tax credit, and losses in high rate jurisdictions. These factors were partially offset by the 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 acquired significant deferred tax assets, primarily net operating loss carryforwards, from our acquisitions of 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 2020 tax year.

As of June 30, 2020 we maintained a total of $3.6 million in valuation allowances against deferred tax assets, primarily related to state and foreign net operating loss carryforwards, and a net deferred tax liability of $23.5 million. As of December 31, 2019 we maintained a total of $3.2 million in valuation allowances against deferred tax assets, primarily related to state and foreign net operating loss carryforwards, and a net deferred tax liability of $20.4 million.

The Coronavirus Aid, Relief and Economic Security Act ("CARES Act")

In response to the novel coronavirus disease ("COVID-19") pandemic, the U.S. government enacted the CARES Act on March 27, 2020. The CARES Act provides various forms of relief and assistance to U.S. businesses. The Company recorded a reduction to income taxes payable and deferred tax assets of approximately $1.3 million for the anticipated change to the 2019 Section 163(j) interest expense deduction limitation. The Company will continue to analyze the impact of the CARES Act as interpretations are published.

8. Leases

We have operating and finance lease obligations resulting from the lease of land and buildings that comprise our corporate headquarters and various manufacturing facilities; leases related to additional manufacturing, office, and warehouse space; leases on Company vehicles; and leases on a variety of office and other equipment.

We sublease, on an operating lease basis, two unused office space facilities near our corporate office. Total annual sub-lease rental income for these facilities is approximately $905,000.

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

Operating leases:	**June 30, 2020**	**December 31, 2019**
Operating lease right-of-use assets	$ 27,523	$ 27,007
Accumulated amortization	(7,516)	(5,013)
Operating lease right-of-use assets, net	**$ 20,007**	**$ 21,994**
Current maturities of operating leases	$ 5,522	$ 5,487
Non-current maturities of operating lease	15,797	17,918
Total operating lease liabilities	**$ 21,319**	**$ 23,405**
Finance leases:		
Property and equipment, at cost	$ 7,078	$ 7,161
Accumulated amortization	(1,542)	(1,279)
Property and equipment, net	**$ 5,536**	**$ 5,882**
Current maturities of finance leases	$ 581	$ 597
Non-current maturities of finance leases	5,111	5,415
Total finance lease liabilities	**$ 5,692**	**$ 6,012**
Weighted average remaining lease term (in years):		
Operating leases	5.3	5.5
Finance leases	10.2	10.6
Weighted average discount rate:		
Operating leases	5.3%	5.4%
Finance leases	2.0%	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 (Income) Loss are as follows (in thousands):

	Three Months Ended June 30,		**Six Months Ended June 30,**	
	2020	**2019**	**2020**	**2019**
Amortization of property and equipment	$ 161	$ 209	$ 323	$ 420
Interest expense on finance leases	29	31	58	63
Total finance lease expense	**190**	**240**	**381**	**483**
Operating lease expense	1,769	1,589	3,518	3,153
Sublease income	(226)	(226)	(452)	(452)
Total lease expense	**$ 1,733**	**$ 1,603**	**$ 3,447**	**$ 3,184**

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

Cash paid for amounts included in the measurement of lease liabilities:	Six Months Ended June 30, 2020	Six Months Ended June 30, 2019
Operating cash flows for operating leases	$ 3,556	$ 3,311
Financing cash flows for finance leases	300	350
Operating cash flows for finance leases	59	64

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

	Finance Leases	Operating Leases	Sublease Income
Remainder of 2020	$ 351	$ 3,150	$ 452
2021	657	6,564	905
2022	611	4,098	306
2023	610	2,701	--
2024	608	2,646	--
Thereafter	3,454	5,104	--
Total minimum lease payments	$ 6,291	$ 24,263	$ 1,663
Less amount representing interest	(599)	(2,944)	
Present value of net minimum lease payments	5,692	21,319	
Less current maturities	(581)	(5,522)	
Lease liabilities, less current maturities	**$ 5,111**	**$ 15,797**	

9. Debt

Credit Agreement

On December 1, 2017 we entered into a credit and guaranty agreement for a $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 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 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 event of default 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 June 30, 2020 the aggregate interest rate was 4.25% 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.

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 (including cash dividends), merge or consolidate, change 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 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.

In March 2020 as a precautionary measure to increase cash and maintain maximum financial flexibility during the current uncertainty in global markets resulting from the COVID-19 pandemic, we borrowed the entire amount available under our $30.0 million Revolving Credit Facility at an aggregate interest rate of 5.20%. On June 29, 2020 we used the net proceeds from the issuance of Convertible Senior Notes, as discussed below, to repay the $30.0 million outstanding under our Revolving Credit Facility.

On April 29, 2020 we entered into an amendment to our Credit Agreement. As part of the amendment we obtained a waiver of our maximum first lien net leverage ratio covenant through the end of 2020. In addition, the amendment to our Credit Agreement provides that EBITDA, for covenant testing purposes, in each quarter of 2020 will be deemed equal to a fixed value equal to our bank covenant EBITDA in the fourth quarter of 2019, when our first lien net leverage was 3.4x. As a result of these changes, we are subject to a new minimum liquidity covenant. We are also subject to restrictions on certain payments, including cash dividends. We are required to maintain a minimum liquidity of at least $12.0 million as of the last day of any month in 2020, and as of the last day of any quarter through the third quarter of 2021 when our Revolving Credit Facility is drawn in excess of 25% (or $7.5 million) of the amount available as of the last day of any fiscal quarter during that period. Beginning in 2021, if we repay borrowings under our Revolving Credit Facility to 25% or less, no financial maintenance covenants, including the minimum liquidity covenant and the maximum first lien net leverage ratio covenant, are applicable.

Convertible Senior Notes

On June 18, 2020 we issued $100.0 million aggregate principal amount of 4.25% convertible senior notes with a maturity date of July 1, 2025 (“Convertible Senior Notes”). The net proceeds from this offering, after deducting initial purchasers’ discounts and costs directly related to this offering, were approximately $96.5 million. The Convertible Senior Notes may be settled in cash, stock, or a combination thereof, solely at our discretion. Our current intent is to settle in cash the principal amount outstanding and any note conversion value over the principal amount with shares of our Common Stock. The initial conversion rate of the Convertible Senior Notes is 42.6203 shares per $1,000 principal amount, which is equivalent to a conversion price of approximately $23.46 per share, subject to adjustments. We use the treasury stock method for assumed conversion of the Convertible Senior Notes to compute the weighted average shares of common stock outstanding for diluted earnings per share.

The conversion feature of the Convertible Senior Notes required bifurcation from the notes and was initially accounted for as an equity instrument classified to stockholders' equity, which resulted in recognizing $16.4 million in additional paid-in-capital during the three months ended June 30, 2020. The interest expense recognized on the Convertible Senior Notes during the three months ended June 30, 2020, includes approximately $156,000 in aggregate for the contractual coupon interest, the accretion of the debt discount, and the amortization of the debt issuance costs. The effective interest rate on the Convertible Senior Notes is 4.25%, which includes the contractual coupon interest, accretion of the debt discount, and amortization of the debt issuance costs. Interest on the Convertible Senior Notes began accruing upon issuance and is payable semi-annually.

Holders of the Convertible Senior Notes may convert their notes at their option at any time prior to January 1, 2025 but only under the following circumstances: (i) during any calendar quarter commencing after the calendar quarter ending on September 30, 2020 (and only during such calendar quarter), if the last reported sale price of our Common Stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; (ii) during the five business day period after any five consecutive trading day period in which the trading price per $1,000 principal amount of notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our Common Stock and the conversion rate on each such trading day; (iii) we give a notice of redemption with respect to any or all of the notes, at any time prior to the close of business on the second scheduled trading day immediately preceding the redemption date; or (iv) upon the occurrence of specified corporate events. On or after January 1, 2025 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their notes at any time, regardless of the foregoing circumstances.

We cannot redeem the Convertible Senior Notes before July 5, 2023. We can redeem them on or after July 5, 2023, in whole or in part, at our option, if the last reported sale price per share of our Common Stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period (including the last trading day of such period) ending on, and including, the trading day immediately preceding the date on which we provide notice of redemption. We may redeem for cash all or part of the Convertible Senior Notes at a redemption price equal to 100% of the principal amount of the redeemable Convertible Senior Notes, plus accrued and unpaid interest to, but excluding, the redemption date. No principal payments are due on the Convertible Senior Notes prior to maturity. Other than restrictions relating to certain fundamental changes and consolidations, mergers or asset sales and customary anti-dilution adjustments, the Convertible Senior Notes do not contain any financial covenants and do not restrict us from conducting significant restructuring transactions or issuing or repurchasing any of its other securities. As of June 30, 2020, we are not aware of any current events or market conditions that would allow holders to convert the Convertible Senior Notes. We have used a portion of the proceeds to pay off the $30.0 million outstanding under our Revolving Credit Facility and anticipate using the remaining funds for general corporate purposes.

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%, respectively.

Loan Balances

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

	June 30, 2020	December 31, 2019
Term loan balance	$ 219,375	$ 220,500
Convertible senior notes	77,790	--
2.45% Sparkasse Zollernalb (KFW Loan 1)	933	1,061
1.40% Sparkasse Zollernalb (KFW Loan 2)	1,470	1,615
Total loan balance	299,568	223,176
Less unamortized loan origination costs	(9,484)	(7,441)
Net borrowings	290,084	215,735
Less short-term loan balance	(1,138)	(1,164)
Long-term loan balance	$ 288,946	$ 214,571

Interest Expense

Interest expense was $3.7 million and $7.0 million for the three and six months ended June 30, 2020, as compared to $3.8 million and $7.7 million for the three and six months ended June 30, 2019. Interest expense includes interest on debt and uncertain tax positions in both periods.

10. Commitments and Contingencies

Liability Claims

Our estimated unreported loss liability was $1.9 million as of June 30, 2020 and December 31, 2019. As of June 30, 2020 and December 31, 2019, the related recoverable insurance amounts were $996,000 and $935,000, 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 June 30, 2020 could have been as high as $3.8 million, after including a reasonable margin for statistical fluctuations calculated based on actuarial simulation techniques.

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 FDA in the fourth quarter of 2020.

As of June 30, 2020 we had $1.5 million in prepaid royalties, $1.9 million in intangible assets, net, and $1.2 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.

11. 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 and six months ended June 30, 2020 and 2019 the sources of revenue were as follows (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
	(Unaudited)		(Unaudited)	
Domestic hospitals	$ 30,228	$ 36,344	$ 66,564	$ 71,955
International hospitals	16,135	22,532	35,872	43,102
International distributors	7,244	10,365	17,489	19,975
CardioGenesis cardiac laser therapy	164	1,898	275	3,612
Total sources of revenue	**$ 53,771**	**$ 71,139**	**$ 120,200**	**$ 138,644**

Also see segment disaggregation information in Note 14 below.

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. No material arrangements in process existed as of June 30, 2020 and 2019.

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 June 30, 2020 and 2019 was not material.

12. 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 six months ended June 30, 2020 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 312,000 shares and had an aggregate grant date market value of $7.9 million. The PSUs granted in 2020 represent the right to receive from 60% to 150% of the target number of shares of common stock. The performance component of PSU awards granted in 2020 is based on attaining specified levels of adjusted EBITDA, as defined in the PSU grant documents, for the 2020 calendar year.

During the six months ended June 30, 2019 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 492,000 shares and had an aggregate grant date market value of $14.6 million. Two types of PSUs were granted in 2019, an annual grant with a one year performance period ("Annual PSU") and a special Long-Term Incentive Program PSU grant ("LTIP"), which has multiple performance periods over a five year period. If the highest performance threshold were met, the Annual PSU granted in 2019 represented the right to receive up to 150% of the target number of shares of common stock. The performance component of the Annual PSU awards granted in 2019 was based on attaining specified levels of adjusted earnings before interest, taxes, depreciation, and amortization, ("EBITDA"), as defined in the Annual PSU grant documents, for the 2019 calendar year. The Annual PSU granted in 2019 earned approximately 83% of the target number of shares. If the highest performance thresholds were met, the PSUs granted in 2019 under the LTIP represent the right to receive up to 288%, and up to 192% for a certain key executive, of the target number of shares of common stock. The performance component of the LTIP awards granted in 2019 is based on attaining specified levels of adjusted revenue growth and gross margin, as defined in the LTIP grant document, for the years 2019 through 2023. The first performance period under the LTIP will not conclude until December 31, 2021.

The Committee authorized, from approved stock incentive plans, grants of stock options to purchase a total of 212,000 and 169,000 shares to certain Company officers during the six months ended June 30, 2020 and 2019, respectively. The exercise prices of the options were equal to the closing stock prices on their respective grant dates.

Employees purchased common stock totaling 30,000 shares and 24,000 shares in the six months ended June 30, 2020 and 2019, respectively, through the ESPP.

Stock Compensation Expense

The following weighted-average assumptions were used to determine the fair value of options and shares purchased under the ESPP:

	Three Months Ended June 30, 2020		Six Months Ended June 30, 2020	
	Stock Options	**ESPP**	**Stock Options**	**ESPP**
Expected life	N/A	0.5 Years	5.0 Years	0.5 Years
Expected stock price volatility	N/A	0.31	0.35	0.31
Risk-free interest rate	N/A	1.57%	1.41%	1.57%

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 June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
RSA, RSU, and PSU expense	$ 2,049	$ 1,936	$ 4,205	$ 3,446
Stock option and ESPP expense	632	502	1,165	973
Total stock compensation expense	**$ 2,681**	**$ 2,438**	**$ 5,370**	**$ 4,419**

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 $171,000 and $296,000 in the three and six months ended June 30, 2020, and $168,000 and $300,000 in the three and six months ended June 30, 2019, of the stock compensation expense into our inventory costs and deferred preservation costs.

As of June 30, 2020 we had total unrecognized compensation costs of $14.6 million related to RSAs, RSUs, and PSUs and $3.0 million related to unvested stock options. As of June 30, 2020 this expense is expected to be recognized over a weighted-average period of 2.2 years for PSUs, 2.1 years for stock options, 1.9 years for RSUs, and 1.5 years for RSAs.

13. (Loss) Earnings per Share

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

	Three Months Ended June 30,		Six Months Ended June 30,	
Basic (loss) income per common share	2020	2019	2020	2019
Net (loss) income	$ (3,689)	$ 2,832	$ (10,354)	$ 2,535
Net income (loss) allocated to participating securities	24	(19)	73	(18)
Net (loss) income allocated to common shareholders	**$ (3,665)**	**$ 2,813**	**$ (10,281)**	**$ 2,517**
Basic weighted-average common shares outstanding	**37,520**	**37,156**	**37,455**	**36,968**
Basic (loss) income per common share	**$ (0.10)**	**$ 0.08**	**$ (0.27)**	**$ 0.07**

	Three Months Ended June 30,		Six Months Ended June 30,	
Diluted (loss) income per common share	2020	2019	2020	2019
Net (loss) income	$ (3,689)	$ 2,832	$ (10,354)	$ 2,535
Net income (loss) allocated to participating securities	24	(18)	73	(18)
Net (loss) income allocated to common shareholders	**$ (3,665)**	**$ 2,814**	**$ (10,281)**	**$ 2,517**
Basic weighted-average common shares outstanding	37,520	37,156	37,455	36,968
Effect of dilutive stock options and awards	--	682	--	821
Diluted weighted-average common shares outstanding	**37,520**	**37,838**	**37,455**	**37,789**
Diluted (loss) income per common share	**$ (0.10)**	**$ 0.07**	**$ (0.27)**	**$ 0.07**

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 and six months ended June 30, 2020 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. For the three and six months ended June 30, 2019, stock options to purchase a

weighted-average of 158,000 and 105,000 shares, respectively were antidilutive and excluded from the calculation of diluted weighted-average common shares outstanding.

14. 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, On-X, CardioGenesis cardiac laser therapy, PerClot, and PhotoFix. The Preservation Services segment includes external services revenues from the preservation of cardiac and vascular tissues and NeoPatch. 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.

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
Revenues:				
Medical devices	$ 37,268	$ 51,168	$ 83,688	$ 99,569
Preservation services	16,503	19,971	36,512	39,075
Total revenues	**53,771**	**71,139**	**120,200**	**138,644**
Cost of products and preservation services:				
Medical devices	10,040	14,489	23,080	28,315
Preservation services	7,841	9,684	17,059	19,090
Total cost of products and preservation services	**17,881**	**24,173**	**40,139**	**47,405**
Gross margin:				
Medical devices	27,228	36,679	60,608	71,254
Preservation services	8,662	10,287	19,453	19,985
Total gross margin	**$ 35,890**	**$ 46,966**	**$ 80,061**	**$ 91,239**

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

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
Products:				
BioGlue	$ 12,437	$ 17,933	$ 29,174	$ 35,155
JOTEC	13,174	17,208	28,642	33,162
On-X	10,116	12,410	22,318	24,141
PhotoFix	880	935	1,922	1,665
PerClot	497	784	1,357	1,834
CardioGenesis cardiac laser therapy	164	1,898	275	3,612
Total products	**37,268**	**51,168**	**83,688**	**99,569**
Preservation services:				
Cardiac tissue	8,061	10,500	18,079	19,430
Vascular tissue	8,396	9,471	18,372	19,645
NeoPatch	46	--	61	--
Total preservation services	**16,503**	**19,971**	**36,512**	**39,075**
Total revenues	**$ 53,771**	**$ 71,139**	**$ 120,200**	**$ 138,644**

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. In some cases, words such as "could," "may," "might," "will," "would," "shall," "should," "pro forma," "potential," "pending," "intend," "believe," "expect," "anticipate," "estimate," "plan," "future," "assume," and variations of these types of words or other similar expressions 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 expectations regarding the potential impacts of the COVID-19 pandemic on our business operations, cash flow, business development, employees, and research and development projects, including clinical research projects;
- 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 beliefs about the unavailability of handpieces for cardiac laser therapy, the temporary nature of this unavailability, and a possible resolution of this unavailability during the second half of 2020;
- Our belief that revenue from cardiac laser therapy can vary from quarter to quarter and year to year due to the use of cardiac laser therapy adjunctively with cardiac bypass surgery by a limited number of physicians;
- Our ability to realize the anticipated business opportunities, growth prospects, synergies, and other benefits of the agreements with Endospan, and our beliefs about the costs and expected timeline regarding certain clinical trial milestones for the regulatory approval of the NEXUS stent graft system in the U.S.;
- 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, including the entire amount available under our Revolving Credit Facility and the remaining proceeds from our Convertible Senior Notes, 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 expectations regarding the possible benefits to us of the Coronavirus Aid, Relief, and Economic Security Act or "CARES Act";
- Our belief that we will incur expenses for research and development projects, including for clinical research projects to gain regulatory approvals for products or indications, including JOTEC, On-X, PerClot, and BioGlue products, and for research and development for new products;
- Our expectations regarding the timing of clinical research work and regulatory approvals for and expected distribution of products or indications, including JOTEC, On-X, PerClot, and BioGlue products;
- Our expectations regarding the utilization of net operating loss carryforwards from our acquisitions of JOTEC, On-X, Hemosphere, Inc., and Cardiogenesis Corporation; and
- Other statements regarding projections of future financial and business performance; anticipated growth and trends in our business and the markets relevant to our business, including as our growth relates to our competitors; future

production capacity and product supply; the availability and benefits of our products in the future; and the expected timing and impact of our strategic initiatives.

These and other forward-looking statements reflect the views of management at the time such statements are originally 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 and adversely 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 Part II, Item 1A, "Risk Factors in our Form 10-Q for the quarter ended March 31, 2020 and elsewhere throughout that 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, 2019 and elsewhere throughout that report, and other risks which we may not be able to identify in advance, 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.

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") is a leader in the manufacturing, processing, and distribution of medical devices and implantable human tissues used in cardiac and vascular surgical procedures for patients with aortic disease. We have four major product families: BioGlue® Surgical Adhesive products ("BioGlue"), JOTEC stent grafts and surgical products, On-X mechanical heart valves and surgical products, and implantable cardiac and vascular human tissues. In addition to these four major product families, we sell or distribute PhotoFix™ bovine surgical patch, PerClot® hemostatic powder, CardioGenesis cardiac laser therapy, and NeoPatch chorioamniotic allograft.

We reported quarterly revenues of $53.8 million for the three months ended June 30, 2020, a 24% decrease from the three months ended June 30, 2019, primarily due to decreases in revenues from all products and preservation services due to the effect of COVID-19 on the number of procedures in which our products are used.

See the "Results of Operations" section below for additional analysis of the three and six months ended June 30, 2020.

Effects of COVID-19

In December 2019 an outbreak of a respiratory illness caused by a new coronavirus named "2019-nCoV" ("COVID-19") was detected, and by March 11, 2020, the World Health Organization ("WHO") declared the COVID-19 outbreak a "pandemic."

Because of the uncertainty created by the COVID-19 pandemic, as well as the potential social and economic impacts of COVID-19 upon the markets in which we operate and the resulting impact on our results of operations and cash flows, we have reevaluated the need for, and timing of, certain expenses and have taken pre-emptive steps to reduce spending. These steps have included implementing hiring restrictions; imposing senior management cash salary reductions, in exchange for cash payments in the second quarter of 2021; requiring our Board of Directors to accept CryoLife stock instead of cash compensation for a six month period; deferring management merit increases; reducing most discretionary spending; reducing capital expenditures; and reducing spending on certain research and development projects, including clinical research projects.

We have implemented specific protocols to minimize workplace exposures to COVID-19 by our employees, and we have been able to, and expect to, continue to operate all manufacturing sites at near full production to supply our customers.

We have implemented remote work arrangements for employees we deem able to do so and have restricted business travel, each since mid-March, and to date, these arrangements have not materially affected our ability to maintain our business operations, including the operation of financial reporting systems, internal control over financial reporting, or disclosure controls and procedures.

As a precautionary measure to increase cash and maintain maximum financial flexibility during the current uncertainty in global markets resulting from the COVID-19 pandemic, we borrowed the entire amount available under our $30.0 million revolving credit facility during the first quarter of 2020, which we subsequently repaid from the proceeds of our $100.0 million aggregate principal amount convertible senior notes ("Convertible Senior Notes"). See the "Liquidity and Capital Resources" identified in Part I, Item 2 of this form 10-Q for further detail of this transaction.

We are monitoring the impact of the COVID-19 pandemic on our business, and we expect that it will continue to negatively impact our business and results of operations for at least the third quarter of 2020 and potentially beyond. We experienced the most severe impact of COVID-19 on our revenues to date in April of the second quarter 2020 followed by some sequential recovery in May and June. The extent to which our operations and employees will be impacted by the pandemic in the third quarter of 2020 and beyond will depend largely on future developments, including further increases in COVID-19 cases in key markets and the impact of COVID-19 on procedure volumes involving our products, including patients' willingness to undergo procedures even when the number of COVID-19 cases flattens out or decreases. These future developments remain uncertain and difficult to predict. New information is continually emerging regarding the severity of the pandemic and the various government, regulatory, expert, and recommended actions to contain it or address its impact.

See the "Risk Factors" identified in Part II, Item 1A of this form 10-Q for risks related to COVID-19.

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, 2019. 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 three and six months ended June 30, 2020 in any of our Critical Accounting Policies from those contained in our Form 10-K for the year ended December 31, 2019.

New Accounting Pronouncements

See Note 1 of "Notes to Summary Consolidated Financial Statements" identified in Part I, Item I of this form 10-Q for further discussion of new accounting standards that have been adopted.

Results of Operations
(Tables in thousands)

Revenues

	Revenues for the Three Months Ended June 30,		Percent Change From Prior Year	Revenues as a Percentage of Total Revenues for the Three Months Ended June 30,	
	2020	**2019**		**2020**	**2019**
Products:					
BioGlue	$ 12,437	$ 17,933	-31%	23%	25%
JOTEC	13,174	17,208	-23%	24%	24%
On-X	10,116	12,410	-18%	19%	18%
PhotoFix	880	935	-6%	2%	1%
PerClot	497	784	-37%	1%	1%
CardioGenesis cardiac laser therapy	164	1,898	-91%	0%	3%
Total products	**37,268**	**51,168**	**-27%**	**69%**	**72%**
Preservation services:					
Cardiac tissue	8,061	10,500	-23%	15%	15%
Vascular tissue	8,396	9,471	-11%	16%	13%
NeoPatch	46	--	100%	0%	0%
Total preservation services	**16,503**	**19,971**	**-17%**	**31%**	**28%**
Total	**$ 53,771**	**$ 71,139**	**-24%**	**100%**	**100%**

	Revenues for the Six Months Ended June 30,		Percent Change From Prior Year	Revenues as a Percentage of Total Revenues for the Six Months Ended June 30,	
	2020	**2019**		**2020**	**2019**
Products:					
BioGlue	$ 29,174	$ 35,155	-17%	24%	25%
JOTEC	28,642	33,162	-14%	24%	24%
On-X	22,318	24,141	-8%	19%	18%
PhotoFix	1,922	1,665	15%	2%	1%
PerClot	1,357	1,834	-26%	1%	1%
CardioGenesis cardiac laser therapy	275	3,612	-92%	0%	3%
Total products	**83,688**	**99,569**	**-16%**	**70%**	**72%**
Preservation services:					
Cardiac tissue	18,079	19,430	-7%	15%	14%
Vascular tissue	18,372	19,645	-6%	15%	14%
NeoPatch	61	--	100%	0%	0%
Total preservation services	**36,512**	**39,075**	**-7%**	**30%**	**28%**
Total	**$ 120,200**	**$ 138,644**	**-13%**	**100%**	**100%**

Revenues decreased 24% and 13% for the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019. The decrease in revenues for the three months ended June 30, 2020 was primarily due to decreases in revenues from all products and preservation services. The decrease in revenues for the six months ended June 30, 2020 was primarily due to decreases in revenues from all products, except PhotoFix, and from preservation services. Excluding the effects for foreign exchange, revenues decreased 23% and 12% for the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019. Revenues for the three and six months ended June 30, 2020 were negatively impacted by delays or cancellations in some surgical procedures as a result of reduced hospital capacity and hospital restrictions due to the COVID-19 pandemic, as well as patient reluctance to undergo procedures once the adverse impacts to capacity and restrictions were lessened. Revenue decreases during the second quarter of 2020 as compared to 2019 were larger in April with month over month sequentially smaller decreases in May 2020 and June 2020 as procedure volumes increased throughout the second quarter. A detailed discussion of the changes in product revenues and preservation services revenues for the three and six months ended June 30, 2020 is presented below.

Products

Revenues from products decreased 27% and 16% for the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019. The decrease was due to decreases in revenues from all products for the three months ended June 30, 2020. The decrease was due to decreases in revenues from all products except for PhotoFix for the six months ended June 30, 2020. A detailed discussion of the changes in product revenues for BioGlue, JOTEC, On-X, PhotoFix, PerClot, and CardioGenesis cardiac laser therapy 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 including Euros, British Pounds, Polish Zlotys, Swiss Francs, Brazilian Reals, and Canadian Dollars, with a concentration denominated in Euros. Each currency is subject to exchange rate fluctuations. For the three months ended June 30, 2020 as compared to the three months ended June 30, 2019, the U.S. Dollar weakened in comparison to major currencies, resulting in revenue increases when these foreign currency denominated transactions were translated into U.S. Dollars. For the six months ended June 30, 2020 as compared to the six months ended June 30, 2019, the U.S. Dollar strengthened in comparison to major currencies, resulting in revenue decreases when these foreign currency denominated transactions were translated into U.S. Dollars. 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

BioGlue is used as an adjunct to standard methods of achieving hemostasis (such as sutures and staples) in adult patients in open surgical repair of large vessels (such as aorta, femoral, and carotid arteries).

Revenues from the sales of BioGlue decreased 31% for the three months ended June 30, 2020, as compared to the three months ended June 30, 2019. This decrease was primarily due to a 33% decrease in volume of milliliters sold, which decreased revenues by 31%, and the effect of foreign exchange rates, which decreased revenues by 1%, partially offset by an increase in average sales prices, which increased revenues by 1%. Excluding the effects for foreign exchange, revenues decreased 30% for the three months ended June 30, 2020, as compared to the three months ended June 30, 2020.

Revenues from the sales of BioGlue decreased 17% for the six months ended June 30, 2020, as compared to the six months ended June 30, 2019. This decrease was primarily due to a 18% decrease in volume of milliliters sold, which decreased revenues by 17%, and the effect of foreign exchange rates, which decreased revenues by 1%, partially offset by an increase in average sales prices, which increased revenues by 1%. Excluding the effects for foreign exchange, revenues decreased 16% for the six months ended June 30, 2020, as compared to the six months ended June 30, 2020.

On a constant currency basis, revenues from sales of BioGlue decreased in the three and six months ended June 30, 2020 compared to the three and six months ended June 30, 2019 in North America and the European Economic Area, the Middle East, and Africa (collectively, “EMEA”) and to a lesser extent in the Asia Pacific and Latin America. These markets were impacted by a decrease in volume of milliliters sold in the three and six months ended June 30, 2020 as compared to the three and six months ended June 30, 2019 primarily due to delays and cancellations of surgical procedures due to the COVID-19 pandemic.

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 54% and 51% of total BioGlue revenues for the three and six months ended June 30, 2020, respectively, and 48% and 51% of total BioGlue revenues for the three and six months ended June 30, 2019, respectively.

JOTEC

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

On September 11, 2019 CryoLife and its wholly-owned subsidiary JOTEC entered into exclusive distribution and loan agreements with Endospan Ltd. ("Endospan"), an Israeli corporation, under which JOTEC obtained exclusive distribution rights for Endospan's NEXUS stent graft system ("NEXUS") and accessories in certain countries in Europe. NEXUS revenues are included as a component of JOTEC revenues.

JOTEC revenues decreased 23% and 14% for the three and six months ended June 30, 2020, respectively as compared to the three and six months ended June 30, 2019.

JOTEC revenues, excluding original equipment manufacturing ("OEM"), decreased 23% for the three months ended June 30, 2020, as compared to the three months ended June 30, 2019. This decrease was primarily due to a 10% decrease in volume of units sold, which decreased revenues by 15%, a decrease in average sales price, which decreased revenues by 5%, and the effect of foreign exchange rates, which decreased revenues by 3%.

JOTEC revenues, excluding OEM, decreased 13% for the six months ended June 30, 2020, as compared to the six months ended June 30, 2019. This decrease was primarily due to a change in the mix of volume sold, which decreased revenues by 7%, a decrease in average sales price, which decreased revenues by 3%, and the effect of foreign exchange rates, which decreased revenues by 3%.

On a constant currency basis, revenues for JOTEC, excluding OEM, decreased 20% and 9% in the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019. Revenues for the three and six months ended June 30, 2020 decreased in EMEA and Latin America primarily in direct markets due to the delay in surgical procedures due to the COVID-19 pandemic, offset by an increase in Asia Pacific due to growth in distributor markets. JOTEC OEM sales accounted for less than 1% of product revenues for both the three and six months ended June 30, 2020 and 2019.

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") for heart valve replacement. 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 OEM.

On-X product revenues decreased 18% and 8% for the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019.

On-X product revenues, excluding OEM, decreased 20% for the three months ended June 30, 2020, as compared to the three months ended June 30, 2019. This decrease was primarily due to a decrease in volume of units sold, which decreased revenues by 21% and the effect of foreign exchange rates, which decreased revenues by 1%, partially offset by an increase in in average sales prices, which increased revenues by 2%.

On-X product revenues, excluding OEM, decreased 8% for the six months ended June 30, 2020, as compared to the six months ended June 30, 2019. This decrease was primarily due to a decrease in volume of units sold, which decreased revenues by 8%.

On a constant currency basis, On-X revenues, excluding OEM, decreased 20% and 8% in the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019. This decrease in the three months

ended June 30, 2020 as compared to three months ended June 30, 2019 was primarily in EMEA and to a lesser extent in North America due to delays and cancellations in surgical procedures due to the COVID-19 pandemic, partially offset by an increase in Asia Pacific due to distributor buying patterns. The decrease in the six months ended June 30, 2020 as compared to six months ended June 30, 2019 was primarily in EMEA and, to a lesser extent, in Asia Pacific and North America due to delays and cancellations in surgical procedures due to the COVID-19 pandemic. On-X OEM sales accounted for less than 1% of product revenues for both the three and six months ended June 30, 2020 and 2019.

PhotoFix

PhotoFix revenues decreased 6% for the three months ended June 30, 2020, as compared to the three months ended June 30, 2019. This decrease was primarily due to a 17% decrease in units sold, which decreased revenues by 13%, partially offset by an increase in average sales prices, which increased revenues 7%.

PhotoFix revenues increased 15% for the six months ended June 30, 2020, as compared to the six months ended June 30, 2019. This increase was primarily due to a 3% increase in units sold, which increased revenues by 8% and an increase in average sales prices, which increased revenues 7%.

The decrease in units sold for the three months ended June 30, 2020, as compared to the three months ended June 30, 2019 was due to a delay in surgical procedures due to COVID-19 pandemic. The increase in units sold for the six months ended June 30, 2020 was primarily due to an increase in the number of physicians who implant the product compared to the six months ended June 30, 2019 as this product continues to increase penetration in domestic and European markets. Additional increases in unit shipments for the six months ended June 30, 2020 were due to the introduction of a larger size PhotoFix patch in the second quarter of 2019.

PerClot

Revenues from the sale of PerClot decreased 37% for the three months ended June 30, 2020, as compared to the three months ended June 30, 2019. The decrease in the three months ended June 30, 2020 was primarily due to a decrease in the volume of grams sold, which decreased revenues 32%, combined with a decrease in average sales prices, which decreased revenues by 3%, and the effect of foreign exchange rates, which decreased revenues by 2%.

Revenues from the sale of PerClot decreased 26% for the six months ended June 30, 2020, as compared to the six months ended June 30, 2019. The decrease in the six months ended June 30, 2020 was primarily due to a decrease in the volume of grams sold, which decreased revenues 20%, combined with a change in average sales prices, which decreased revenues by 5%, and the effect of foreign exchange rates, which decreased revenues by 1%.

The decrease in volume for both the three and six months ended June 30, 2020 was primarily due to a decrease in sales of PerClot in EMEA due to delays and cancellations in surgical procedures due to the COVID-19 pandemic.

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, and we anticipate PMA submission to the FDA in the fourth quarter of 2020.

CardioGenesis Cardiac Laser Therapy

Revenues from our CardioGenesis cardiac laser therapy product line historically consisted primarily of sales of handpieces and, in certain periods, the sale of laser consoles. During the three and six months ended June 30, 2020, we did not have a supply of handpieces as our manufacturer of handpieces is unable to supply them until the FDA approves our supplier's change in manufacturing location, pending our supplier's resolution of several observations the FDA raised during a manufacturing site change inspection. We do not believe these observations relate to quality or safety. We will not have any handpieces available to ship until our supplier resolves these issues with the FDA. We currently anticipate resumption of supply during the second half of 2020.

Revenues from cardiac laser therapy decreased 91% and 92% for the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019 as a result of this handpiece supply issue.

Cardiac laser therapy is generally used adjunctively with cardiac bypass surgery by a limited number of physicians who perform these procedures, which usage patterns can cause period over period revenue fluctuations.

Preservation Services

Preservation services primarily include revenues from the preservation of cardiac and vascular tissues. Revenues from preservation services decreased 17% and 7% for the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019. The decrease was due to decreases in revenues from cardiac and vascular preservation services for the three and six months ended June 30, 2020. The detailed discussion of cardiac and vascular preservation services is presented below:

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 for implant, 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 and six months ended June 30, 2020.

Cardiac Preservation Services

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.

Revenues from cardiac preservation services, consisting of revenues from the distribution of heart valves and cardiac patch tissues, decreased 23% for the three months ended June 30, 2020, as compared to the three months ended June 30, 2019. This decrease during the three months ended June 30, 2020 was primarily due to a 20% decrease in unit shipments of cardiac tissues, which decreased revenues by 22%, and a decrease in average service fees, which decreased revenues by 1%.

Revenues from cardiac preservation services, decreased 7% for the six months ended June 30, 2020, as compared to the six months ended June 30, 2019. This decrease during the six months ended June 30, 2020 was primarily due to a 6% decrease of unit shipments of cardiac tissues, which decreased revenues by 6%, and a decrease in average service fees, which decreased revenues by 1%.

The decrease in unit shipments for the three months ended June 30, 2020, was primarily due to a decrease in pulmonary valve shipments due to delays and cancellations in surgical procedures due to the COVID-19 pandemic. The decrease in unit shipments for six months ended June 30, 2020, was primarily due to a decrease in pulmonary and aortic valve shipments due to delays and cancellations in surgical procedures due to the COVID-19 pandemic, partially offset by an increase in cardiac patch shipments.

Vascular Preservation Services

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 affecting revenue volume that can fluctuate from quarter to quarter. Our vascular tissues are primarily distributed in domestic markets.

Revenues from vascular preservation services decreased 11% for the three months ended June 30, 2020, as compared to the three months ended June 30, 2019. This decrease was due to a 10% decrease in vascular tissue shipments, which decreased revenues by 9%, and a decrease in average service fees, which decreased revenues by 2%.

Revenues from vascular preservation services decreased 6% for the six months ended June 30, 2020, as compared to the six months ended June 30, 2019. This decrease was due to a 7% decrease in vascular tissue shipments, which decreased revenues by 5% and a decrease in average service fees, which decreased revenues by 1%.

The decrease in shipments of vascular tissues for the three months ended June 30, 2020 was due to decreases in saphenous vein and to a lesser extent femoral vein, femoral artery, and aortoiliac artery shipments due to delays and cancellations in surgical procedures due to the COVID-19 pandemic. The decrease in shipments of vascular tissues for the six months ended June 30, 2020 was due to a decrease in femoral vein, femoral artery, and saphenous vein shipments due to delays and cancellations in surgical procedures due to the COVID-19 pandemic.

Cost of Products and Preservation Services

Cost of Products

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
Cost of products	$ 10,040	$ 14,489	$ 23,080	$ 28,315

Cost of products decreased 31% and 18% for three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019. Cost of products for the three and six months ended June 30, 2020 and 2019 included costs related to JOTEC, On-X, BioGlue, PhotoFix, PerClot, and CardioGenesis cardiac laser therapy products.

The decrease in cost of products for the three and six months ended June 30, 2020 was primarily due to a decrease in shipments.

Cost of Preservation Services

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
Cost of preservation services	$ 7,841	$ 9,684	$ 17,059	$ 19,090

Cost of preservation services decreased 19% and 11% for the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019. Cost of preservation services includes costs for cardiac and vascular tissue preservation services.

Cost of preservation services decreased in the three and six months ended June 30, 2020 primarily due to a decrease in the unit shipments of tissue.

Gross Margin

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
Gross margin	$ 35,890	$ 46,966	$ 80,061	$ 91,239
Gross margin as a percentage of total revenues	67%	66%	67%	66%

Gross margin decreased 24% and 12% the three and six months ended June 30, 2020, respectively, as compared to the three and six months ended June 30, 2019 due to decreases in revenues in products and preservation services and a corresponding decrease in costs of products and preservation services. Gross margin as a percentage of total revenues increased in the three and six months ended June 30, 2020 as compared to the three and six months ended June 30, 2019, respectively, primarily due to a reduction in unit costs of products and tissues shipped during the three and six months ended June 30, 2020.

Operating Expenses

General, Administrative, and Marketing Expenses

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
General, administrative, and marketing expenses	$ 32,288	$ 34,623	$ 71,290	$ 71,143
General, administrative, and marketing expenses as a percentage of total revenues	60%	49%	59%	51%

General, administrative, and marketing expenses decreased 7% for the three months ended June 30, 2020, as compared to the three months ended June 30, 2019, and were flat for the six months ended June 30, 2020 as compared to the six months ended June 30, 2019. The decreases in general, administrative, and marketing expenses for the three months ended June 30, 2020, were primarily due to decreased travel expenses from reduced and cancelled travel and reduced commissions due to the COVID-19 pandemic, partially offset by higher expenses to support our employee headcount.

Research and Development Expenses

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
Research and development expenses	$ 5,522	$ 5,841	$ 11,878	$ 11,389
Research and development expenses as a percentage of total revenues	10%	8%	10%	8%

Research and development expenses decreased 5% for the three months ended June 30, 2020, as compared to June 30, 2019 and increased 4% for the six months ended June 30, 2020 as compared to the six months ended June 30, 2019. Research and development spending in the three and six months ended June 30, 2020 was primarily focused on clinical work to gain regulatory approval for On-X products, and to a lesser extent, to gain regulatory approval for JOTEC products. Research and development spending in the three and six months ended June 30, 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., as well as clinical trials to gain regulatory approvals for JOTEC and On-X products in certain markets and for new indications.

During the three months ended June 30, 2020 we reduced spending on research and development projects due to the COVID-19 pandemic. While we have reduced spending on research and development projects for the remainder of 2020 due to the COVID-19 pandemic, we nonetheless expect to incur expenses for clinical research projects to gain regulatory approvals for new products or indications, including JOTEC, On-X, PerClot, and BioGlue products, and to incur expenses for research and development for new products.

Interest Expense

Interest expense was $3.7 million and $7.0 million for the three and six months ended June 30, 2020, respectively, as compared to $3.8 million and $7.7 million for the three and six months ended June 30, 2019, respectively. Interest expense in the three and six months ended June 30, 2020 and 2019 included interest on debt and uncertain tax positions.

Other (Income) Expense, Net

Other income, net was $740,000 for the three months ended June 30, 2020 as compared to other expense, net of $185,000 for the three months ended June 30, 2019. Other expense, net was $2.9 million for the six months ended June 30, 2020, as compared to $262,000 for the six months ended June 30, 2019. Other income/expense primarily includes the realized and unrealized effects of foreign currency gains and losses.

Earnings

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
(Loss) income before income taxes	$ (4,766)	$ 2,739	$ (12,901)	$ 1,089
Income tax benefit	(1,077)	(93)	(2,547)	(1,446)
Net (loss) income	**$ (3,689)**	**$ 2,832**	**$ (10,354)**	**$ 2,535**
Diluted (loss) income per common share	**$ (0.10)**	**$ 0.07**	**$ (0.27)**	**$ 0.07**
Diluted weighted-average common shares outstanding	**37,520**	**37,838**	**37,455**	**37,789**

We experienced a loss before income taxes for the three and six months ended June 30, 2020, as compared to income before income taxes for the three and six months ended June 30, 2019. The loss before income taxes for the three and six months ended June 30, 2020 was primarily due to decreases in revenues impacted by delays and cancellations in some surgical procedures as a result of reduced hospital capacity and hospital restrictions due to the COVID-19 pandemic as well as the fixed nature of certain of our operating expenses.

Our effective income tax rate was a benefit of 23% and 20% for the three and six months ended June 30, 2020, respectively, as compared to a benefit of 3% and 133% for the three and six months ended June 30, 2019, respectively. The change in the tax rate for the three and six months ended June 30, 2020 is primarily due to a change in pre-tax book loss, as well as a reduction in the excess tax benefit related to stock compensation for the three and six months ended June 30, 2020, as compared to the three and six months ended June 30, 2019.

The income tax rate for the three and six months ended June 30, 2020 was favorably impacted by excess tax benefit deductions related to stock compensation, the research and development tax credit, and losses in high rate jurisdictions. These factors were partially offset by the unfavorable impacts of non-deductible operating expenses and executive compensation expenses.

The income tax rate for the three and six months ended June 30, 2019 was favorably impacted by excess tax benefit deductions related to stock compensation, research and development tax credit, and losses in high rate jurisdictions. These factors were partially offset by the unfavorable impacts of non-deductible operating expenses and executive compensation expenses.

In response to the COVID-19 pandemic, the U.S. government enacted the Coronavirus Aid, Relief and Economic Security Act (“CARES Act”) on March 27, 2020. The CARES Act provides various forms of relief and assistance to U.S. businesses. The Company recorded a reduction to income taxes payable and deferred tax assets of approximately $1.3 million for the anticipated change to the 2019 Section 163(j) interest expense deduction limitation. The Company will continue to analyze the impact of the CARES Act as interpretations are published.

We experienced a net loss and diluted loss per common share for three and six months ended June 30, 2020 as compared to a net income and diluted income per common share for the three and six months ended June 30, 2019. Net loss and diluted loss per common share for the three and six months ended June 30, 2020 was primarily due to an increase in 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 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 in 2018 and 2019 subsequent to the JOTEC Acquisition including the implementation of our distributor-to-direct strategy and our European sales force realignment.

We do not believe the demand for CardioGenesis cardiac laser therapy or PerClot is seasonal.

We are uncertain whether the demand for PhotoFix is seasonal, as this product has not fully penetrated many markets and, therefore, the nature of any seasonal trends may not yet be obvious.

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.

As a result of the uncertain impact of the COVID-19 pandemic and the resulting shifts of timing in some revenue, our historically observable seasonality of revenues may be obscured in 2020.

Liquidity and Capital Resources

Net Working Capital

As of June 30, 2020 net working capital (current assets of $287.1 million less current liabilities of $48.9 million) was $238.2 million, with a current ratio (current assets divided by current liabilities) of 6 to 1, compared to net working capital of $142.2 million and a ratio of 4 to 1 at December 31, 2019.

Overall Liquidity and Capital Resources

Our primary cash requirements for the six months ended June 30, 2020 were for general working capital needs, interest and principal payments under our Credit Agreement, defined below, and debt issuance costs under our Convertible Senior Notes, capital expenditures for facilities and equipment, and repurchases of stock to cover tax withholdings. 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 Credit Agreement and Convertible Senior Notes (described in "Significant Sources and Uses of Liquidity" section below), expenditures for clinical trials, research and development expenditures, general working capital needs, capital expenditures, and other corporate purposes and may include cash to fund business development activities including obligations in the Endospan agreements. These items may have a significant effect on our future cash flows during the next twelve months. Subject to the terms of our Credit Agreement, 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 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 $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.

In March 2020 as a precautionary measure to increase cash and maintain maximum financial flexibility during the current uncertainty in global markets resulting from the COVID-19 pandemic, we borrowed the entire amount available under our $30.0 million Revolving Credit Facility at an aggregate interest rate of 5.20%. On June 29, 2020 we used some of the net proceeds from the issuance of Convertible Senior Notes to repay the $30.0 million outstanding under our Revolving Credit Facility.

On April 29, 2020 we entered into an amendment to our Credit Agreement. As part of the amendment we obtained a waiver of our maximum first lien net leverage ratio covenant through the end of 2020. In addition, the amendment to our Credit Agreement provides that EBITDA, for covenant testing purposes, in each quarter of 2020 will be deemed equal to a fixed value, equal to our bank covenant EBITDA in the fourth quarter of 2019, when our first lien net leverage was 3.4x. As a result of these changes, we are subject to a new minimum liquidity covenant. We are also subject to restrictions on certain payments, including cash dividends. We are required to maintain a minimum liquidity of at least $12.0 million as of the last day of any month in 2020, and as of the last day of any quarter through the third quarter of 2021 when our Revolving Credit Facility is drawn in excess of 25% (or $7.5 million) of the amount available as of the last day of any fiscal quarter during that period. Beginning in 2021, if we repay borrowings under our Revolving Credit Facility to 25% or less, no financial maintenance covenants, including the minimum liquidity covenant and the maximum first lien net leverage ratio covenant, are applicable.

On June 18, 2020 we issued $100.0 million aggregate principal amount of 4.25% Convertible Senior Notes with a maturity date of July 1, 2025. The net proceeds from this offering, after deducting initial purchasers' discounts and costs directly related to this offering, were approximately $96.5 million. The Convertible Senior Notes may be settled in cash, stock, or a combination thereof, solely at our discretion. Our current intent is to settle in cash the principal amount outstanding and any note conversion value over the principal amount with shares of our Common Stock. The initial conversion rate of the Convertible Senior Notes is 42.6203 shares per $1,000 principal amount, which is equivalent to a conversion price of approximately $23.46 per share, subject to adjustments. We use the treasury stock method for assumed conversion of the Convertible Senior Notes to compute the weighted average shares of common stock outstanding for diluted earnings per share.

The conversion feature of the Convertible Senior Notes required bifurcation from the notes and was initially accounted for as an equity instrument classified to stockholders' equity, which resulted in recognizing $16.4 million in additional paid-in-capital during the three months ended June 30, 2020. The interest expense recognized on the Convertible Senior Notes during the three months ended June 30, 2020, includes approximately $156,000 in aggregate for the contractual coupon interest, the accretion of the debt discount, and the amortization of the debt issuance costs. The effective interest rate on the Convertible Senior Notes is 4.25%, which includes the contractual coupon interest, accretion of the debt discount, and amortization of the debt issuance costs. Interest on the Convertible Senior Notes began accruing upon issuance and is payable semi-annually.

Holders of the Convertible Senior Notes may convert their notes at their option at any time prior to January 1, 2025 but only under the following circumstances: (i) during any calendar quarter commencing after the calendar quarter ending on September 30, 2020 (and only during such calendar quarter), if the last reported sale price of our Common Stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; (ii) during the five business day period after any five consecutive trading day period in which the trading price per $1,000 principal amount of notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our Common Stock and the conversion rate on each such trading day; (iii) we give a notice of redemption with respect to any or all of the notes, at any time prior to the close of business on the second scheduled trading day immediately preceding the redemption date; or (iv) upon the occurrence of specified corporate events. On or after January 1, 2025 until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert their notes at any time, regardless of the foregoing circumstances.

We cannot redeem the Convertible Senior Notes before July 5, 2023. We can redeem them on or after July 5, 2023, in whole or in part, at our option, if the last reported sale price per share of our Common Stock has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period (including the last trading day of such period) ending on, and including, the trading day immediately preceding the date on which we provide notice of redemption. We may redeem for cash all or part of the Convertible Senior Notes at a redemption price equal to 100% of the principal amount of the redeemable Convertible Senior Notes, plus accrued and unpaid interest to, but excluding, the redemption date. No principal payments are due on the Convertible Senior Notes prior to maturity. Other than restrictions relating to certain fundamental changes and consolidations, mergers or asset sales and customary anti-dilution adjustments, the Convertible Senior Notes do not contain any financial covenants and do not restrict us from conducting significant restructuring transactions or issuing or repurchasing any of its other securities. As of June 30,

2020, we are not aware of any current events or market conditions that would allow holders to convert the Convertible Senior Notes. We have used a portion of the proceeds to pay off the $30.0 million outstanding under our Revolving Credit Facility and anticipate using the remaining funds for general corporate purposes.

While we have reduced spending on some research and development projects for the remainder of 2020 due to the COVID-19 pandemic, we nonetheless expect to incur expenses for clinical research projects to gain regulatory approvals for new products or indications, including for JOTEC, On-X, PerClot, and BioGlue products, and to incur expenses for research and development for new products.

We also expect to fund two additional $5.0 million tranches when they become due after completion of certain clinical trial milestones in connection with the Endospan Loan.

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 2020 tax year.

We expect to benefit from various aspects of the CARES Act including the deferment of a portion of the 2020 employer's portion of social security tax into 2021 and 2022, and a decrease in the amount of interest expense limitation in 2019 and 2020.

As of June 30, 2020 approximately 11% of our cash and cash equivalents were held in foreign jurisdictions.

Net Cash Flows from Operating Activities

Net cash used by operating activities was $760,000 for the six months ended June 30, 2020, as compared to net cash provided by operating activities of $1.9 million for the six months ended June 30, 2019.

We use the indirect method to prepare our cash flow statement and, accordingly, the operating cash flows are based on our net (loss) income, which is then adjusted to remove non-cash items, items classified as investing and financing cash flows, and changes in operating assets and liabilities from the prior year end. For the six months ended June 30, 2020 these non-cash items included $9.6 million in depreciation and amortization expenses and $5.1 million in non-cash compensation.

Our working capital needs, or changes in operating assets and liabilities, also affected cash from operations. For the six months ended June 30, 2020 these changes included unfavorable adjustments of $12.9 million due to an increase in inventory balances and deferred preservation costs and $3.4 million due to an increase in prepaid expenses and other assets, partially offset by $7.6 million due to the timing differences between recording receivables and the receipt of cash.

Net Cash Flows from Investing Activities

Net cash used in investing activities was $4.5 million for the six months ended June 30, 2020, as compared to $3.6 million for the six months ended June 30, 2019 primarily due to capital expenditures in both years.

Net Cash Flows from Financing Activities

Net cash provided by financing activities was $96.2 million for the six months ended June 30, 2020, as compared to net cash used in financing activities of $824,000 for the six months ended June 30, 2019. The current year cash provided by financing activities was primarily due to the $100.0 million cash proceeds from the issuance of the Convertible Senior Notes partially offset by $3.6 million of debt issuance costs associated with these Convertible Senior Notes as described in the "Significant Sources and Uses of Liquidity" section above. During the six months ended June 30, 2020, we borrowed and subsequently repaid $30.0 million from the Revolving Credit Facility, as described in the "Significant Sources and Uses of Liquidity" section above.

Off-Balance Sheet Arrangements

We have no off-balance sheet arrangements.

Scheduled Contractual Obligations and Future Payments

Scheduled contractual obligations and the related future payments as of June 30, 2020 were as follows (in thousands):

	Total	Remainder of 2020	2021	2022	2023	2024	Thereafter
Long-term debt obligations	$ 321,778	$ 1,389	2,779	2,779	2,779	211,842	100,210
Interest payments	61,734	4,696	13,599	13,411	13,305	12,460	4,263
Research obligations	25,330	4,405	8,783	7,495	4,195	452	--
Operating leases	24,263	3,150	6,564	4,098	2,701	2,646	5,104
Contingent payments	14,188	5,000	7,047	2,094	47	--	--
Purchase commitments	8,512	5,929	2,403	112	22	24	22
Finance leases	6,291	351	657	611	610	608	3,454
Total contractual obligations	**$ 462,096**	**$ 24,920**	**$ 41,832**	**$ 30,600**	**$ 23,659**	**$ 228,032**	**$ 113,053**

Our long-term debt obligations and interest payments above result from scheduled principal payments and anticipated interest payments related to our Credit Agreement, Convertible Senior Notes, and JOTEC governmental loans. Long-term debt obligations include $100.0 million aggregate principal of Convertible Senior Notes with a maturity date of July 1, 2025, of which $77.8 million has been recorded as long-term debt as of June 30, 2020 on the "Summary Consolidated Balance Sheets" included in Part I, Item 1 of this form 10-Q.

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

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.

The contingent payments obligation includes two additional $5.0 million tranches under the Endospan Loan that we are required, subject to certain conditions, to advance to Endospan upon receipt of certification that certain approvals and clinical trial milestones have been achieved. The contingent payments obligation also includes payments that we may make if certain U.S. regulatory approvals and certain commercial milestones are achieved related to our transaction with Starch Medical, Inc. ("SMI") for PerClot and other licensed technologies.

Our purchase commitments include obligations from agreements with suppliers, one of which is the minimum purchase requirements for PerClot under a distribution agreement with 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 2021, based on the assumption that we will not terminate the distribution agreement before receiving FDA approval for PerClot. However, if we do not obtain FDA approval for PerClot and/or we 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.

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 $3.8 million and $3.3 million for the six months ended June 30, 2020 and 2019, respectively. Capital expenditures in the six months ended June 30, 2020 were primarily related to leasehold improvements needed to support our business, computer software, routine purchases of manufacturing and tissues processing equipment and computer and office equipment.

Risks and Uncertainties

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

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 $125.6 million as of June 30, 2020, and interest paid on the outstanding balances, if any, of our variable rate Revolving Credit Facility, Term Loan Facility, and Convertible Senior Notes. A 10% adverse change in interest rates, as compared to the rates experienced by us in the six months ended June 30, 2020, affecting our cash and cash equivalents, restricted cash and securities, Term Loan Facility, Revolving Credit Facility, and Convertible Senior Notes 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 Zlotys, Canadian Dollars, and Brazilian Reals, and a portion of our general, administrative, and marketing expenses are denominated in Euros, British Pounds, Swiss Francs, Polish Zlotys, 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, revenues and expenses could fluctuate related to a change in exchange rates.

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 with the participation of the CEO and CFO, as of June 30, 2020, the CEO and CFO have concluded that our Disclosure Controls were effective at a 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

COVID-19, and similar outbreaks, could have a material, adverse impact on us.

An outbreak of respiratory illness caused by a novel coronavirus named "2019-nCoV" ("COVID -19") has resulted in millions of infections and continues to spread worldwide. On March 11, 2020, the World Health Organization ("WHO") declared the COVID-19 outbreak a "pandemic." In response, governments worldwide have undertaken significant efforts to contain COVID-19 and slow its spread, including various "shelter-in-place" and "stay-at-home" orders. In addition, hospitals and other healthcare providers have had to refocus their care on the surge of the COVID-19 cases and have postponed elective and non-emergent procedures, restricted access to these facilities, and in some cases cancelled elective procedures or re-allocated scarce resources to some critically ill patients. These efforts have impacted and could continue to impact our business activities, including the following activities:

- Our product sales. We have experienced an impact on revenues in the three months ending June 30, 2020, due to the COVID-19 pandemic. Although we experienced the most severe impact to our revenues in April of the second quarter 2020 followed by some sequential recovery in May and June, the extent to which our revenue will be impacted by the pandemic in the third quarter of 2020 and beyond will depend largely on future developments.
- Our business operations. We have taken several steps to address the impact of COVID-19 on our business operations. We have reevaluated the need for, and timing of, certain expenses and have taken pre-emptive steps to reduce spending. These spending reductions, however, might not be adequate and could potentially adversely impact our business operations or delay our recovery after the effects of the pandemic subside. We also have implemented specific protocols to minimize exposure to COVID-19 among all of our employees, including those working at our three primary manufacturing facilities. In addition, we have implemented remote work arrangements for employees we deem able to do so and have significantly restricted business travel to essential travel only. There can be no guarantee, however, that these arrangements will reduce the spread of COVID-19 among our employees and key personnel, potentially adversely impacting our business operations, or that these arrangements will not create additional risks, such a cyber security, productivity, internal controls, or employee attrition risks. Although we have not experienced a significant supply chain interruption to date, such an interruption could occur. In addition, the availability of tissue for processing could decrease as the pandemic persists.
- Our management of our indebtedness. As a precautionary measure to increase cash and maintain maximum financial flexibility during the COVID-19 pandemic, we borrowed the entire amount available under our $30.0 million secured revolving credit facility ("the Revolving Credit Facility"), increasing the level of our indebtedness and our repayment obligations. Subsequently, we issued $100.0 million aggregate principal amount of 4.25% convertible senior notes with a maturity date of July 1, 2025 ("Convertible Senior Notes"), a portion of which proceeds we used to repay the Revolving Credit Facility and the remainder of which proceeds we anticipate using for general corporate purposes. We have also reevaluated the need for and timing of certain expenses and have taken pre-emptive steps to reduce spending. However, there can be no guarantee that these precautionary measures will provide us with all the liquidity we need going forward, particularly if the COVID-19 pandemic continues for an extended period of time, grows in severity or has impacts on our supply chain or operations that we do not anticipate.
- Our research and development projects. We have reduced spending on research and development projects, including clinical research projects. These reductions could adversely impact future revenue, and additional reductions in spending might be required, further impacting future revenue. In addition, our ability to conduct our ongoing research and development projects in markets that are affected by COVID-19 has been, and could continue to be, adversely impacted. Enrollment and timelines for our clinical trials have been and might continue to be impacted as healthcare providers reprioritize resources and limit access to healthcare facilities or as patients decline to participate. In addition, COVID-19-related closures of government and regulatory agencies have slowed and might continue to slow the timelines for regulatory approvals.

If COVID-19 continues to spread, if efforts to contain COVID-19 continue or are unsuccessful, or if COVID-19 spreads among our employees or impacts our supply chain, it could materially, adversely affect our revenues, financial condition, profitability, and cash flows. These future developments remain uncertain and difficult to predict but may intensify the impacts that we have already experienced. New information is continually emerging regarding the severity of the pandemic and the various government, regulatory, expert, and recommended actions to contain it or address its impact.

We may not realize all 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 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 to sell JOTEC products, including in the markets in which JOTEC is already direct;
- 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 research and development 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 compete effectively;
- Our ability to carry, service, and manage significantly more debt and repayment obligations;
- Our ability to manufacture and supply sufficient JOTEC products to meet market demand; and
- Our ability to manage the unforeseen risks and uncertainties related to JOTEC's business, including any related to intellectual property rights.

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
- Expose us to the risk of increased interest rates as most of our borrowings are at a variable rate of interest.

The agreements governing our indebtedness contain restrictions that limit our flexibility in operating our business.

The agreements governing our indebtedness contain, and any instruments governing future indebtedness of ours may contain, covenants that impose significant operating and financial restrictions on us and certain of our subsidiaries, including (subject in each case to certain exceptions) restrictions or prohibitions on our and certain of our subsidiaries' ability to, among other things:

- Incur or guarantee additional debt;
- Deviate from a minimum liquidity of at least $12.0 million as of the last day of any month in 2020, and as of the last day of any quarter through the third quarter of 2021 when our Revolving Credit Facility is drawn in excess of 25% (or $7.5 million) of the amount available as of the last day of any fiscal quarter during that period;
- Pay dividends on or make distributions in respect of our share capital, including repurchasing or redeeming capital stock or make other restricted payments, including restricted junior payments;
- Enter into agreements that restrict our subsidiaries' ability to pay dividends to us, repay debt owed to us or our subsidiaries, or make loans or advances to us or our other subsidiaries;
- Comply with certain financial ratios set forth in the agreement;
- Enter into any transaction or merger or consolidation, liquidation, winding-up, or dissolution; convey, sell, lease, exchange, transfer or otherwise dispose of all or any part of our business, assets or property; or sell, assign, or otherwise dispose of any capital stock of any subsidiary;
- Create liens on certain assets;
  Enter into certain transactions with our affiliates;
- Enter into certain rate swap transactions, basis swaps, credit derivative transactions, and other similar transactions, whether relating to interest rates, commodities, investments, securities, currencies, or any other relevant measure, or transactions of any kind subject to any form of master purchase agreement governed by the International Swaps and Derivatives Association, Inc., any International Foreign Exchange Master Agreement, or any other master agreement;
- Amend, supplement, waive, or otherwise modify our organizational documents or the organizational documents of a subsidiary in a manner that would be materially adverse to the interests of the lenders, or change or amend the terms of documentation regarding junior financing in a manner that would be materially adverse to the interests of the lenders;
- Change our, or permit a subsidiary to change its, fiscal year without notice to the administrative agent under the agreement;
- Enter into agreements which restrict our ability to incur liens;
- Engage in any line of business substantially different from that in which we are currently engaged; and
- Make certain investments, including strategic acquisitions or joint ventures.

As a result of these covenants, we are limited in the manner in which we conduct our business, and we may be unable to engage in favorable business activities or finance future operations or capital needs.

We have pledged substantially all of our U.S. assets as collateral under our existing Credit Agreement. If we default on the terms of such credit agreements and the holders of our indebtedness accelerate the repayment of such indebtedness, there can be no assurance that we will have sufficient assets to repay our indebtedness.

A failure to comply with the covenants contained in our existing Credit Agreement could result in an event of default under such agreements, which, if not cured or waived, could have a material, adverse effect on our business, financial condition, and profitability. In the event of any default under our existing debt agreement, the holders of our indebtedness:

- Will not be required to lend any additional amounts to us;
- Could elect to declare all indebtedness outstanding, together with accrued and unpaid interest and fees, to be due and payable and terminate all commitments to extend further credit, if applicable; or
- Could require us to apply all of our available cash to repay such indebtedness.

If we are unable to repay those amounts, the holders of our secured indebtedness could proceed against the collateral granted to them to secure that indebtedness. If the indebtedness under our existing debt agreements were to be accelerated, there can be no assurance that our assets would be sufficient to repay such indebtedness in full.

Our charges to earnings resulting from acquisition, restructuring, and integration costs may materially, adversely affect the market value of our common stock.

We account for the completion of our acquisitions using the purchase method of accounting. We allocate the total estimated purchase prices to net tangible assets, amortizable intangible assets and indefinite-lived intangible assets, and based on their fair values as of the date of completion of the acquisitions, record the excess of the purchase price over those fair values as goodwill. Our financial results, including earnings per share, could be adversely affected by a number of financial adjustments required in purchase accounting including the following:

- We will incur additional amortization expense over the estimated useful lives of some of the intangible assets acquired in connection with acquisitions during such estimated useful lives;
- We will incur additional depreciation expense as a result of recording purchased tangible assets;
- To the extent the value of goodwill or intangible assets becomes impaired, we may be required to incur material charges relating to the impairment of those assets;
- Cost of sales may increase temporarily following an acquisition as a result of acquired inventory being recorded at its fair market value;
- Earnings may be affected by changes in estimates of future contingent consideration to be paid when an earn-out is part of the consideration; or
- Earnings may be affected by transaction and integration costs, which are expensed immediately.

We are significantly dependent on our revenues from tissue preservation services and are subject to a variety of risks affecting them.

Tissue preservation services are a significant source of our revenues, accounting for 31% and 28% of revenues in the three months ended June 30, 2020 and 2019, respectively. The following could materially, adversely affect our revenues, financial condition, profitability, and cash flows, if we are unable to:

- Source sufficient quantities of some tissue types from human donors or address potential excess supply of other tissue types. We rely primarily upon the efforts of third-party procurement organizations, tissue banks (most of which are not-for-profit), and others to educate the public and foster a willingness to donate tissue. Factors beyond our control such as supply, regulatory changes, negative publicity concerning methods of tissue recovery or disease transmission from donated tissue, or public opinion of the donor process as well as our own reputation in the industry can negatively impact the supply of tissue;
- Compete effectively in tissue preservation services, as we may be unable to capitalize on our clinical advantage or our competitors may have advantages over us in terms of cost structure, pricing, back office automation, marketing, and sourcing tissue; or
- Mitigate sufficiently the risk that processed tissue cannot be sterilized and hence carries an inherent risk of infection or disease transmission; there is no assurance that our quality controls will be adequate to mitigate such risk.

In addition, U.S. and foreign governments and regulatory agencies have adopted restrictive laws, regulations, and rules that apply to our tissue preservation services. These include but are not limited to:

- National Organ Transplant Act, which prohibits the acquisition or transfer of human organs for valuable consideration for use in human transplantation, but allows for the payment of reasonable expenses associated with the removal, transportation, implantation, processing, preservation, quality control, and storage of human organs; and
- U.S. Department of Labor, Occupational Safety and Health Administration, and U.S. Environmental Protection Agency requirements for prevention of occupational exposure to infectious agents and hazardous chemicals and protection of the environment.

Any of these laws, regulations, and rules or others could change, our interpretation of them could be challenged by U.S., state, or foreign governments and regulatory agencies, or these governments and regulatory agencies could adopt more restrictive laws or regulations in the future regarding tissue preservation services that could have a material, adverse impact on our revenues, financial condition, profitability, and cash flows.

We are significantly dependent on our revenues from BioGlue and are subject to a variety of risks affecting them.

BioGlue® Surgical Adhesive ("BioGlue") is a significant source of our revenues, accounting for 23% and 25% of revenues in the three months ended June 30, 2020 and 2019, respectively. The following could materially, adversely affect our revenues, financial condition, profitability, and cash flows:

- Our ability to achieve anticipated BioGlue revenue in the U.S. and in international markets outside the U.S.;
- BioGlue is a mature product, our U.S. Patent for BioGlue expired in mid-2012, and our patents in most of the rest of the world for BioGlue expired in mid-2013. Other companies may use the inventions disclosed in the expired patents to develop and make competing products;
- Some companies have launched competitive products and others may pursue regulatory approval for competitive products in the future. These companies may have greater financial, technical, manufacturing, and marketing resources than we do and may be better established in their markets;
- We may be unable to obtain regulatory approvals to commercialize BioGlue in certain countries other than the U.S. at the same rate as our competitors or at all. We also may not be able to capitalize on new regulatory approvals we obtain for BioGlue in countries other than the U.S., including approvals for new indications;
- BioGlue contains a bovine blood protein. Animal-based products are subject to increased scrutiny from the public and regulators, who may have concerns about the use of animal-based products or concerns about the transmission of disease from animals to humans. These concerns could lead to additional regulations or product bans in certain countries;
- Changes to components in the BioGlue product, including in the delivery system, require regulatory approval, which, if delayed, could cause prolonged disruptions to our ability to supply BioGlue; and
- On June 13, 2019 our European Notified Body for BioGlue, Lloyd's Register Quality Assurance Limited, which is headquartered in the U.K., informed us that it would no longer provide Notified Body services to companies in European Economic Area ("EEA") effective September 2019. On July 5, 2019 the U.K. Medicines and Healthcare Products Regulatory Agency ("MHRA") granted us a one-year grace period to transfer BioGlue (and PhotoFix) to a new Notified Body. Due to the Brexit transition period that currently is scheduled to end on December 31, 2020, and after which the MHRA will no longer be recognized as a competent authority in the European Union, we approached the governing German competent authority, the Regierungspraesidium-Tubingen (RP-T), to request an extension of the MHRA-granted grace period. On June 4, 2020, the RP-T provided a letter granting an additional one-year extension of the grace period, until September 30, 2021, provided that we meet certain conditions similar to those required by MHRA, including the demonstration of adequate progress in the CE Mark certification process with our new Notified Body. If we are delayed or unsuccessful in transferring to a new Notified Body for BioGlue (and PhotoFix) in the EEA, or if we are otherwise unable to timely meet applicable regulatory requirements, we may be unable to place BioGlue (or PhotoFix) on the market in the EEA until the situation is resolved.

We are significantly dependent on our revenues from JOTEC and are subject to a variety of risks affecting them.

JOTEC is a significant source of our revenues, accounting for 24% of revenues in the three months ended June 30, 2020 and 2019. The following could materially, adversely affect our revenues, financial condition, profitability, and cash flows:

- Our ability to achieve anticipated JOTEC revenue in international markets outside the U.S.;
- Our ability to meet demand for JOTEC products as we seek to expand our business globally;
- Our ability to compete effectively with our major competitors, as they may have advantages over us in terms of cost structure, supply chain, pricing, sales force footprint, and brand recognition;
- Our ability to develop innovative and in-demand products in the aortic surgery space;
- Our ability to contend with enhanced regulatory requirements and enforcement activities; and
- Our ability to maintain a productive working relationship with our Works Council in Germany.

We are significantly dependent on our revenues from On-X and are subject to a variety of risks affecting them.

On-X is a significant source of our revenues, accounting for 19% and 18% of revenues in the three months ended June 30, 2020 and 2019, respectively. The following could materially, adversely affect our revenues, financial condition, profitability, and cash flows:

- Our ability to achieve anticipated On-X revenue in the U.S. and in international markets outside the U.S.;
- Our ability to capitalize on the FDA's approved reduced International Normalized Ratio ("INR") indication;

- Our ability to compete effectively with some of our major competitors, as they may have advantages over us in terms of cost structure, supply chain, pricing, sales force footprint, and brand recognition;
- Our ability to manage the risks associated with less favorable contract terms for On-X products on consignment at hospitals with more bargaining power;
- Clinical trial data or changes in technology that may impact the market for mechanical heart valves, such as transcatheter aortic valve replacement, or "TAVR" devices;
- Enhanced regulatory enforcement activities or failure to receive renewed certifications that could cause interruption in our ability to sell On-X products in certain markets; and
- Our ability to execute and complete the FDA mandated post-approval study to assess the occurrence of adverse events with the On-X Aortic Prosthetic Heart Valve when targeted at an INR level of 1.8 (1.5-2.0 range) during a 5-year follow-up.

Our products and tissues are highly regulated and subject to significant quality and regulatory risks.

The manufacture and sale of medical devices and processing, preservation, and distribution of human tissues are highly complex and subject to significant quality and regulatory risks in the U.S. and internationally. Any of the following could materially, adversely affect our revenues, financial condition, profitability, and cash flows:

- Our products and tissues may be recalled or placed on hold by us, the FDA, or other regulatory bodies;
- Our products and tissues allegedly have caused, and may in the future cause, injury to patients, which has exposed, and could in the future expose, us to product and tissue processing liability claims, and such claims could lead to additional regulatory scrutiny and inspections;
- Our manufacturing and tissue processing operations are subject to regulatory scrutiny and inspections, including by the FDA and foreign regulatory agencies, and these agencies could require us to change or modify our manufacturing operations, processes, and procedures or take other adverse action. For example, in January 2013 we received a warning letter from the FDA related to the manufacture of our products and our processing, preservation, and distribution of human tissue, as well as a subsequent 2014 Form 483, after a FDA re-inspection related to the warning letter that included observations concerning design and process validations, environmental monitoring, product controls and handling, corrective and preventive actions, and employee training. After an FDA re-inspection in the first quarter of 2015, the FDA closed out the warning letter issued in 2013;
- Regulatory agencies could reclassify, reevaluate, or suspend our clearances and approvals, or fail, or decline to timely issue, or reissue, our clearances and approvals, that are necessary to sell our products and distribute tissues;
- Local and international regulatory and quality laws and standards are subject to change, which could adversely affect our clearances and approvals to sell our products and distribute tissues; and
- Adverse publicity associated with our products or processed tissues or our industry could lead to a decreased use of our products or tissues, additional regulatory scrutiny, and/or product or tissue processing liability lawsuits.

Further, on May 25, 2017, the European Union adopted a new Medical Device Regulation (MDR 2017/745) ("MDR"). Although MDR was originally scheduled to become effective on May 26, 2020, due to the COVID-19 pandemic, on April 23, 2020, the European Union enacted legislation postponing the full MDR implementation by one year until May 26, 2021. Upon implementation, among other changes, MDR will place more stringent requirements on manufacturers and European Notified Bodies regarding product classifications, pre- and post-market clinical studies, and other regulatory requirements for product clearances and approvals. These changes could result in product reclassifications and the imposition of other regulatory requirements that could delay, impede, or prevent our ability to commercialize existing, improved, or new products in the EEA. In addition, we or our Notified Bodies (or both) might be unable to timely meet the requirements of MDR. If either of the foregoing were to occur, it could materially, adversely affect our revenues, financial condition, profitability, and cash flows.

At the same time, European Notified Bodies have begun engaging in more rigorous regulatory enforcement activities and may continue to do so. For example, on November 22, 2016, our Notified Body for the On-X product line temporarily suspended the CE Mark for the On-X ascending aortic prosthesis ("AAP"), which has now returned to the market in the EEA. Further, in anticipation of MDR, Notified Bodies have declined to review routine submissions unless they are submitted in accordance with MDR, and they may continue to do so despite the postponement of MDR implementation. Our inability to timely adapt to these new requirements of our Notified Bodies could adversely impact our clearances and approvals, which could materially, adversely affect our revenues, financial condition, profitability, and cash flows.

We may not realize all the anticipated benefits of our agreements with Endospan.

On September 11, 2019, we entered into various agreements with Endospan, Ltd. ("Endospan"), an Israeli medical device manufacturer (the "Endospan Transaction"). The Endospan Transaction included an exclusive distribution agreement for NEXUS stent graft system ("NEXUS") in certain countries in Europe for a fixed distribution fee of $9.0 million; a loan agreement ("Endospan Loan") for a secured loan from CryoLife to Endospan in an amount up to $15.0 million, funded over three tranches of $5.0 million each upon the completion of certain milestones (the first tranche of which was paid in September 2019); and a security purchase option agreement providing CryoLife the option to purchase all the then outstanding securities of Endospan from Endospan's existing securityholders for a price between $350.0 million and $450.0 million before or upon FDA approval of NEXUS, for which option CryoLife paid to Endospan $1.0 million.

Our ability to realize the anticipated business opportunities, growth prospects, synergies, and other benefits of the Endospan Transaction depends on a number of factors including:

- The continued growth of the global market for stent grafts used in endovascular repair of aortic disease;
- Our ability to introduce and drive adoption of NEXUS in the European market, including our ability to manage the substantial requirements for product training, implant support, and proctoring for NEXUS procedures;
- Our ability to foster cross-selling opportunities between JOTEC product portfolio and NEXUS;
- Our ability to leverage our global infrastructure to sell NEXUS, including in the markets in which JOTEC is already direct;
- Our ability to address unforeseen risks, uncertainties and opportunities given our obligations to Endospan;
- Endospan's ability to comply with the Endospan Loan, as well as other debt obligations, and avoid an event of default;
- Endospan's ability to successfully commercialize NEXUS in markets outside of Europe;
- Endospan's ability to meet demand for NEXUS;
- Endospan's ability to meet quality and regulatory requirements;
- Endospan's ability to manage any intellectual property risks and uncertainties associated with NEXUS;
- Endospan's ability to obtain FDA approval of NEXUS; and
- Our ability to manage the unforeseen risks and uncertainties related to NEXUS.

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 and negatively impact the price of our common stock.

Some of our products and technologies are subject to significant intellectual property risks and uncertainty.

We own patents, patent applications, and licenses relating to our technologies, which we believe provide us with important competitive advantages. In addition, we have certain proprietary technologies and methods that we believe provide us with important competitive advantages. We cannot be certain that our pending patent applications will issue as patents or that no one will challenge the validity or enforceability of any patent that we own or license. Furthermore, competitors may independently develop similar technologies either before or after our patents expire, or duplicate our technologies, or design around the patented aspects of such technologies.

Our technologies, products, or services could infringe patents or other rights owned by others, or others could infringe our patents. If we become involved in a patent dispute, the costs of the dispute could be expensive, and if we were to lose or decide to settle the dispute, the amounts or effects of the settlement or award by a tribunal could be costly.

We also have obtained licenses from third parties for certain patents and patent application rights. These licenses allow us to use intellectual property rights owned by or licensed to these third parties. We do not control the maintenance, prosecution, enforcement, or strategy for many of these patents or patent application rights and as such are dependent in part on the owners of the intellectual property rights to maintain their viability. Their failure to do so could significantly impair our ability to exploit those technologies.

Our investment in PerClot is subject to significant risks, including our ability to fully realize our investment by obtaining FDA approval and to successfully commercialize PerClot in the U.S. either directly or indirectly.

In 2010 and 2011, we entered into various agreements with SMI pursuant to which, among other things, we (i) may distribute PerClot in certain international markets and are licensed to manufacture PerClot in the U.S.; (ii) acquired some technology to assist in the production of a potentially key component in PerClot; and (iii) obtained the exclusive right to pursue, obtain, and maintain FDA Pre-Market Approval ("PMA") for PerClot. We are currently conducting our pivotal clinical trial to gain approval to commercialize PerClot for surgical indications in the U.S., and we completed enrollment in January 2019. We anticipate submission to the FDA during the fourth quarter of 2020. There is no guarantee, however, that we will obtain FDA approval when anticipated or at all. The estimated timing of regulatory approval for PerClot is based on factors beyond our control, including but not limited to, unforeseen scheduling difficulties and unfavorable results at various stages in the PMA application process. We may also decide to delay or terminate our pursuit of U.S. regulatory approval for PerClot at any time due to changing conditions at CryoLife, in the marketplace, or in the economy in general.

Further, even if we receive FDA PMA for PerClot, we may be unsuccessful in selling PerClot in the U.S. By the time we secure approvals, competitors may have substantial market share or significant market protections due to contracts, among other things. We may also be unsuccessful in selling in countries other than the U.S. due, in part, to a proliferation in other countries of multiple generic competitors, any breach by SMI of its contractual obligations, or the lack of adequate intellectual property protection or enforcement. Any of these occurrences could materially, adversely affect our future revenues, financial condition, profitability, and cash flows.

Reclassification by the FDA of CryoValve® SG pulmonary heart valve ("CryoValve SGPV") may make it commercially infeasible to continue processing the CryoValve SGPV.

In October 2014 the FDA convened an advisory committee meeting to consider the FDA's recommendation to re-classify more than minimally manipulated ("MMM") allograft heart valves from an unclassified medical device to a Class III medical device. The class of allograft heart valves potentially covered by this recommendation includes our CryoValve SGPV. At the meeting, a majority of the advisory committee panel recommended to the FDA that MMM allograft heart valves be re-classified as a Class III product. In December 2019, we learned that the FDA is preparing to issue a proposed rule for reclassification of MMM allograft heart valves as Class III medical devices, which would be subject to a comment period before publication of a final rule. Upon publication of a final rule, should the CryoValve SGPV be determined to be MMM, we expect to have approximately thirty months to submit a PMA application, after which the FDA will determine if, and for how long, we may continue to provide these tissues to customers during review of the PMA application. To date, the FDA has not issued a final rule for reclassification of MMM allograft heart valves.

We have continued to process and ship our CryoValve SGPV tissues. If the FDA ultimately classifies our CryoValve SGPV as a Class III medical device, and if there are delays in obtaining the PMA, if we are unsuccessful in obtaining the PMA, or if the costs associated with these activities are significant, this could materially, adversely affect our revenues, financial condition, profitability, and/or cash flows in future periods. In addition, we could decide that the requirements for obtaining a PMA make continued processing of the CryoValve SGPV too onerous, leading us to discontinue distribution of these tissues.

Our key growth areas may not generate anticipated benefits.

Our strategic plan is focused on four growth areas, primarily in the cardiac and vascular surgery segment, which are expected to drive our business in the near term. These growth areas and their key elements are described below:

- *New Products* – Drive growth through product development and commercialization of new and next-generation products and services focused on aortic repair;
- *New Indications* – Drive growth through new regulatory approvals and expanded indications for our existing products and services to increase the size of our addressable U.S. or international markets;
- *Global Expansion* – Drive growth by entering new international markets, establishing new international direct sales territories, and developing our commercial infrastructure in new markets, including emerging markets, China and Brazil; and
- *Business Development* – Drive growth by selectively pursuing acquisitions, licensing, and distribution opportunities that are aligned to our objectives and complement our existing products, services, and infrastructure. Examples include our acquisitions of JOTEC and On-X and our distribution agreement and purchase option for NEXUS. To

the extent that we identify, develop, or acquire non-core products or applications, we may dispose of these assets or pursue licensing or distribution agreements with third-party partners for development or commercialization.

Although we continue to implement these strategies, we cannot be certain that they will ultimately drive business expansion and enhance shareholder value.

We may not be successful in obtaining necessary clinical results and regulatory approvals for products and services in development, and our new products and services may not achieve market acceptance.

Our growth and profitability will depend, in part, upon our ability to complete development of, and successfully introduce, new products and services, or expand upon existing indications, which requires that we invest significant time and resources to obtain required regulatory approvals, including significant investment of time and resources into clinical trials and post-market clinical studies. Although we believe certain products and services under development may be effective in a particular application, we cannot be certain until we successfully execute on a clinical trial, and the results we obtain may be insufficient for us to obtain any required regulatory approvals or clearances. In addition, we must complete various post-market clinical studies to satisfy various regulatory and reimbursement requirements. These post-market clinical studies also require significant time and resources, and we cannot be certain that we will be able to successfully execute them or that the results we obtain will satisfy post-market regulatory and reimbursement requirements.

We are currently engaged in several clinical trials and post-market clinical studies for our products, including our PROACT Xa clinical trial to determine if patients with an On-X mechanical aortic valve can be maintained safely and effectively on apixaban (Eliquis®) rather than on warfarin, and we also have begun efforts to initiate future U.S. clinical trials for certain JOTEC products. Each of these trials or studies is subject to the risks outlined herein.

We cannot give assurance that the relevant regulatory agencies will clear or approve these products and services or indications, or any new products and services or new indications, on a timely basis, if ever, or that the products and services or new indications will adequately meet the requirements of the applicable market or achieve market acceptance. We may encounter delays or rejections during any stage of the regulatory approval process if clinical or other data fails to demonstrate satisfactorily compliance with, or if the service or product fails to meet, the regulatory agency's requirements for safety, efficacy, and quality, or the regulatory agency otherwise has concerns about our quality or regulatory compliance. Regulatory requirements for safety, efficacy, quality, and the conduct of clinical trials and post-market clinical studies may become more stringent due to changes in applicable laws, regulatory agency policies, or the adoption of new regulations. Clinical trials and post-market clinical studies may also be delayed or halted due to the following, among other factors:

- Unanticipated side effects;
- Lack of funding;
- Inability to locate or recruit clinical investigators;
- Inability to locate, recruit, and qualify sufficient numbers of patients;
- Redesign of clinical trial or post-market clinical study programs;
- Inability to manufacture or acquire sufficient quantities of the products, tissues, or any other components required for clinical trials or post-market clinical study programs;
- Changes in development focus; or
- Disclosure of trial results by competitors.

Our ability to complete the development of any of our products and services is subject to all of the risks associated with the commercialization of new products and services based on innovative technologies. Such risks include unanticipated technical or other problems, manufacturing, or processing difficulties, and the possibility that we have allocated insufficient funds to complete such development. Consequently, we may not be able to successfully introduce and market our products or services, or we may not be able to do so on a timely basis. These products and services may not meet price or performance objectives and may not prove to be as effective as competing products and services.

If we are unable to successfully complete the development of a product, service, or application, or if we determine for financial, technical, competitive, or other reasons not to complete development or obtain regulatory approval or clearance of any product, service, or application, particularly in instances when we have expended significant capital, this could materially, adversely affect our revenues, financial condition, profitability, and cash flows. Research and development efforts are time consuming and expensive, and we cannot be certain that these efforts will lead to commercially successful products or services. Even the successful commercialization of a new product or service in the medical industry can be

characterized by slow growth and high costs associated with marketing, under-utilized production capacity, and continuing research and development and education costs. The introduction of new products or services may require significant physician training and years of clinical evidence derived from follow-up studies on human patients in order to gain acceptance in the medical community.

All of these could have a material, adverse impact on our revenues, financial condition, profitability, and cash flows.

We are subject to a variety of risks as we seek to expand our business globally.

The expansion of our international operations is subject to a number of risks, which may vary significantly from the risks we face in our U.S. operations, including:

- Difficulties and costs associated with staffing, establishing and maintaining internal controls, managing foreign operations, including foreign distributor relationships, and developing direct sales operations in key foreign countries;
- Expanded compliance obligations, including obligations associated with the Foreign Corrupt Practices Act, the U.K. Bribery Law, local anti-corruption laws, Office of Foreign Asset Control administered sanction programs, and the European Union's General Data Protection Regulation;
- Broader exposure to corruption;
- Overlapping and potentially conflicting international legal and regulatory requirements, as well as unexpected changes in international legal and regulatory requirements or reimbursement policies and programs;
- Longer accounts receivable collection cycles in certain foreign countries and additional cost of collection of those receivables;
- Diminished protection for intellectual property and the presence of a growing number of generic or smaller competitors in some countries;
- Changes in currency exchange rates, particularly fluctuations in the Euro as compared to the U.S. Dollar;
- Differing local product preferences and product requirements;
- Differing local labor and employment laws, including those related to terminations, unionization, and the formation of works councils or other similar employee organizations;
- Adverse economic or political changes or political instability;
- Potential trade restrictions, exchange controls, and import and export licensing requirements including tariffs;
- Potential adverse tax consequences of overlapping tax structures; and
- Potential adverse financial consequences resulting from the exit of the U.K. from the European Union, or "Brexit," including a potential disruption of sales into the U.K.

Our failure to adequately address these risks could have a material, adverse impact on our revenues, financial condition, profitability, and cash flows.

We continue to evaluate expansion through acquisitions of, or licenses with, investments in, and distribution arrangements with, other companies or technologies, which may carry significant risks.

One of our growth strategies is to selectively pursue the potential acquisition, licensing, or distribution rights of companies or technologies that complement our existing products, services, and infrastructure. In connection with one or more of the acquisition transactions, we may:

- Issue additional equity securities that would dilute our stockholders' ownership interest in us;
- Use cash that we may need in the future to operate our business;
- Incur debt, including on terms that could be unfavorable to us or debt that we might be unable to repay;
- Structure the transaction in a manner that has unfavorable tax consequences, such as a stock purchase that does not permit a step-up in the tax basis for the assets acquired;
- Be unable to realize the anticipated benefits, such as increased revenues, cost savings, or synergies from additional sales;
- Be unable to integrate, upgrade, or replace the purchasing, accounting, financial, sales, billing, employee benefits, payroll, and regulatory compliance functions of an acquisition target;
- Be unable to secure or retain the services of key employees related to the acquisition;
- Be unable to succeed in the marketplace with the acquisition; or

- Assume material unknown liabilities associated with the acquired business.

As an example of these risks, in December 2017 we acquired JOTEC, which we financed by incurring further debt, using cash on hand, and issuing additional equity securities. This acquisition posed many of the same risks as set forth above.

Any of the above risks, should they occur, could materially, adversely affect our revenues, financial condition, profitability, and cash flows, including the inability to recover our investment or cause a write-down or write-off of such investment, associated goodwill, or assets.

We are heavily dependent on our suppliers and contract manufacturers to provide quality materials, supplies, and products.

The materials and supplies used in our product manufacturing and our tissue processing are subject to stringent quality standards and requirements, and many of these materials and supplies are subject to significant regulatory oversight and action. If materials or supplies used in our processes fail to meet these standards and requirements or are subject to recall or other quality action, an outcome could be the rejection or recall of our products or tissues and/or the immediate expense of the costs of the manufacturing or preservation. In addition, if these materials and supplies or changes to them do not receive regulatory approval or are recalled, if the related suppliers and/or their facilities are shut down temporarily or permanently, whether by government order, natural disaster, or other reason, or if the related suppliers are otherwise unable or unwilling to supply us, there may not be sufficient materials or supplies available for purchase to allow us to manufacture our products or process tissues. In addition, we rely on contract manufacturers to manufacture some of our products or to provide additional manufacturing capacity for other products. If these contract manufacturers fail to meet our quality standards and requirements or if they are unable or unwilling to supply the products, we may not be able to meet demand for these products. Any of these occurrences or actions could materially, adversely affect our revenues, financial condition, profitability, and cash flows.

We are dependent on single and sole-source suppliers and single facilities.

Some of the materials, supplies, and services that are key components of our product manufacturing or our tissue processing, as well as some of our products, are sourced from single- or sole-source suppliers. As a result, our ability to negotiate favorable terms with those suppliers may be limited, and if those suppliers experience operational, financial, quality, or regulatory difficulties, or if those suppliers and/or their facilities refuse to supply us or cease operations temporarily or permanently, we could be forced to cease product manufacturing or tissue processing until the suppliers resume operations, until alternative suppliers could be identified and qualified, or permanently if the suppliers do not resume operations and no alternative suppliers could be identified and qualified. We could also be forced to purchase alternative materials, supplies, or services with unfavorable terms due to diminished bargaining power.

As an example of these risks, we will not have a supply of handpieces for cardiac laser therapy until the FDA approves our supplier's change in manufacturing location, pending our supplier's resolution of several observations the FDA raised during a manufacturing site change inspection. We do not believe these observations relate to quality or safety. We currently anticipate resumption of supply during the second half of 2020.

We also conduct nearly all our operations at three facilities: Austin, Texas for our On-X product line, Hechingen, Germany for our JOTEC product line, and Kennesaw, Georgia for all our other products. If one of these facilities ceases operations temporarily or permanently, due to natural disaster or other reason, our business could be substantially disrupted.

Regulatory enforcement activities regarding Ethylene Oxide, which is used to sterilize some of our products and components, could have a material, adverse impact on us.

Some of our products, including our On-X products are sterilized using ethylene oxide ("EtO"). Although we have a small-scale EtO facility in Austin, Texas, we rely primarily on large-scale EtO facilities to sterilize our products. In addition, some of our suppliers use, or rely upon third parties to use, EtO to sterilize some of our product components. Concerns about the release of EtO into the environment at unsafe levels have led to various regulatory enforcement activities against EtO facilities, including closures and temporary closures. For example, in February 2019, the Illinois Environmental Protection Agency issued an order to stop Sterigenics from using EtO at its Willowbrook, Illinois facility; Sterigenics subsequently announced that the facility would not reopen. The number of EtO facilities in the U.S. is limited, and any permanent or temporary closures or disruption to their operations could delay, impede, or prevent our ability to commercialize our products, which could materially, adversely affect our revenues, financial condition, profitability, and cash flows. In addition,

any regulatory enforcement activities against us for our use of EtO could result in financial, legal, business, and reputational harm to us.

We operate in highly competitive market segments, face competition from large, well-established medical device companies with significant resources, and may not be able to compete effectively.

The market for our products and services is intensely competitive and significantly affected by new product introductions and activities of other industry participants. We face intense competition from other companies engaged in the following lines of business:

- The sale of endovascular and surgical stents;
- The sale of mechanical, synthetic, and animal-based tissue valves for implantation;
- The sale of synthetic and animal-based patches for implantation;
- The sale of surgical adhesives, surgical sealants, and hemostatic agents; and
- The processing and preservation of human tissue.

A significant percentage of market revenues from these products was generated by Baxter International, Inc.; Ethicon (a Johnson & Johnson Company); Medtronic, Inc.; Abbott Laboratories; LivaNova PLC; Edwards Lifesciences Corp.; Bard, a subsidiary of Becton, Dickinson, and Company; Integra Life Sciences Holdings; LifeNet; Admedus, Inc.; Aziyo Biologics; Cook Medical; Gore & Associates; Terumo Corp.; Endologix; Antegraft, Inc.; LeMaitre Vascular, Inc.; Maquet, Inc.; Vascutek; Novadaq Technologies, Inc.; Pfizer, Inc.; and BioCer Entwicklungs-GmbH.

Several of our competitors enjoy competitive advantages over us, including:

- Greater financial and other resources for product research and development, sales and marketing, acquisitions, and patent litigation;
- Enhanced experience in, and resources for, launching, marketing, distributing, and selling products;
- Greater name recognition as well as more recognizable trademarks for products similar to the products that we sell;
- More established record of obtaining and maintaining FDA and other regulatory clearances or approvals for products and product enhancements;
- More established relationships with healthcare providers and payors;
- Lower cost of goods sold or preservation costs;
- Advanced systems for back office automation, product development, and manufacturing, which may provide certain cost advantages; and
- Larger direct sales forces and more established distribution networks.

Our competitors may develop services, products, or processes with significant advantages over the products, services and processes that we offer or are seeking to develop, and our products and tissues may not be able to compete successfully. If we are unable to successfully market and sell innovative and in-demand products and services, our competitors may gain competitive advantages that may be difficult to overcome. In addition, consolidation among our competitors may make it more difficult for us to compete effectively. If we fail to compete effectively, this could materially, adversely affect our revenues, financial condition, profitability, and cash flows.

We are dependent on our key personnel.

Our business and future operating results depend in significant part upon the continued contributions of our key personnel, including qualified personnel with medical device and tissue processing experience, and senior management with experience in the medical device or tissue processing space, many of whom would be difficult to replace. Our business and future operating results, including production at our manufacturing and tissue processing facilities, also depend in significant part on our ability to attract and retain qualified management, operations, processing, marketing, sales, and support personnel for our operations. Our main facilities are in Kennesaw, Georgia; Austin, Texas; and Hechingen, Germany, where the local supply of qualified personnel in the medical device and tissue processing industries is limited. Competition for such personnel is intense, and we cannot ensure that we will be successful in attracting and retaining such personnel. If we lose any key employees to other employers or due to illness, death or retirement, if any of our key employees fail to perform adequately, or if we are unable to attract and retain skilled employees as needed, this could have a material, adverse impact on our revenues, financial condition, profitability, and cash flows.

Future tax reform regulations could have a material, adverse impact on us.

The December 2017 tax reform legislation known as H.R. 1, commonly referred to as the "Tax Cuts and Jobs Act" ("the Tax Act"), made significant changes to U.S. federal income tax law. In response, the U.S. Treasury Department issued multiple significant proposed regulation packages to further interpret certain provisions of the Tax Act. As of June 30, 2020, certain significant proposed regulation packages have not yet been finalized. It is possible that when released in final form, these regulation packages could have a material tax impact on us. In addition, we continue to await responses from various state taxing jurisdictions on the impact of the Tax Act on their local taxing regimes. We will continue to monitor and account for the future impacts of federal regulatory and state guidance in the interim period in which such guidance is issued.

Our operating results may fluctuate significantly on a quarterly or annual basis as a result of a variety of factors, many of which are outside our control.

Fluctuations in our quarterly and annual financial results have resulted, and will continue to result, from numerous factors, including:

- Changes in demand for the products we sell;
- Increased product and price competition, due to the announcement or introduction of new products by our competitors, market conditions, the regulatory landscape, or other factors;
- Changes in the mix of products we sell;
- Availability of products, materials, and supplies, including donated tissue used in preservation services;
- Our pricing strategy with respect to different product lines;
- Strategic actions by us, such as acquisitions of businesses, products, or technologies;
- Unanticipated costs and expenses;
- Effects of domestic and foreign economic conditions and exchange rates on our industry and/or customers;
- The divestiture or discontinuation of a product line or other revenue generating activity;
- The relocation and integration of manufacturing operations and other strategic restructuring;
- Regulatory actions that may necessitate recalls of our products or warning letters that negatively affect the markets for our products;
- Failure of government and private health plans to adequately and timely reimburse the users of our products or changes in reimbursement policies;
- Costs incurred by us in connection with the termination of contractual and other relationships, including distributorships;
- Our ability to collect outstanding accounts receivable in selected countries outside of the U.S.;
- The expiration or utilization of deferred tax assets such as net operating loss carryforwards;
- Market reception of our new or improved product offerings; and
- The loss of any significant customer, especially in regard to any product that has a limited customer base.

We have based our current and future expense levels largely on our investment plans and estimates of future events, although some of our expense levels are, to a large extent, fixed. We may be unable to adjust spending in a timely manner to compensate for any unexpected revenue shortfall. Accordingly, any significant shortfall in revenue relative to our planned expenditures would have an immediate, adverse effect on our business, results of operations, and financial condition. Further, as a strategic response to changes in the competitive environment, we may from time to time make certain pricing, service, or marketing decisions that could have a material, adverse effect on our business, results of operations, and financial condition. Due to the foregoing factors, some of which are not within our control, the price of our common stock may fluctuate substantially. If our quarterly operating results fail to meet or exceed the expectations of securities analysts or investors, our stock price could drop suddenly and significantly. We believe the quarterly comparisons of our financial results are not always meaningful and should not be relied upon as an indication of our future performance.

Significant disruptions of information technology systems or breaches of information security systems could adversely affect our business.

We rely upon a combination of sophisticated information technology systems and traditional recordkeeping to operate our business. In the ordinary course of business, we collect, store, and transmit large amounts of confidential information (including, but not limited to, information about our business, personal information, intellectual property, and, in some instances, patient data). We have also outsourced elements of our operations to third parties, including elements of our information technology systems and, as a result, we manage a number of independent vendor relationships with third parties

who may or could have access to our confidential information. Our information technology and information security systems and records are potentially vulnerable to security breaches, service interruptions, or data loss from inadvertent or intentional actions by our employees or vendors. Our information technology and information security systems and records are also potentially vulnerable to malicious attacks by third parties. Such attacks are of ever-increasing levels of sophistication and are made by groups and individuals with a wide range of expertise and motives (including, but not limited to, financial crime, industrial espionage, and market manipulation). In addition, due to the COVID-19 pandemic, we have implemented remote work arrangements for employees we deem able to do so, and those employees may use outside technology and systems that are vulnerable to security breaches, service interruptions, data loss or malicious attacks by third parties.

As an example of these risks, on November 1, 2019, we were notified that we had become a victim of a business e-mail compromise. During the fourth quarter of 2019, a company email account was compromised by a third-party impersonator and a payment intended for one of our U.S. vendors in the amount of $2.6 million was fraudulently re-directed into an individual bank account controlled by this third-party impersonator. The impersonator had taken a number of steps to deceive our employees and reduce the likelihood of detection. Our cyber-insurance covered all but a de minimis amount of the unrecovered losses from this compromise.

While we have invested, and continue to invest, significantly in our information technology and information security systems, there can be no assurance that our efforts will prevent further security breaches, service interruptions, or data losses. We have only limited cyber-insurance coverage that does not cover all possible events, and this insurance is subject to deductibles and coverage limitations. In addition, we may not be able to maintain this insurance. We thus do not have insurance coverage for all possible claims that could be raised and, for those where we do have coverage, those claims could exceed the limits of our coverage. Any security breaches, service interruptions, or data losses could adversely affect our business operations and/or result in the loss of critical or sensitive confidential information or intellectual property, and could result in financial, legal, business, and reputational harm to us or allow third parties to gain material, inside information that they may use to trade in our securities.

The implementation of new data privacy laws, including the General Data Protection Regulation in the European Union in May 2018, could adversely affect our business.

An increasing number of federal, state, and foreign laws and regulations, which can be enforced by private parties or governmental entities, are being promulgated and are constantly evolving. These privacy laws and regulations may include significant new requirements for companies that receive or process individual's personal data (including company employees), which increases our operating costs and requires significant management time and energy. Many of these laws and regulations, including the European Union's General Data Protection Regulation ("GDPR") also include significant penalties for noncompliance. Although our personal data practices, policies, and procedures are intended to comply with GDPR and other data privacy laws and regulations, there can be no assurance that regulatory or enforcement authorities will view these arrangements as being in compliance with applicable laws, or that one or more of our employees or agents will not disregard the rules we have established. Any privacy related government enforcement activities may be costly to comply with, result in negative publicity, and subject us to significant penalties, any of which could have a material, adverse impact on our revenues, financial condition, profitability, and cash flows.

Consolidation in the healthcare industry could have an adverse effect on our revenues and results of operations.

Many healthcare industry companies, including health care systems, are consolidating to create new companies with greater market power. As the healthcare industry consolidates, competition to provide goods and services to industry participants will become more intense. These industry participants may try to use their market power to negotiate price concessions. If we are forced to reduce our prices because of consolidation in the healthcare industry, our revenues would decrease and our financial condition, profitability, and/or cash flows would suffer.

The success of some of our products and preservation services depends upon relationships with healthcare professionals.

If we fail to maintain our working relationships with healthcare professionals, many of our products and preservation services may not be developed and marketed to appropriately meet the needs and expectations of the professionals who use and support our products and preservation services or the patients who receive them.

The research, development, marketing, and sales of many of our new and improved products and preservation services are dependent upon us maintaining working relationships with healthcare professionals. We rely on these professionals to provide us with considerable knowledge and experience regarding our products and preservation services. Healthcare

professionals assist us as researchers, marketing and training consultants, product consultants, and speakers. If we are unable to maintain our relationships with these professionals and do not continue to receive their advice and input, the development and commercialization of our products and preservation services could suffer, which could have a material, adverse impact on our revenues, financial condition, profitability, and cash flows.

We may be subject to fines, penalties, injunctions, and other sanctions if we are deemed to be promoting the use of our products for unapproved, or off-label, uses.

Our business and future growth depend on the continued use of our products for specific approved uses. Generally, unless the products are approved or cleared by the FDA for the alternative uses, the FDA contends that we may not make claims about the safety or effectiveness of our products, or promote them, for such uses. Such limitations present a risk that the FDA or other federal or state law enforcement authorities could determine that the nature and scope of our sales, marketing, and/or support activities, though designed to comply with all FDA requirements, constitute the promotion of our products for an unapproved use in violation of the Federal Food, Drug, and Cosmetic Act. We also face the risk that the FDA or other governmental authorities might pursue enforcement based on past activities that we have discontinued or changed, including sales activities, arrangements with institutions and doctors, educational and training programs, and other activities. Investigations concerning the promotion of unapproved uses and related issues are typically expensive, disruptive, and burdensome and generate negative publicity. If our promotional activities are found to be in violation of the law, we may face significant fines and penalties and may be required to substantially change our sales, promotion, grant, and educational activities. There is also a possibility that we could be enjoined from selling some or all of our products for any unapproved use. In addition, as a result of an enforcement action against us or our executive officers, we could be excluded from participation in government healthcare programs such as Medicare and Medicaid.

Our acquired federal tax net operating loss and general business credit carryforwards will be limited or may expire, which could result in greater future income tax expense and adversely impact future cash flows.

Our federal tax net operating loss and general business credit carryforwards include acquired net operating loss carryforwards. Such acquired net operating loss carryforwards will be limited in future periods due to a change in control of our former subsidiaries Hemosphere and Cardiogenesis, as mandated by Section 382 of the Internal Revenue Code of 1986, as amended ("Section 382"). We believe that our acquisitions of these companies each constituted a change in control, and that prior to our acquisition, Hemosphere had experienced other equity ownership changes that should be considered a change in control. We also acquired net operating loss carryforwards in certain foreign jurisdictions with the JOTEC Acquisition, but we do not believe these carryforwards will be limited in any material way due to a change of control provision. The deferred tax assets recorded on our Consolidated Balance Sheets exclude amounts that we expect will not be realizable due to these changes in control. A portion of the acquired net operating loss carryforwards is related to state income taxes for which we believe it is more likely than not that these deferred tax assets will not be realized. Therefore, we recorded a valuation allowance against these state net operating loss carryforwards. Limitations on our federal tax net operating loss and general business credit carryforwards could result in greater future income tax expense and adversely impact future cash flows.

We are subject to various U.S. and international bribery, anti-kickback, false claims, privacy, transparency, and similar laws, any breach of which could cause a material, adverse effect on our business, financial condition, and profitability.

Our relationships with physicians, hospitals, and other healthcare providers are subject to scrutiny under various U.S. and international bribery, anti-kickback, false claims, privacy, transparency, and similar laws, often referred to collectively as "healthcare compliance laws." Healthcare compliance laws are broad, sometimes ambiguous, complex, and subject to changing interpretations. Possible sanctions for violation of these healthcare compliance laws include monetary fines, civil and criminal penalties, exclusion from government healthcare programs, and forfeiture of amounts collected in violation of such prohibitions. Any government investigation or a finding of a violation of these laws, despite our compliance efforts, could result in a material, adverse effect on our business, financial condition, and profitability.

We have entered into consulting agreements, speaker agreements, research agreements, and product development agreements with healthcare professionals or healthcare organizations, including some who may order our products or make decisions to use them. While these transactions were structured with the intention of complying with all applicable compliance laws, it is possible that regulatory or enforcement agencies or courts may in the future view these transactions as prohibited arrangements that must be restructured or for which we would be subject to other significant civil or criminal penalties.

We have also adopted the AdvaMed Code of Conduct and the MedTech Europe Code of Ethical Business Practice into our Code of Business Conduct, which governs our relationships with healthcare professionals, including our payment of travel and lodging expenses, research and educational grant procedures, and sponsorship of third-party conferences. In addition, we conduct training sessions on these principles. There can be no assurance, however, that regulatory or enforcement authorities will view these arrangements as being in compliance with applicable laws or that one or more of our employees or agents will not disregard the rules we have established. Because our strategy relies on the involvement of healthcare professionals or healthcare organizations who consult with us on the design of our products, perform clinical research on our behalf, or educate the market about the efficacy and uses of our products, we could be materially impacted if regulatory or enforcement agencies or courts interpret our financial relationships with healthcare professionals or healthcare organizations, who refer or order our products, to be in violation of applicable laws and determine that we would be unable to achieve compliance with such applicable laws. This could harm our reputation and the reputations of the healthcare professionals or healthcare organizations we engage to provide services on our behalf. In addition, the cost of noncompliance with these laws could be substantial since we could be subject to monetary fines and civil or criminal penalties, and we could also be excluded from government funded healthcare programs, including Medicare and Medicaid, for noncompliance.

The scope and enforcement of all of these laws is uncertain and subject to rapid change, especially in light of the scarcity of applicable precedent and regulations. There can be no assurance that regulatory or enforcement authorities will not investigate or challenge our current or future activities under these laws. Any investigation or challenge could have a material, adverse effect on our business, financial condition, and profitability. Any regulatory or enforcement review of us, regardless of the outcome, would be costly and time consuming. Additionally, we cannot predict the impact of any changes in or interpretations of these laws, whether these changes will be retroactive or will have effect on a going-forward basis only.

Healthcare policy changes may have a material, adverse effect on us.

In response to perceived increases in healthcare costs in recent years, there have been, and continue to be, proposals by the federal government, state governments, regulators, third-party payors, and elected office holders and candidates to control these costs and, more generally, to reform the U.S. healthcare system. Some of these proposals could limit the prices we are able to charge for our products or the amounts of reimbursement available for our products and could limit the acceptance and availability of our products. The adoption of some or all of these proposals could have a material, adverse effect on our financial condition and profitability. We cannot predict what further reform proposals, if any, will be adopted, when they will be adopted, or what impact they may have on us. Any changes that lower reimbursement for our products or reduce medical procedure volumes, however, could adversely affect our business and profitability.

Continued fluctuation of foreign currencies relative to the U.S. Dollar could materially, adversely affect our business.

The majority of our foreign product revenues are denominated in Euros and, as such, are sensitive to changes in exchange rates. In addition, a portion of our dollar-denominated product sales are made to customers in other countries who must convert local currencies into U.S. Dollars in order to purchase these products. We also have balances, such as cash, accounts receivable, accounts payable, and accruals that are denominated in foreign currencies. These foreign currency transactions and balances are sensitive to changes in exchange rates. Fluctuations in exchange rates of Euros or other local currencies in relation to the U.S. Dollar could materially reduce our future revenues as compared to the comparable prior periods. Should this occur, it could have a material, adverse impact on our revenues, financial condition, profitability, and cash flows.

Our existing insurance coverage may be insufficient, and we may be unable to obtain insurance in the future.

Our products and tissues allegedly have caused, and may in the future cause, injury to patients using our products or tissues, and we have been, and may be, exposed to product and tissue processing liability claims. We maintain claims-made insurance policies to mitigate our financial exposure to product and tissue processing liability claims. Claims-made insurance policies generally cover only those asserted claims and incidents that are reported to the insurance carrier while the policy is in effect. In addition, our product and tissue processing liability insurance policies do not include coverage for any punitive damages. Although we have insurance for product and tissue processing liabilities, securities, property, and general liabilities, it is possible that:

- We could be exposed to product and tissue processing liability claims and security claims greater than the amount that we have insured;
- We may be unable to obtain future insurance policies in an amount sufficient to cover our anticipated claims at a reasonable cost or at all; or
- Because we are not insured against all potential losses, uninsured losses due to natural disasters or other catastrophes could adversely impact our business.

Any product liability claim, with or without merit, could result in an increase in our product insurance rates or our inability to secure coverage on reasonable terms, if at all. Even in the absence of a claim, our insurance rates may rise in the future due to market, industry, or other factors. Any product liability claim, even a meritless or unsuccessful one, would be time-consuming and expensive to defend and could result in the diversion of our management's attention from our business and result in adverse publicity, withdrawal of clinical trial participants, injury to our reputation, and loss of revenue.

If we are unsuccessful in arranging acceptable settlements of future product or tissue processing liability claims or future securities class action or derivative claims, we may not have sufficient insurance coverage and liquid assets to meet these obligations. If we are unable to obtain satisfactory insurance coverage in the future, we may be subject to additional future exposure from product or tissue processing liability or securities claims. Additionally, if one or more claims with respect to which we may become, in the future, a defendant should result in a substantial verdict rendered in favor of the plaintiff(s), such verdict(s) could exceed our available insurance coverage and liquid assets. If we are unable to meet required future cash payments to resolve any outstanding or any future claims, this will materially, adversely affect our financial condition, profitability, and cash flows. Further, although we have an estimated reserve for our unreported product and tissue processing liability claims for which we do expect that we will obtain recovery under our insurance policies, these costs could exceed our current estimates. Finally, our facilities could be materially damaged by tornadoes, flooding, other natural disasters, or catastrophic circumstances, for which we are not fully covered by business interruption and disaster insurance, and, even with such coverage, we could suffer substantial losses in our inventory and operational capacity, along with a potential adverse impact on our customers and opportunity costs for which our insurance would not compensate us.

Any of these events could have a material, adverse impact on our revenues, financial condition, profitability, and cash flows.

Our business could be negatively impacted as a result of shareholder activism.

In recent years, shareholder activists have become involved in numerous public companies. Shareholder activists frequently propose to involve themselves in the governance, strategic direction, and operations of a company. We may in the future become subject to such shareholder activism and demands. Such demands may disrupt our business and divert the attention of our management and employees, and any perceived uncertainties as to our future direction resulting from such a situation could result in the loss of potential business opportunities, be exploited by our competitors, cause concern to our current or potential customers, and make it more difficult to attract and retain qualified personnel and business partners, all of which could adversely affect our business. In addition, actions of activist shareholders may cause significant fluctuations in our stock price based on temporary or speculative market perceptions or other factors that do not necessarily reflect the underlying fundamentals and prospects of our business.

Risks Related to Ownership of our Common Stock

We do not anticipate paying any dividends on our common stock for the foreseeable future.

In December 2015 our Board of Directors discontinued dividend payments on our common stock for the foreseeable future. If we do not pay cash dividends, our shareholders may receive a return on their investment in our common stock only if the market price of our common stock has increased when they sell shares of our common stock that they own. Future dividends, if any, will be authorized by our Board of Directors and declared by us based upon a variety of factors deemed relevant by our directors, including, among other things, our financial condition, liquidity, earnings projections, and business prospects. In addition, restrictions in our credit facility limit our ability to pay future dividends. We can provide no assurance of our ability to pay cash dividends in the future.

Provisions of Florida law and anti-takeover provisions in our organizational documents may discourage or prevent a change of control, even if an acquisition would be beneficial to shareholders, which could affect our share price adversely and prevent attempts by shareholders to remove current management.

We are subject to the Florida affiliated transactions statute, which generally requires approval by the disinterested directors or supermajority approval by shareholders for "affiliated transactions" between a corporation and an "interested stockholder." Additionally, our organizational documents contain provisions that restrict persons who may call shareholder meetings, allow the issuance of blank-check preferred stock without the vote of shareholders, and allow the Board of Directors to fill vacancies and fix the number of directors. These provisions of Florida law and our articles of incorporation and bylaws could prevent attempts by shareholders to remove current management, prohibit or delay mergers or other changes of control transactions, and discourage attempts by other companies to acquire us, even if such a transaction would be beneficial to our shareholders.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

(c) The following table provides information about purchases by us during the quarter ended June 30, 2020 of equity securities that are registered by us pursuant to Section 12 of the Securities Exchange Act of 1934:

Period	Total Number of Common Shares and Common Stock Units Purchased	Average Price Paid per Common Share	Total Number of Common Shares Purchased as Part of Publicly Announced Plans or Programs	Dollar Value of Common Shares That May Yet Be Purchased Under the Plans or Programs
04/01/20 - 04/30/20	--	$ --	--	$ --
05/01/20 - 05/31/20	724	22.22	--	--
06/01/20 - 06/30/20	--	--	--	--
Total	**724**	22.22	--	

The common shares purchased during the quarter ended June 30, 2020 were tendered to us in payment of taxes on stock compensation and were not part of a publicly announced plan or program.

Under our Credit Agreement, we are prohibited from repurchasing our common stock, except for the repurchase of stock from our employees or directors when tendered in payment of taxes or the exercise price of stock options, upon the satisfaction of certain requirements.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

On July 29, 2020, we filed Articles of Correction with the Florida Department of State (the "Department") to correct a scrivener's error contained in our Amended and Restated Articles of Incorporation (the "Articles"). As most recently filed with the Department in 2019, the Articles inadvertently omitted the $0.01 par value of our common stock, which omission has been corrected under the Articles of Correction. A complete copy of the Articles, as corrected, is filed as Exhibit 3.1 to this Quarterly Report on Form 10-Q and incorporated by reference in this Item 5.

Item 6. Exhibits.

The exhibit index can be found below.

Exhibit Number	Description
3.1*	Amended and Restated Articles of Incorporation of CryoLife, Inc.
3.2	Amended and Restated By-Laws of CryoLife, Inc. (Incorporated herein by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed February 22, 2018.)
4.1	Form of Certificate for our Common Stock. (Incorporated herein by reference to Exhibit 4.2 to the Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 1997.)
4.2	Indenture, dated as of June 23, 2020, by and between CryoLife, Inc. and U.S. Bank National Association, as trustee. (Incorporated herein by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed June 23, 2020.)
4.3	Form of Note (included in Exhibit 4.2 above). (Incorporated herein by reference to Exhibit 4.2 to the Registrant's Current Report on Form 8-K filed June 23, 2020.)
10.1*	Form of Salary Reduction Letter for the Company's Senior Management Operating Team, dated April 24, 2020.
10.2*	Form of 2020 Non-Executive Director Restricted Stock Award Agreement.
10.3*	Second Amendment to Credit and Guaranty Agreement by and among CryoLife, Inc., CryoLife International, Inc., On-X Life Technologies Holdings, Inc., On-X Life Technologies, Inc., AuraZyme Pharmaceuticals, Inc., the financial institutions party thereto from time to time as lenders, and Deutsche Bank AG New York Branch, as administrative agent and collateral agent, dated as of April 29, 2020.
10.4	Purchase Agreement, dated as of June 18, 2020, by and between CryoLife, Inc. and Morgan Stanley & Co. LLC, as the initial purchaser. (Incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed June 23, 2020.
31.1*	Certification by J. Patrick Mackin pursuant to section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification by D. Ashley Lee pursuant to section 302 of the Sarbanes-Oxley Act of 2002.
32**	Certification Pursuant To 18 U.S.C. Section 1350, As Adopted Pursuant To Section 906 Of The Sarbanes-Oxley Act Of 2002.
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File – formatted as Inline XBRL and contained in Exhibit 101

* Filed herewith.

** Furnished herewith.

† Portions of the exhibit have been omitted.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

CRYOLIFE, INC.
(Registrant)

/s/ J. PATRICK MACKIN

J. PATRICK MACKIN
Chairman, President, and
Chief Executive Officer
(Principal Executive Officer)

July 31, 2020

DATE

/s/ D. ASHLEY LEE

D. ASHLEY LEE
Executive Vice President,
Chief Operating Officer, and
Chief Financial Officer
(Principal Financial and
Accounting Officer)

AMENDED AND RESTATED
ARTICLES OF INCORPORATION OF
CRYOLIFE, INC.

Articles of Restatement

1. The name of the corporation is CRYOLIFE, INC.

2. Restated Articles of Incorporation: This Amendment and Restatement of the Articles of Incorporation does contain an amendment to the Articles requiring shareholder approval. The Board of Directors adopted these Amended and Restated Articles of Incorporation on February 13, 2019.

3. The text of the Amended and Restated Articles of Incorporation is as follows:

ARTICLE I
NAME

The name of this corporation shall be CRYOLIFE, INC.

ARTICLE II
EXISTENCE OF CORPORATION

This corporation shall have perpetual existence.

ARTICLE III
PURPOSES

The corporation may engage in the transaction of any or all lawful business for which corporations may be incorporated under the laws of the State of Florida.

ARTICLE IV
GENERAL POWERS

The corporation shall have any and all powers necessary to carry out its business and affairs under the laws of the State of Florida.

ARTICLE V
CAPITAL STOCK

(a)(1) The number of shares of capital stock authorized to be issued by this corporation shall be Seventy Five Million (75,000,000) shares of common stock, each with a par value of One Cent ($0.01), and Five Million shares of preferred stock. The shares may be divided into and issued in series.

(a)(2) Pursuant to Section 607.0602 of the Florida Statutes, the Board of Directors is expressly authorized and empowered to divide any or all of the shares of preferred stock into series and, within the limitations set forth in Section 607.0602 of the Florida Statutes, to fix and determine the relative rights and preferences of the shares of any series so established. The Board of Directors is expressly authorized to designate each series of preferred stock so as to distinguish the shares thereof from the shares of all other series and classes.

(a)(3) Each share of issued and outstanding common stock shall entitle the holder thereof to one (1) vote on each matter with respect to which shareholders have the right to vote, to fully participate in all shareholder meetings, and to share ratably in the net assets of the corporation upon liquidation and/or dissolution. Each share of issued and outstanding preferred stock shall have such rights to share in the net assets of the corporation upon liquidation and/or dissolution as are determined and fixed by the Board of Directors pursuant to Florida Statutes Section 607.0602. All or any part of said capital stock may be paid for in cash, in property or in labor or services at a fair valuation to be fixed by the Board of Directors at a meeting called for such purposes. All stock upon receipt of full payment shall be non-assessable.

(b) In the election of directors of this corporation, there shall be no cumulative voting of the stock entitled to vote at such election.

ARTICLE VI
AMENDMENT OF ARTICLES OF INCORPORATION

The corporation reserves the right to amend, alter, change or repeal any provisions contained in these Articles of Incorporation in the manner now or hereafter prescribed by statute, and all rights conferred upon the stockholders herein are subject to this reservation.

ARTICLE VII
INDEMNIFICATION

If in the judgment of the majority of the entire Board of Directors (excluding from such majority the director under consideration for indemnification), the criteria set forth in Section 607.0850(1) and (2), Florida Statutes, have been met, then the corporation shall indemnify any officer or director, or former officer or director, his personal representatives, devisees or heirs, in the manner and to the extent contemplated by the said Section 607.0850(1) and (2).

ARTICLES VIII
SHAREHOLDERS PROHIBITED FROM TAKING
ACTION WITHOUT A MEETING

The shareholders may not take action by written consent. Any and all action by a shareholder is required to be taken at the annual shareholders meeting or at a special shareholders meeting. This provision applies to common stock and all classes of preferred stock.

ARTICLE IX
SPECIAL MEETINGS OF SHAREHOLDERS

Special meetings of the shareholders for any purpose may be called at the request in writing of shareholders owning not less than 50% of all votes entitled to be cast on any issue proposed to be considered at the proposed meeting by delivering one or more written demands for the meeting which are signed, dated and delivered to the Secretary of the Company and describing the purposes for which the meeting is to be held.

4. These Amended and Restated Articles of Incorporation supersede the original Articles of Incorporation and all previous amendments thereto.

IN WITNESS WHEREOF, these Amended and Restated Articles of Incorporation have been executed as of the 6th day of June, 2019.

/s/ J. Patrick Mackin
J. Patrick Mackin
Chairman of the Board, President,
and Chief Executive Officer

Exhibit 10.1

April 24, 2020

[Name and Address]

Dear [●]:

CryoLife, Inc. (the "***Company***") has analyzed the current impact of the coronavirus ("***COVID-19***") pandemic on the Company's operations, including compensation arrangements with employees and directors. The Company has determined that certain further cost-saving measures should be implemented, which will impact your compensation for at least the next six months of the 2020 calendar year. This letter is intended to inform you of, and memorialize the terms of, the compensation changes that the Company will be making to your 2020 base salary. Please countersign this letter below reflecting your understanding of these terms.

1. **Base Salary Reduction**

Previously, effective March 29, 2020, the Company deferred indefinitely, your base salary merit increase for 2020. In addition to this merit increase deferment, effective April 27, 2020, the Company will reduce your 2020 base salary by twenty-five percent (25%), or by [●] per bi-weekly pay period. This base salary reduction will last for a period of six months, ending on October 26, 2020. The period between April 27, 2020 and October 26, 2020 is referred to in this letter as the "***Salary Reduction Period.***" Following the end of the Salary Reduction Period, the Company currently expects that you will receive your original 2020 base salary, as modified by the previous merit increase deferment, for the remainder of the 2020 calendar year (unless the Company determines to extend the Salary Reduction Period and/or to reinstitute 2020 merit increases). The twenty-five percent (25%) reduction to your 2020 base salary is referred to in this letter as the "***Salary Reduction Amount***."

2. **Salary Reduction Payment**

In the event that you remain continuously employed by the Company until the end of the Salary Reduction Period, you will be eligible to receive a cash payment on or around April 27, 2021 (the "Salary ***Reduction Payment***"). The amount of this Salary Reduction Payment will depend on the performance of the Company's common stock as described below.

The Company will convert your Salary Reduction Amount into a number of shares of Company phantom stock by dividing your Salary Reduction Amount by the closing price of the Company's common stock on April 27, 2020 (the "***Phantom Stock***"). The Phantom Stock represents a notional investment in shares of the Company's common stock and will track the value of the Company's common stock until April 27, 2021. On April 27, 2021, the Company will determine the value of your Salary Reduction Payment by multiplying the number of shares

of Phantom Stock awarded to you pursuant to this letter agreement by the closing price of the Company's common stock on April 27, 2021; provided, however, that such amount shall be adjusted if necessary to reflect the minimum and maximum amounts below:

Minimum Salary Reduction Payment:	Your Salary Reduction Amount
Maximum Salary Reduction Payment:	115% of your Salary Reduction Amount

Your resulting Salary Reduction Payment will be paid to you in a lump sum cash payment, subject to any required tax withholding amounts, on the first regular pay date that occurs following April 27, 2021 (the "***Payment Date***").

3. Termination of Employment

a. *Separation from Service Following the Salary Reduction Period.* In the event that you incur a "***Separation from Service***" (within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended, and the regulations promulgated thereunder ("***Section 409A***")) with the Company for any reason following the Salary Reduction Period (including your voluntary resignation) but prior to the Payment Date, you will remain eligible to receive the full value of your Salary Reduction Payment on the Payment Date.

b. *Separation Prior to the End of the Salary Reduction Period*. In the event that you incur a Separation from Service with the Company for any reason prior to the end of the Salary Reduction Period (including your voluntary resignation), you will remain eligible to receive a pro-rated portion of your Salary Reduction Payment on the Payment Date. Your pro-rated portion will be calculated by multiplying the full Salary Reduction Payment you would otherwise have received pursuant to Section 2 above by the fraction "x/y," where "x" is the number of days you provided services to the Company during the Salary Reduction Period, and "y" is 183.

4. Miscellaneous Provisions

a. *No Continued Employment or Service*. Nothing in this letter shall confer upon you the right to continued employment or service with the Company or affect in any way the right of the Company to terminate that employment or service relationship at any time and for any reason.

b. *Section 409A*. The Salary Reduction Payment and the terms of this letter are intended to comply with or be exempt from Section 409A and shall be interpreted accordingly. Nevertheless, to the extent that the Company determines that the Salary Reduction Payment or any terms of this letter do not comply with Section 409A, the Company may amend this letter in a manner intended to comply with Section 409A or an exemption therefrom, or take any other action that it deems necessary or appropriate to make the payment compliant with or exempt from Section 409A. Notwithstanding the foregoing, the Company and its affiliates make no representations that the Salary Reduction Payment provided under this letter is exempt from or compliant with Section 409A and in no event shall the Company or any affiliate be liable for all or any portion of any taxes, penalties, interest, or other expenses that may be incurred by you on account of non-compliance with Section 409A. **The Company acknowledges that any Salary Reduction Payment that may become payable to you pursuant to this letter is a result of a salary**

reduction program that was implemented unilaterally by the Company and not pursuant to your voluntary election.

c. *Withholding*. The Company may withhold from any amounts payable under this letter such federal, state, local, or foreign taxes as shall be required to be withheld pursuant to any applicable law or regulation.

d. *Governing Law*. This letter shall be governed by and construed in accordance with the laws of the State of Georgia, without reference to principles of conflict of laws. Both you and the Company expressly consent to the exclusive venue of and personal jurisdiction within the state and federal courts located in Georgia for any lawsuit arising from or related to this letter.

The Company would like to thank you for your dedicated service during these difficult times. If you have any questions about this letter or your potential Salary Reduction Payment, please contact Jean F. Holloway at Holloway.jean@cryolife.com.

Sincerely,

J. Patrick Mackin
Chairman, President, and Chief Executive Officer

_____
By: [Name of Employee]

Name:
Total No. of Units:

CRYOLIFE RESTRICTED STOCK AWARD AGREEMENT

CRYOLIFE, INC. ("CryoLife") is pleased to grant you the restricted stock award described below ("Stock Award") that supplants the cash retainer compensation that has been involuntarily eliminated for period April 1-September 30, 2020, in order to assist the Company's preservation of liquidity during the COVID-19 crisis. This grant is made subject to the further terms and conditions set forth in this Agreement and the terms of the CryoLife, Inc. Equity and Cash Incentive Plan (the "Plan").

Grant Date: May __, 2020
Total Number of Shares of Stock Award: [cash compensation for Q2 and Q including approved June 1, 2020 increase / share price COB grant date]

Vesting Schedule:

Restricted Stock Awards	**Vest Date**
	One year from grant date

By Participant's electronic acceptance and the electronic signature of the CryoLife, Inc (the "Company") representative below, Participant and the Company agree that

- this Award is granted under and governed by the terms and conditions of the Plan and this Award Agreement, including exhibits hereto, all of which are made a part of this document;
- should the Plan and this Award Agreement conflict, the Plan governs;
- Participant has reviewed the Plan and this Award Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Award Agreement and fully understands all provisions of the Plan and Award Agreement; and
- all cash retainer and service fees that would normally be paid to Participant for any form of service on the Company's Board of Directors or its committees for the period April 1, 2020 to September 31, 2020, have been involuntarily eliminated and will not be paid to you by the Company, regardless of the agreement of Participant or Participant's acceptance of this equity grant.

Participant hereby agrees to accept as binding, conclusive, and final all decisions or interpretations of the Company upon any questions relating to the Plan and Award

Agreement. Participant further agrees to notify the Company upon any change in the residence address indicated below.

After reviewing the documents noted above, please accept this Stock Award online where indicated on ETrade.com and retain a copy for your files. Please note that your electronic acceptance of this Restricted Stock Award is required. The Restricted Stock Award will be cancelled if not accepted within 30 days of the Grant Date noted above.

GRANTED BY:

CRYOLIFE, INC.

//D. Ashley Lee//
CFO, COO

GRANTED TO:

Name
Address
Address
City, State, Zip code
Social Security Number

ADDITIONAL TERMS AND CONDITIONS OF YOUR RESTRICTED STOCK AWARD

EFFECT OF TERMINATION OF SERVICE. You must be a member of the CryoLife Board of Directors on the applicable vesting date to be entitled to the vesting of your Stock Award on such date. Notwithstanding the foregoing, if you cease to be a member of the CryoLife Board of Directors as a result of your death or disability or because you have served out your full term but are not standing for re-election at the end thereof, your Stock Award shall immediately become fully vested on the date you cease to be a member of the Board. If you cease to be a member of the CryoLife Board of Directors for any other reason, and your Stock Award has not vested as of the date of termination of Board service, your Stock Award shall automatically be forfeited and cancelled as of the date of such termination of Board service.

STOCK AWARD SHARE CERTIFICATES. Certificates or a book entry account representing the shares of Common Stock to be issued pursuant to the Stock Award shall be issued in your name and shall be held by CryoLife until the Stock Award is vested or forfeited as provided herein. Following vesting of your Stock Award, upon your written request, CryoLife shall promptly deliver the shares as to which the Stock Award has vested, free of the restrictions described in the following section. Your rights in your Stock Award are contingent upon your executing and returning to the Company a form of stock power with respect to the shares subject to your Stock Award.

RIGHTS WITH RESPECT TO STOCK AWARD PRIOR TO VESTING. You may not transfer your Stock Award or the shares to be issued hereunder prior to vesting. Once this Stock Award vests, you may receive transferable shares representing the vested portion. Prior to vesting, you are entitled to all other rights as a shareholder with respect to the shares underlying the Stock Award, including the right to vote such shares and to receive dividends and other distributions, if any, payable with respect to such shares after the date of grant.

NOTICES. All notices delivered pursuant to this Agreement shall be in writing and shall be (i) delivered by hand, (ii) mailed by United States certified mail, return receipt requested, postage prepaid, (iii) sent by an internationally recognized courier which maintains evidence of delivery and receipt, (iv) sent by fax to (770) 429-5250, or (v) sent by email to legal@cryolife.com. All notices or other communications shall be directed to the following addresses (or to such other addresses as such parties may designate by notice to the other parties):

To CryoLife:	CryoLife, Inc. 1655 Roberts Blvd., NW Kennesaw, GA 30144 Attention: Assistant Secretary
To you:	The address set forth in the Agreement

MISCELLANEOUS. Failure by you or CryoLife at any time or times to require performance by the other of any provisions in the Agreement will not affect the right to enforce those provisions. Any waiver by you or CryoLife of any condition or of any breach of any term or provision in this Agreement, whether by conduct or otherwise, in any one or more instances, shall apply only to that instance and will not be deemed to waive conditions or breaches in the future. If any court of competent jurisdiction holds that any term or provision of this Agreement is invalid or unenforceable, the remaining terms and provisions will continue in full force and effect, and the Agreement shall be deemed to be amended automatically to exclude the offending provision. This Agreement may be executed in multiple copies and each executed copy shall be an original of the Agreement. This Agreement shall be subject to and governed by the laws of the State of Georgia. No change or modification of this Agreement shall be valid unless it is in writing and signed by the party against which enforcement is sought, except where specifically provided to the contrary herein. This Agreement shall be binding upon, and inure to the benefit of, the

permitted successors, assigns, heirs, executors, and legal representatives of the parties hereto. The headings of each section of this Agreement are for convenience only. This Agreement, together with the Plan, contains the entire Agreement of the parties hereto, and no representation, inducement, promise, or agreement or other similar understanding between the parties not embodied herein shall be of any force or effect, and no party will be liable or bound in any manner for any warranty, representation, or covenant except as specifically set forth herein or in the Plan.

SECOND AMENDMENT TO CREDIT AND GUARANTY AGREEMENT

This SECOND AMENDMENT TO CREDIT AND GUARANTY AGREEMENT is dated as of April 29, 2020 (this "Second Amendment"), and entered into by and among CryoLife, Inc., a Florida corporation (the "Borrower"), the Guarantor Subsidiaries party hereto, the Revolving Lenders party hereto and Deutsche Bank AG New York Branch, as Administrative Agent.

RECITALS:

WHEREAS, reference is hereby made to the Credit and Guaranty Agreement, dated as of December 1, 2017 (as amended, restated, supplemented and/or otherwise modified from time to time prior to the Second Amendment Effective Date referred to below, the "Credit Agreement"), among the Borrower, the Guarantor Subsidiaries, the Lenders, the Administrative Agent, the Collateral Agent and the other parties named therein (capitalized terms used but not defined herein having the meaning provided in the Credit Agreement); and

WHEREAS, the Borrower and the Guarantor Subsidiaries wish to amend the Credit Agreement and, pursuant to Section 10.5(a) of the Credit Agreement, the Administrative Agent and the Revolving Lenders party hereto, constituting the Required Revolving Lenders, have agreed to amend the Credit Agreements on the terms and subject to the conditions hereof;

NOW, THEREFORE, in consideration of the premises and agreements, provisions and covenants herein contained, the parties hereto agree as follows:

A. Amendments to Credit Agreement. On the Second Amendment Effective Date, the Credit Agreement is hereby amended as follows:

(i) Section 1.1 of the Credit Agreement is hereby amended by adding the following definitions in appropriate alphabetical order:

""**Covenant Waiver Period**" means the period commencing on March 31, 2020 and ending on and including December 31, 2020."

""**Liquidity**" means, as of any date of determination, the sum of (i) the average daily aggregate amount of unrestricted cash and Cash Equivalents maintained by the Borrower and the other Credit Parties for the preceding period of three (3) Business Days then ending as reflected on the balance sheet of the Borrower and the other Credit Parties as of the close of business on each Business Day during such period plus (ii) the average maximum amount of Revolving Loans that could have been advanced as of the close of business on each Business Day during such period."

""**Minimum Liquidity Reporting Date**" as defined in Section 6.7(b)."

""**Minimum Liquidity Requirement**" as defined in Section 6.7(b)."

""**Second Amendment Effective Date**" means April 29, 2020."

(ii) Section 6.7 of the Credit Agreement is hereby amended by deleting said Section in its entirety and inserting the following text in lieu thereof:

"(a) Commencing with the Q4-2017 Test Period, the Borrower shall not permit the First Lien Net Leverage Ratio on the last day of each Test Period to be greater than 5.25:1.00 if, as of the last day of such Test Period, the aggregate outstanding principal amount of (a) Revolving Loans, (b) Letters of Credit (but excluding (i) all Letters of Credit that have been Cash Collateralized and (ii) up to $2,500,000 of undrawn Letters of Credit) and/or (c) unreimbursed obligations with respect to drawn Letters of Credit, in each case then outstanding, exceeds (or exceeded) 25% of the then outstanding Revolving Credit Commitments in effect on such date (the "**Financial Covenant Test Criteria**", and each last day of the Test Periods described above on which the Financial Covenant Test Criteria are met, a "**Financial Covenant Test Date**"); *provided* that, (i) so long as the Borrower has not made any Restricted Junior Payments after the Second Amendment Effective Date (other than Restricted Junior Payments pursuant to Section 6.4(a), (b), (c), (d) and (e)), the Financial Covenant set forth in this Section 6.7(a) shall not apply and shall not be tested for any Test Period ending during the Covenant Waiver Period, and (ii) so long as the Borrower has not made any Restricted Junior Payments after the Second Amendment Effective Date (other than (x) Restricted Junior Payments pursuant to Section 6.4(a), (b), (c), (d) and (e) or (y) other Restricted Junior Payments permitted hereunder where after giving pro forma effect thereto, Liquidity is equal to or greater than $12,000,000), solely for purposes of calculating First Lien Net Leverage Ratio pursuant to this Section 6.7(a) after the expiration of the Covenant Waiver Period, Consolidated Adjusted EBITDA for each of the Fiscal Quarters ending March 31, 2020, June 30, 2020, September 30, 2020 and December 31, 2020 shall be deemed to be the Consolidated Adjusted EBITDA set forth in the Compliance Certificate delivered in accordance with Section 5.1(e) for the Fiscal Quarter ended December 31, 2019. Notwithstanding the foregoing, each Compliance Certificate delivered pursuant to Section 5.1(e) in respect of any Test Period that includes any of the Fiscal Quarters ending during the Covenant Waiver Period in such calculation shall include calculations necessary to determine the First Lien Net Leverage Ratio as adjusted in accordance with the proviso of the immediately preceding sentence and the First Lien Net Leverage Ratio as if such ratio had not been adjusted in accordance with the proviso of the immediately preceding sentence. For the avoidance of doubt, (i) the Financial Covenant set forth in this Section 6.7 shall not apply, and shall not be tested, if the Financial Covenant Test Criteria are not met as of the last date of the applicable Test Period and (ii) the adjustment of the Financial Covenant set forth in the proviso of the first sentence of this paragraph shall cease to apply upon the delivery of the audited financial statements and the related Compliance Certificate for the Fiscal Year ending December 31, 2021 pursuant to Sections 5.1(a) and 5.1(c).

(b) (i) For the period commencing with the last Business Day of the first full calendar month ending during the Covenant Waiver Period through and including the last day of the Covenant Waiver Period, on the last Business Day of each calendar month during such period regardless of whether the Financial Covenant Test Criteria are met and (ii) for the period commencing with the last day of the Test Period ending March 31, 2021 through and including September 30, 2021, to the extent the Financial Covenant Test Criteria are met, on each Financial Covenant Testing Date (each such date in clause (i) or (ii), a "**Minimum Liquidity Reporting Date**"), the Borrower will not permit Liquidity to be less than $12,000,000 (the "**Minimum Liquidity Requirement**"); *provided* that, for each period the Minimum Liquidity Requirement is required to be tested, within three (3) Business Days following each Minimum Liquidity Reporting Date, the Borrower shall

deliver to the Administrative Agent, a certificate signed by a Financial Officer of the Borrower evidencing compliance with the Minimum Liquidity Requirement as of such Minimum Liquidity Reporting Date and setting forth such cash balances in reasonable detail."

(iii) Section 8.1(c) of the Credit Agreement is hereby amended by deleting said Section in its entirety and inserting the following text in lieu thereof:

"(c) Breach of Negative Covenants or Financial Covenant. Failure of any Credit Party to perform or comply with (i) any term or condition contained in Section 6 (other than Section 6.7) or (ii) any term or condition contained in Section 6.7 (any such failure to observe any term, covenant or agreement contained in Section 6.7, a "**Financial Covenant Event of Default**"); *provided* that a Financial Covenant Event of Default shall not constitute an Event of Default with respect to Term Lenders (in their capacity as such) or Term Loans, Term Loan Commitments or Term Loan Exposure unless and until the date on which the Revolving Lenders have actually terminated the Revolving Credit Commitments and declared all Obligations in respect of the Revolving Credit Commitments and Revolving Credit Exposure to be immediately due and payable in accordance with this Agreement (a "**Financial Covenant Cross Default**"); or"

B. Conditions Precedent. This Second Amendment shall become effective as of the first date (the "Second Amendment Effective Date") when each of the conditions set forth in this Section B shall have been satisfied:

1. The Administrative Agent shall have received duly executed counterparts hereof that, when taken together, bear the signatures of (i) the Borrower, (ii) each of the Guarantor Subsidiaries, (iii) the Administrative Agent and (iv) the Required Revolving Lenders.

2. The Borrower shall have (a) paid to the Administrative Agent for the ratable account of each Revolving Lender consenting to this Second Amendment, a fee equal to 0.50% of the Revolving Credit Commitments of such Revolving Lender and (b) reimbursed or paid all reasonable and documented out-of-pocket expenses in connection with this Second Amendment and any other out-of-pocket expenses of the Administrative Agent, including the reasonable fees, charges and disbursements of counsel for the Administrative Agent as required to be paid or reimbursed pursuant to the Fee Letter and the Credit Agreement.

3. The Administrative Agent shall have received (x) a certificate of good standing with respect to each Credit Party from the Secretary of State (or similar official) of the State of such Credit Party's organization, (y) a closing certificate executed by an Authorized Officer of the Borrower, dated the Second Amendment Effective Date, certifying as to the accuracy (with respect to clauses (i), (ii) and (iii) of Section C.1, in all material respects) of the matters set forth in Section C.1 of this Second Amendment and (z) a certificate executed by an Authorized Officer of the Borrower or the applicable Credit Party, dated the Second Amendment Effective Date, certifying as to the incumbency and specimen signature of each officer of a Credit Party executing this Second Amendment or any other document delivered in connection herewith on behalf of any Credit Party and attaching (A) a true and complete copy of the certificate of incorporation (or other applicable charter document) of each Credit Party, including all amendments thereto, as in effect on the Second Amendment Effective Date, certified as of a recent date by the Secretary of State (or analogous official) of the jurisdiction of its organization, that has not been amended since the date of the last amendment thereto shown on the certificate of good standing furnished pursuant to clause (x) above, or certifying that there have been no changes to since last delivered to the Administrative Agent, (B) a true and complete copy of, or certifying that there have been no changes to, the by-laws (or other

applicable operating agreements) of each Credit Party as in effect on the Second Amendment Effective Date and (C) a true and complete copy of resolutions duly adopted or written consents duly executed by the board of directors (or equivalent governing body or any committee thereof) of each Credit Party authorizing the execution, delivery and performance of this Second Amendment and the performance of the Credit Agreement (as amended by this Second Amendment) and the other Credit Documents and certifying that such resolutions or written consents have not been modified, rescinded or amended and are in full force and effect.

4. No Default or Event of Default shall have occurred and be continuing (both immediately before and immediately after giving effect to this Second Amendment and the transactions contemplated hereby).

C. Other Terms.

1. Credit Party Certifications. By execution of this Second Amendment, each of the undersigned hereby certifies, on behalf of the applicable Credit Party and not in his/her individual capacity, that as of the Second Amendment Effective Date:

(i) each Credit Party has the corporate or other organizational power and authority to execute and deliver this Second Amendment and carry out the terms and provisions of this Second Amendment and the Credit Agreement (as modified hereby) and has taken all necessary corporate or other organizational action to authorize the execution and delivery of this Second Amendment and performance of this Second Amendment and the Credit Agreement (as modified hereby);

(ii) each Credit Party has duly executed and delivered this Second Amendment and each of this Second Amendment and the Credit Agreement (as modified hereby) constitutes the legal, valid and binding obligation of such Credit Party, enforceable against such Credit Party in accordance with its terms, except as may be limited by bankruptcy, insolvency, reorganization, moratorium or similar laws relating to or limiting creditors' rights generally or by general equitable principles, regardless of whether considered in a proceeding in equity or at law and principles of good faith and fair dealing;

(iii) the execution, delivery and performance by each Credit Party of this Second Amendment and the consummation of the transactions contemplated by the Second Amendment and the Credit Agreement (as modified hereby) do not and will not (i) (A) violate any of the Organizational Documents of such Credit Party or (B) otherwise require any approval of any stockholder, member or partner of such Credit Party, except for such approvals or consents which have been obtained or made; (ii) violate any provision of any law, rule, regulation, order, judgment or decree of any Governmental Authority applicable to or otherwise binding on such Credit Party, except to the extent such violation could not reasonably be expected to have a Material Adverse Effect; (iii) conflict with, result in a breach of or constitute (with due notice or lapse of time or both) a default under, or otherwise require any approval or consent of any Person under, (A) any Contractual Obligation of such Credit Party, except to the extent such conflict, breach or default could not reasonably be expected to have a Material Adverse Effect, or (B) any Material Indebtedness, and in each case, except for such approvals or consents which have been obtained or made; or (iv) result in or require the creation or imposition of any Lien upon any of the properties or assets of such Credit Party (other than any Liens created under any of the Credit Documents in favor of the Collateral Agent, on behalf of the Secured Parties, and Permitted Liens);

(iv) the representations and warranties contained in the Credit Agreement (as modified hereby) and the other Credit Documents are true and correct in all material respects on and as of the Second Amendment Effective Date (both before and after giving effect thereto) to the same extent as though made on and as of the Second Amendment Effective Date, except to the extent such representations and warranties expressly relate to an earlier date, in which case such representations and warranties shall have been true and correct in all material respects on and as of such earlier date; and

(v) no Default or Event of Default has occurred and is continuing or would result from the consummation of the transactions contemplated hereby.

2. Limited Amendment. For the avoidance of doubt and notwithstanding anything to the contrary in this Second Amendment or in any Credit Document, except as specifically set forth in Section 6.7 solely for purposes of calculating compliance with the Financial Covenant, any use of "Consolidated Adjusted EBITDA" under the Credit Agreement or any other Credit Document, including in any calculation of "First Lien Net Leverage Ratio", "Secured Net Leverage Ratio" or "Total Net Leverage Ratio" and in the determination of any "basket" based on "Consolidated Adjusted EBITDA" or any other use of such defined terms or components thereof, shall be based on Consolidated Adjusted EBITDA for the relevant period determined based on the definition of "Consolidated Adjusted EBITDA" set forth in the Credit Agreement without giving effect to any modifications or waivers of Section 6.7 of the Credit Agreement set forth herein.

3. Release 4. . Each of the Credit Parties, on behalf of itself and each of its Subsidiaries and its or their successors, assigns, and agents (collectively, the "Releasing Parties"), in consideration of the Administrative Agent's and Lenders' execution and delivery of this Agreement and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, unconditionally, freely, voluntarily and, after consultation with counsel and becoming fully and adequately informed as to the relevant facts, circumstances and consequences, hereby expressly forever releases, waives and forever discharges (and further agrees not to allege, claim or pursue) any and all claims (including, without limitation, cross-claims, counterclaims, and rights of setoff and recoupment), rights, causes of action (whether direct or derivative in nature), demands, suits, costs, expenses, and damages or defense, of any nature, description, or kind whatsoever, whether arising in contract, in tort, in law, in equity or otherwise, based in whole or in part on facts or otherwise, whether known, unknown or subsequently discovered, fixed or contingent, direct or indirect, joint and/or several, secured or unsecured, due or not due, liquidated or unliquidated, asserted or unasserted, or foreseen or unforeseen, which any of the Releasing Parties might otherwise have or may have against the Administrative Agent or the Lenders, or each of the foregoing's respective past, present, or future affiliates, agents, principals, managers, managing members, members, stockholders, controlling persons (within the meaning of the United States federal securities or bankruptcy laws), directors, officers, employees, attorneys, consultants, advisors, trusts, trustors, beneficiaries, heirs, executors, administrators or other representatives (collectively, the "Releasees"), in each case on account of any conduct, condition, act, omission, event, contract, liability, obligation, demand, covenant, promise, indebtedness, claim, right, cause of action, suit, damage, defense, judgment, circumstance or matter of any kind whatsoever which existed, arose or occurred at any time prior to the date of this Second Amendment relating to the Credit Documents, this Second Amendment and/or the transactions contemplated thereby or hereby, including any actual or alleged performance or non-performance of any of the Releasees (any of the foregoing, a "Claim" and collectively, the "Claims"). Each of the Releasing Parties hereby expressly acknowledges and agrees that the agreements in this paragraph are intended to be in full satisfaction of all or any alleged injuries or damages arising in connection with the Claims, and that with respect to the Claims, that it waives, to the fullest extent permitted by applicable law, any and all provisions, rights, and benefits conferred by any applicable U.S. federal or state law, or any principle of U.S. common law, that would otherwise limit a release or

discharge of any unknown Claims pursuant to this Section 3. Furthermore, each of the Releasing Parties hereby absolutely, unconditionally and irrevocably covenants and agrees with and in favor of each Releasee that it will not sue (at law, in equity, in any regulatory proceeding or otherwise) any Releasee on the basis of any Claim released and/or discharged by the Releasing Parties pursuant to this Section 3. In entering into this Second Amendment, each Credit Party expressly disclaims any reliance on any representations, acts, or omissions by any of the Releasees and hereby agrees and acknowledges that the validity and effectiveness of the releases set forth in this Section 3 does not depend in any way on any such representation, acts and/or omissions or the accuracy, completeness, or validity thereof.

5. Amendment, Modification and Waiver. This Second Amendment may not be amended, modified or waived except by an instrument or instruments in writing signed and delivered on behalf of each of the parties hereto and in accordance with the provisions of Section 10.5 of the Credit Agreement.

6. Entire Agreement. This Second Amendment, the Credit Agreement (as modified hereby) and the other Credit Documents constitute the entire agreement among the parties with respect to the subject matter hereof and thereof and supersede all other prior agreements and understandings, both written and verbal, among the parties or any of them with respect to the subject matter hereof.

7. GOVERNING LAW. THIS SECOND AMENDMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER, INCLUDING THE VALIDITY, INTERPRETATION, CONSTRUCTION, BREACH, ENFORCEMENT OR TERMINATION HEREOF, AND WHETHER ARISING IN CONTRACT OR TORT OR OTHERWISE, SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW YORK.

8. Severability. In case any provision in or obligation hereunder or any Note will be invalid, illegal or unenforceable in any jurisdiction, the validity, legality and enforceability of the remaining provisions or obligations, or of such provision or obligation in any other jurisdiction, will not in any way be affected or impaired thereby. If any provision of this Second Amendment is so broad as to be unenforceable, the provision shall be interpreted to be only so broad as would be enforceable.

9. Counterparts. This Second Amendment may be executed in counterparts, each of which shall be deemed to be an original, but all of which shall constitute one and the same agreement.

10. Electronic Signatures. Delivery of an executed counterpart of a signature page of this Second Amendment by telecopy, emailed pdf. or any other electronic means that reproduces an image of the actual executed signature page shall be effective as delivery of a manually executed counterpart of this Second Amendment. The words “execution”, “signed”, “signature”, “delivery” and words of like import in or relating to this Second Amendment and any other document to be signed in connection with this Second Amendment and the transactions contemplated hereby shall be deemed to include Electronic Signatures, deliveries or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature, physical delivery thereof or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any applicable law, including the Electronic Commerce Act 2000 (of Ireland), the Federal Electronic Signatures in Global and National Commerce Act, the New York State Electronic Signatures and Records Act, or any other similar state laws based on the Uniform Electronic Transactions Act; *provided* that nothing herein shall require the Administrative Agent to accept electronic signatures in any form or format without its prior written consent, *provided* that, the Administrative Agent hereby agrees to accept, and hereby consents to the use of, electronic signatures to this Second Amendment from all parties hereto. Without limiting the generality of the foregoing, each Credit Party hereby (i) agrees that, for all purposes, including without limitation, in connection with any workout, restructuring, enforcement of remedies,

bankruptcy proceedings or litigation among the Administrative Agent, the Lenders and the Credit Parties, electronic images of this Second Amendment or any other Credit Documents (in each case, including with respect to any signature pages thereto) shall have the same legal effect, validity and enforceability as any paper original, and (ii) waives any argument, defense or right to contest the validity or enforceability of the Credit Documents based solely on the lack of paper original copies of any Credit Documents, including with respect to any signature pages thereto.

11. Submission to Jurisdiction. All judicial proceedings brought against any Credit Party arising out of or relating hereto or any other Credit Document, or any of the Obligations, will be brought in any state or Federal court of competent jurisdiction in the State, County and City of New York. By executing and delivering this Second Amendment, each Credit Party, for itself and in connection with its properties, irrevocably (a) accepts generally and unconditionally the exclusive jurisdiction and venue of such courts; (b) waives any defense of forum non conveniens; (c) agrees that service of all process in any such proceeding in any such court may be made by registered or certified mail, return receipt requested, to the applicable Credit Party at its address provided in accordance with Section 10.1 of the Credit Agreement; (d) agrees that service as provided in clause (c) above is sufficient to confer personal jurisdiction over the applicable Credit Party in any such proceeding in any such court, and otherwise constitutes effective and binding service in every respect; and (e) agrees that the Agents and Lenders retain the right to serve process in any other manner permitted by law or to bring proceedings against any Credit Party in the courts of any other jurisdiction.

12. Waiver of Jury Trial. EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THE SECOND AMENDMENT, THE CREDIT DOCUMENTS OR THE TRANSACTIONS CONTEMPLATED THEREBY AND AGREES THAT ANY SUCH ACTION OR PROCEEDING WILL BE TRIED BEFORE A COURT AND NOT BEFORE A JURY. EACH OF THE PARTIES HERETO ACKNOWLEDGES THAT THIS WAIVER IS A MATERIAL INDUCEMENT TO ENTER INTO A BUSINESS RELATIONSHIP, THAT EACH HAS RELIED ON THE WAIVER IN ENTERING INTO THIS SECOND AMENDMENT, AND THAT EACH WILL CONTINUE TO RELY ON THIS WAIVER IN THEIR RELATED FUTURE DEALINGS. EACH OF THE PARTIES HERETO WARRANTS AND REPRESENTS THAT EACH HAS HAD THE OPPORTUNITY OF REVIEWING THIS JURY WAIVER WITH LEGAL COUNSEL, AND THAT EACH KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS.

13. Reaffirmation. By executing and delivering a counterpart hereof, (i) each Credit Party hereby agrees that, as of the Second Amendment Effective Date and after giving effect to this Second Amendment, all Obligations of the Borrower shall be guaranteed pursuant to the Guaranty in accordance with the terms and provisions thereof and shall be secured pursuant to the Collateral Documents in accordance with the terms and provisions thereof; (ii) each Credit Party hereby (A) agrees that, notwithstanding the effectiveness of this Second Amendment, as of the Second Amendment Effective Date and after giving effect to this Second Amendment, the Collateral Documents continue to be in full force and effect, (B) agrees as of the Second Amendment Effective Date that all of the Liens and security interests created and arising under each Collateral Document remain in full force and effect on a continuous basis, and the perfected status and priority of each such Lien and security interest continues in full force and effect on a continuous basis, unimpaired, uninterrupted and undischarged, as collateral security for its Obligations under the Credit Documents (as modified hereby) to which it is a party, in each case, to the extent provided in, and subject to the limitations and qualifications set forth in, such Credit Documents (as amended by this Second Amendment) and (C) as of the Second Amendment Effective Date affirms and confirms all of its obligations and liabilities under the Credit Agreement (as modified hereby) and each other Credit Document (including this Second Amendment), in each case after giving effect to this Second Amendment, including its guarantee of the Obligations and the pledge of

and/or grant of a security interest in its assets constituting Collateral pursuant to the Collateral Documents to secure such Obligations, all as provided in the Collateral Documents, and acknowledges and agrees that as of the Second Amendment Effective Date such obligations, liabilities, guarantee, pledge and grant continue in full force and effect in respect of, and to secure, such Obligations under the Credit Agreement (as modified hereby) and the other Credit Documents, in each case after giving effect to this Second Amendment; and (iii) each Guarantor agrees that nothing in the Credit Agreement, this Second Amendment or any other Credit Document shall be deemed to require the consent of such Guarantor to any future amendment to the Credit Agreement.

14. Miscellaneous. This Second Amendment shall constitute a Credit Document for all purposes of the Credit Agreement (as modified hereby) and the other Credit Documents. The provisions of this Second Amendment are deemed incorporated as of the Second Amendment Effective Date into the Credit Agreement as if fully set forth therein. Except as specifically amended by this Second Amendment, (i) the Credit Agreement and the other Credit Documents shall remain in full force and effect and (ii) the execution, delivery and performance of this Second Amendment shall not constitute a waiver of any provision of, or operate as a waiver of any right, power or remedy of any Agent or Lender under, the Credit Agreement or any of the other Credit Documents.

[Remainder of page intentionally blank.]

IN WITNESS WHEREOF, each of the undersigned has caused its duly authorized officer to execute and deliver this Second Amendment as of the date first set forth above.

BORROWER:

CRYOLIFE, INC.

By: _____
Name: D. Ashley Lee
Title: Executive Vice President, Chief Operating Officer, Chief Financial Officer & Treasurer

GUARANTOR SUBSIDIARIES:

CRYOLIFE INTERNATIONAL, INC.
ON-X LIFE TECHNOLOGIES HOLDINGS, INC.
ON-X LIFE TECHNOLOGIES, INC.
AURAZYME PHARMACEUTICALS INC.

By: _____
Name: D. Ashley Lee
Title: President and Chief Financial Officer

DEUTSCHE BANK AG NEW YORK BRANCH, as
Administrative Agent and Revolving Lender

By: _____
Name:
Title:

By: _____
Name:
Title:

[Signature Page to CryoLife, Inc. Second Amendment to Credit and Guaranty Agreement]

IN WITNESS WHEREOF, the undersigned has caused this Second Amendment to be executed as of the date first written above.

[_____] , as a Revolving Lender

By: _____
Name:
Title:

Exhibit 31.1

CERTIFICATIONS

I, James Patrick Mackin, certify that:

1. I have reviewed this quarterly report on Form 10-Q of CryoLife, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: July 31, 2020

s/ J. PATRICK MACKIN
Chairman, President, and
Chief Executive Officer

Exhibit 31.2

I, David Ashley Lee, certify that:

1. I have reviewed this quarterly report on Form 10-Q of CryoLife, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: July 31, 2020

/s/ D. ASHLEY LEE
Executive Vice President,
Chief Operating Officer, and
Chief Financial Officer

Exhibit 32

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report of CryoLife, Inc. (the "Company") on Form 10-Q for the quarter ending June 30, 2020, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of James Patrick Mackin, the Chairman, President, and Chief Executive Officer of the Company, and David Ashley Lee, the Executive Vice President, Chief Operating Officer, and Chief Financial Officer of the Company, hereby certifies, pursuant to and for purposes of 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, in his capacity as an officer of the Company and to his knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ J. PATRICK MACKIN
J. PATRICK MACKIN
Chairman, President, and
Chief Executive Officer

July 31, 2020

/s/ D. ASHLEY LEE
D. ASHLEY LEE
Executive Vice President,
Chief Operating Officer, and
Chief Financial Officer
July 31, 2020