Penumbra Inc
Form 10-Q
November 05, 2018

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-Q

(Mark One)
x QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended September 30, 2018
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: 001-37557

Penumbra, Inc.
(Exact name of registrant as specified in its charter)

Delaware	05-0605598
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
One Penumbra Place Alameda, CA	94502
(Address of principal executive offices)	(Zip code)

(510) 748-3200
(Registrant's telephone number, including area code)

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

As of October 24, 2018, the registrant had 34,503,038 shares of common stock, par value $0.001 per share, outstanding.

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PART I - FINANCIAL INFORMATION

ITEM 1. CONDENSED CONSOLIDATED FINANCIAL STATEMENTS.

Penumbra, Inc.
Condensed Consolidated Balance Sheets
(unaudited)
(in thousands)

	September 30, 2018	December 31, 2017
Assets		
Current assets:		
Cash and cash equivalents	$ 47,742	$ 50,637
Marketable investments	146,176	163,954
Accounts receivable, net of doubtful accounts of $2,054 and $1,290 at September 30, 2018 and December 31, 2017, respectively	80,435	58,007
Inventories	109,706	94,901
Prepaid expenses and other current assets	13,536	14,735
Total current assets	397,595	382,234
Property and equipment, net	34,133	30,899
Intangible assets, net	27,284	23,778
Goodwill	7,923	8,178
Long-term investments (Note 3)	—	3,872
Deferred taxes	32,985	26,690
Other non-current assets	1,085	1,016
Total assets	$ 501,005	$ 476,667
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 8,869	$ 6,757
Accrued liabilities	56,183	44,825
Total current liabilities	65,052	51,582
Deferred rent	7,510	6,199
Other non-current liabilities	19,155	18,478
Total liabilities	91,717	76,259
Commitments and contingencies (Note 8)		
Stockholders' equity:		
Common stock	34	33
Additional paid-in capital	407,881	396,810
Accumulated other comprehensive (loss) income	(899)	1,569
Retained earnings	2,403	1,996
Total Penumbra, Inc. stockholders' equity	409,419	400,408
Non-controlling interest	(131)	—
Total stockholders' equity	$ 409,288	$ 400,408
Total liabilities and stockholders' equity	$ 501,005	$ 476,667

See accompanying notes to the unaudited condensed consolidated financial statements

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Penumbra, Inc.
Condensed Consolidated Statements of Operations
(unaudited)
(in thousands, except share and per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Revenue	$111,806	$83,911	$324,145	$237,713
Cost of revenue	36,794	29,134	110,324	84,298
Gross profit	75,012	54,777	213,821	153,415
Operating expenses:				
Research and development	9,092	8,132	25,298	23,260
Sales, general and administrative	55,934	45,962	165,209	132,846
Acquired in-process research and development	30,835	—	30,835	—
Total operating expenses	95,861	54,094	221,342	156,106
(Loss) income from operations	(20,849)	683	(7,521)	(2,691)
Interest income, net	771	658	2,240	1,926
Other income (expense), net	170	(102)	(460)	(665)
(Loss) income before income taxes and equity in losses of unconsolidated investee	(19,908)	1,239	(5,741)	(1,430)
Provision for (benefit from) income taxes	1,598	456	(5,288)	2,293
(Loss) income before equity in losses of unconsolidated investee	(21,506)	783	(453)	(3,723)
Equity in losses of unconsolidated investee	(920)	(545)	(3,101)	(703)
Consolidated net (loss) income	$(22,426)	$238	$(3,554)	$(4,426)
Net loss attributable to non-controlling interest	(3,496)	—	(3,496)	—
Net (loss) income attributable to Penumbra, Inc.	$(18,930)	$238	$(58)	$(4,426)
Net (loss) income attributable to Penumbra, Inc. per share:				
Basic	$(0.55)	$0.01	$—	$(0.14)
Diluted	$(0.55)	$0.01	$—	$(0.14)
Weighted average shares outstanding:				
Basic	34,248,484	33,446,841	34,057,216	32,766,135
Diluted	34,248,484	35,664,272	34,057,216	32,766,135

See accompanying notes to the unaudited condensed consolidated financial statements

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Penumbra, Inc.
Condensed Consolidated Statements of Comprehensive (Loss) Income
(unaudited)
(in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Consolidated net (loss) income	$(22,426)	$238	$(3,554)	$(4,426)
Other comprehensive (loss) income, net of tax:				
Foreign currency translation adjustments, net of tax	(353)	5,845	(2,367)	5,771
Net change in unrealized gains (losses) on available-for-sale securities, net of tax	115	54	(101)	121
Total other comprehensive (loss) income, net of tax	(238)	5,899	(2,468)	5,892
Consolidated comprehensive (loss) income	$(22,664)	$6,137	$(6,022)	$1,466
Net loss attributable to non-controlling interest	$(3,496)	$—	$(3,496)	$—
Comprehensive (loss) income attributable to Penumbra, Inc.	$(19,168)	$6,137	$(2,526)	$1,466

See accompanying notes to the unaudited condensed consolidated financial statements

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Penumbra, Inc.
Condensed Consolidated Statements of Cash Flows
(unaudited)
(in thousands)

	Nine Months Ended September 30,	
	2018	2017
CASH FLOWS FROM OPERATING ACTIVITIES:		
Consolidated net loss	$(3,554)	$(4,426)
Adjustments to reconcile consolidated net (loss) to net cash provided by operating activities:		
Depreciation and amortization	4,459	2,580
(Accretion of discount) amortization of premium on marketable investments	(69)	501
Stock-based compensation	13,551	13,092
Loss on non-marketable equity investments	3,101	703
Provision for doubtful accounts	833	445
Inventory write-downs	1,046	996
Deferred taxes	(6,411)	1
Acquired in-process research and development	30,835	—
Change in fair value of contingent consideration	852	—
Other	64	28
Changes in operating assets and liabilities:		
Accounts receivable	(23,284)	704
Inventories	(15,395)	(14,716)
Prepaid expenses and other current and non-current assets	733	3,303
Accounts payable	1,688	873
Accrued expenses and other non-current liabilities	12,828	9,514
Net cash provided by operating activities	21,277	13,598
CASH FLOWS FROM INVESTING ACTIVITIES:		
Asset acquisition (Note 3) and acquisition of business (Note 5), net of cash acquired	(19,914)	(9,253)
Contributions to non-marketable investments	(1,382)	(5,130)
Purchase of marketable investments	(96,969)	(139,317)
Proceeds from sales of marketable investments	12,131	28,167
Proceeds from maturities of marketable investments	102,687	73,579
Acquisition of intangible assets from a licensing agreement	—	(2,500)
Purchases of property and equipment	(6,563)	(6,805)
Net cash used in investing activities	(10,010)	(61,259)
CASH FLOWS FROM FINANCING ACTIVITIES:		
Proceeds from issuance of common stock upon underwritten public offering, net of issuance cost	—	106,265
Proceeds from exercises of stock options	4,294	4,244
Proceeds from issuance of stock under employee stock purchase plan	3,584	2,914
Payment of employee taxes related to vested restricted stock	(16,021)	(10,569)
Payment of acquisition-related obligations	(4,431)	—
Other	(409)	(940)
Net cash (used in) provided by financing activities	(12,983)	101,914
Effect of foreign exchange rate changes on cash and cash equivalents	(1,179)	(1,868)
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(2,895)	52,385
CASH AND CASH EQUIVALENTS—Beginning of period	50,637	13,236
CASH AND CASH EQUIVALENTS—End of period	$47,742	$65,621

NONCASH INVESTING AND FINANCING ACTIVITIES:		
Common shares issued as consideration in connection with a buyout agreement (Notes 6, 8 and 9)	$5,256	$—
Purchase of property and equipment funded through accounts payable and accrued liabilities	$1,378	$2,933
Asset acquisition (Note 3) or business combination related contingent liabilities and working capital adjustment liabilities (Note 5)	$4,500	$4,897
Licensing agreement related contingent liabilities	$—	$12,717

See accompanying notes to the unaudited condensed consolidated financial statements

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Penumbra, Inc.
Notes to Condensed Consolidated Financial Statements
(unaudited)

1. Organization and Description of Business

Penumbra, Inc. (the "Company") is a global healthcare company focused on innovative therapies. The Company designs, develops, manufactures and markets medical devices and has a broad portfolio of products that addresses challenging medical conditions and significant clinical needs.

2. Summary of Significant Accounting Policies

Basis of Presentation and Consolidation

The accompanying condensed consolidated balance sheet as of September 30, 2018, the condensed consolidated statements of operations for the three and nine months ended September 30, 2018 and 2017, the condensed consolidated statements of comprehensive (loss) income for the three and nine months ended September 30, 2018 and 2017, and the condensed consolidated statements of cash flows for the nine months ended September 30, 2018 and 2017 are unaudited. The unaudited condensed consolidated financial statements included herein have been prepared by the Company in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") and the applicable rules and regulations of the Securities and Exchange Commission (the "SEC") for interim financial information. Accordingly, they do not include all of the information and notes required by U.S. GAAP for complete financial statements. The condensed consolidated balance sheet as of December 31, 2017 was derived from the audited financial statements as of that date.

The unaudited condensed consolidated financial statements have been prepared on the same basis as the audited consolidated financial statements and, in the opinion of management, reflect all adjustments of a normal recurring nature considered necessary to state fairly the Company's financial position as of September 30, 2018, the results of its operations for the three and nine months ended September 30, 2018 and 2017, and the cash flows for the nine months ended September 30, 2018 and 2017. The results for the three and nine months ended September 30, 2018 are not necessarily indicative of the results that may be expected for the year ending December 31, 2018 or for any other future annual or interim period. Certain changes in presentation were made in the condensed consolidated financial statements for the three and nine months ended September 30, 2017 to conform to the presentation for the three and nine months ended September 30, 2018.

The information included in this Quarterly Report on Form 10-Q should be read in conjunction with the audited consolidated financial statements and notes thereto for the year ended December 31, 2017, included in the Company's Annual Report on Form 10-K. There have been no changes to the Company's significant accounting policies during the nine months ended September 30, 2018, as compared to the significant accounting policies described in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2017, other than changes to the Company's revenue policy described below in connection with the adoption of the guidance under the Accounting Standards Codification ("ASC") 606.

The condensed consolidated financial statements include the accounts of the Company, its wholly-owned subsidiaries and its majority-owned subsidiary, MVI Health Inc. ("MVI"). On August 31, 2018, the Company acquired a controlling interest in MVI. The portion of equity not attributable to the Company is considered noncontrolling interest and was recorded at the fair value as of the acquisition date. The amounts attributable to non-controlling interest are classified separately in the condensed consolidated financial statements. Any subsequent changes in the Company's ownership interest while the Company retains its controlling interest in MVI will be accounted for as equity transactions. Refer to Note "3. Investments and Fair Value of Financial Instruments" for more information on the asset acquisition of MVI. All intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities and equity accounts; disclosure of contingent assets and liabilities at the date of the financial statements; and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, the Company evaluates its estimates, including those related to marketable investments, provisions for doubtful accounts, the amount of variable consideration included in the transaction price,

warranty reserve, valuation of inventories, useful lives of property and equipment, income taxes, contingent consideration and other contingencies, among others. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other data. Actual results could differ from those estimates.

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(unaudited)

Revenue Recognition
Revenue is comprised of product revenue net of returns, discounts, administration fees and sales rebates. The Company adopted the guidance under ASC 606 on January 1, 2018 using the modified retrospective method for all contracts not completed as of the date of adoption. Therefore, the comparative prior year information has not been adjusted and continues to be reported under ASC 605 with the impact of the adoption reflected in opening retained earnings. Under ASC 606, the Company recognizes revenue when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. Revenue from product sales continue to be recognized either on the date of shipment or the date of receipt by the customer, but is deferred for certain transactions when control has not yet transferred. However, with respect to products that the Company consigns to hospitals, which primarily consist of coils, the Company recognizes revenue at the time hospitals utilize products in a procedure.
Deferred revenue represents amounts that the Company has already invoiced its customers and that are ultimately expected to be recognized as revenue, but for which not all revenue recognition criteria have been met. As of September 30, 2018 and December 31, 2017, respectively, the Company's deferred revenue balance was not material.
Revenue is recorded at the net sales price, which includes estimates of variable consideration such as product returns utilizing historical return rates, rebates, discounts, and other adjustments to net revenue. To the extent the transaction price includes variable consideration, the Company estimates the amount of variable consideration that should be included in the transaction price. Variable consideration is included in revenue only to the extent that it is probable that a significant reversal of the revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved.
The Company’s terms and conditions permit product returns and exchanges. The Company bases its estimates for sales returns on actual historical returns over the prior three years and they are recorded as reductions in revenue at the time of sale. Upon recognition, the Company reduces revenue and cost of revenue for the estimated return. Return rates can fluctuate over time, but are sufficiently predictable to allow the Company to estimate expected future product returns. For more information and disclosures on the Company’s revenue, refer to Note “13. Revenues.”
Segments
The Company determined its operating segment on the same basis that it uses to evaluate its performance internally. The Company has one business activity: the design, development, manufacturing and marketing of innovative devices, and operates as one operating segment. The Company’s chief operating decision-maker, its Chief Executive Officer, reviews its operating results for the purpose of allocating resources and evaluating financial performance. The Company assigns revenue to a geographic area based on the destination to which it ships its products.
Recent Accounting Guidance
Recently Adopted Accounting Standards
In the first quarter of 2018, the Company adopted ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606), and its associated amendments. Under the standard, revenue is recognized when a customer obtains control of promised goods or services in an amount that reflects the consideration the entity expects to receive in exchange for those goods or services. In addition, the standard requires disclosure of the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers. The Company applied the five step method outlined in the ASU to all revenue streams and elected to utilize the modified retrospective implementation method. The additional disclosures required by the ASU have been included in Note “13. Revenues.”
In the first quarter of 2018, the Company adopted ASU No. 2016-18, Statement of Cash Flows: Restricted Cash, a consensus of the Financial Accounting Standards Board (“FASB”) Emerging Issues Task Force. Under the standard, restricted cash and restricted cash equivalent amounts are presented within cash and cash equivalents when reconciling the total beginning and ending amounts shown on the statement of cash flows. When cash, cash equivalents, restricted cash and restricted cash equivalents are presented in more than one line item on the balance sheet, a reconciliation of the totals in the statement of cash flows to the related captions in the balance sheet is

required. The adoption of this standard did not have a material impact to the statement of cash flow for the nine months ended September 30, 2017, as the Company did not hold any restricted cash as of September 30, 2017.

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In the first quarter of 2018, the Company adopted ASU No. 2017-09, Compensation - Stock Compensation - Scope of Modification Accounting. The standard provides clarification on when modification accounting should be used for changes to the terms or conditions of a share-based payment award. This standard does not change the accounting for modifications but clarifies that modification accounting guidance should only be applied if there is a change to the value, vesting conditions, or award classification and would not be required if the changes are considered non-substantive. The standard is effective for annual periods beginning after December 15, 2017, and interim periods within those annual periods. The guidance was adopted on a prospective basis in the first quarter of 2018 and did not have any impact upon adoption.

In the first quarter of 2018, the Company adopted ASU No. 2018-02, Income Statement - Reporting Comprehensive Income. The standard allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act of 2017 (the “Tax Reform Act”). The standard is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. Early adoption is permitted for any interim and annual financial statements that have not yet been issued. The Company elected to early adopt this standard on a prospective basis in the first quarter of 2018 and reclassify the stranded tax effects resulting from the Tax Reform Act from accumulated other comprehensive income to retained earnings. There were no additional income tax effects resulting from the Tax Reform Act reclassified from accumulated comprehensive income to retained earnings. The adoption of this standard did not have a material impact on the Company’s financial position.

In the first quarter of 2018, the Company adopted ASU No. 2018-05, Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118, which included amendments to expand income tax accounting and disclosure guidance pursuant to SEC Staff Accounting Bulletin No. 118 (“SAB 118”) issued by the SEC in December 2017. SAB 118 provides guidance on accounting for the income tax effects of the Tax Reform Act. Refer to Note “11. Income Taxes” for more information and disclosures related to this amended guidance.

In the third quarter of 2018, the Company adopted ASU No. 2018-07, Compensation – Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting, which simplifies the accounting and reporting for share-based payments granted to nonemployees for goods and services. Under the new guidance, payments to nonemployees would be more closely aligned with the requirements for share-based payments granted to employees. The standard is effective for annual periods beginning after December 15, 2018, and interim periods within those annual periods. Early adoption is permitted, but no earlier than the Company's adoption date of ASC 606. The Company adopted the standard on a prospective basis in the third quarter of 2018 and the adoption did not have a material impact on the Company’s financial statement.

Recently Issued Accounting Standards

In February 2016, the FASB issued ASU No. 2016-02, Leases, which amends the existing accounting standards for leases. In September 2017, the FASB issued ASU No. 2017-13 which provides additional clarification and implementation guidance on the previously issued ASU No. 2016-02. Under the new guidance, a lessee will be required to recognize a lease liability and right-of-use asset for all leases with terms in excess of twelve months. The new guidance also modifies the classification criteria and accounting for sales-type and direct financing leases, and requires additional disclosures to enable users of financial statements to understand the amount, timing, and uncertainty of cash flows arising from leases. Consistent with current guidance, a lessee’s recognition, measurement, and presentation of expenses and cash flows arising from a lease will continue to depend primarily on its classification. In July 2018, the FASB issued ASU No. 2018-10 and ASU No. 2018-11, which further clarifies the application of the guidance issued under ASU No. 2016-02 and provides updates to transition methods and practical expedients. ASU No. 2018-11 provides an optional transition method in addition to the existing transition method which allows entities, at the adoption date, to recognize a cumulative effect adjustment to the opening balance of retained earnings in the period of adoption. The accounting standard is effective for fiscal years beginning after

December 15, 2018, including interim periods within those fiscal years, and must be applied using a modified retrospective approach. Early adoption is permitted. While the Company is continuing to assess all potential impacts of the standard, it expects that most of its lease commitments will be subject to the updated standard and recognized as lease liabilities and right-of-use assets upon adoption.

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments-Credit Losses. The standard changes how entities will measure credit losses for most financial assets and certain other instruments that are not measured at fair value through net income. The Company will recognize an allowance for credit losses on available-for-sale securities rather than deductions in amortized cost. The standard is effective for fiscal years and interim periods beginning after December 15, 2019. Early adoption is permitted for all periods beginning after December 15, 2018. The Company is currently evaluating the impact of adopting this standard.

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In August 2018, the FASB issued ASU 2018-13, Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement ("ASU 2018-13"). The primary focus of the standard is to improve the effectiveness of the disclosure requirements for fair value measurements. The standard is effective for fiscal years and interim periods beginning after December 15, 2019. An entity is permitted to early adopt the removed or modified disclosures upon the issuance of the standard and may delay adoption of the additional disclosures until their effective date. The Company is currently evaluating the impact of adopting this standard.

In August 2018, the SEC adopted the final rule under SEC Release No. 33-10532, Disclosure Update and Simplification. The final rule amends certain disclosure requirements that were redundant, duplicative, overlapping, outdated or superseded. In addition, the amendments expanded the disclosure requirements on the analysis of stockholders' equity for interim financial statements. Under the amendments, an analysis of changes in each caption of stockholders' equity presented in the balance sheet must be provided in a note or separate statement. The analysis should present a reconciliation of the beginning balance to the ending balance of each period for which a statement of comprehensive income is required to be filed. The Company anticipates its first presentation of changes in stockholders' equity will be included in its Form 10-Q for the quarter ended March 31, 2019.

3. Investments and Fair Value of Financial Instruments

Marketable Investments

The Company's marketable investments have been classified and accounted for as available-for-sale. The Company's marketable investments as of September 30, 2018 and December 31, 2017 were as follows (in thousands):

	September 30, 2018			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Commercial paper	$12,660	$ —	$ (5)	$12,655
U.S. treasury	6,401	—	(37)	6,364
U.S. agency and government sponsored securities	4,219	—	(34)	4,185
U.S. states and municipalities	8,587	—	(23)	8,564
Corporate bonds	114,746	60	(398)	114,408
Total	$146,613	$ 60	$ (497)	$146,176

	December 31, 2017			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Commercial paper	$19,941	$ —	$ (8)	$19,933
U.S. treasury	6,402	—	(28)	6,374
U.S. agency and government sponsored securities	4,787	—	(18)	4,769
U.S. states and municipalities	12,510	—	(23)	12,487
Corporate bonds	120,648	23	(280)	120,391
Total	$164,288	$ 23	$ (357)	$163,954

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(unaudited)

The following tables present the gross unrealized losses and the fair value for those marketable investments that were in an unrealized loss position for less than twelve months or for twelve months or longer as of September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018					
	Less than 12 months		12 months or more		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper	$12,655	$ (5)	$—	$ —	$12,655	$ (5)
U.S. treasury	4,371	(29)	1,993	(8)	6,364	(37)
U.S. agency and government sponsored securities	4,185	(34)	—	—	4,185	(34)
U.S. states and municipalities	6,564	(23)	—	—	6,564	(23)
Corporate bonds	60,544	(244)	13,191	(154)	73,735	(398)
Total	$88,319	$ (335)	$15,184	$ (162)	$103,503	$ (497)

	December 31, 2017					
	Less than 12 months		12 months or more		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper	$19,933	$ (8)	$—	$ —	$19,933	$ (8)
U.S. treasury	6,374	(28)	—	—	6,374	(28)
U.S. agency and government sponsored securities	2,778	(9)	1,991	(9)	4,769	(18)
U.S. states and municipalities	10,092	(23)	—	—	10,092	(23)
Corporate bonds	93,284	(188)	10,201	(92)	103,485	(280)
Total	$132,461	$ (256)	$12,192	$ (101)	$144,653	$ (357)

The contractual maturities of the Company's marketable investments as of September 30, 2018 and December 31, 2017 were as follows (in thousands):

	September 30, 2018	December 31, 2017
	Fair Value	Fair Value
Due in less than one year	$96,143	$104,272
Due in one to five years	50,033	59,682
Total	$146,176	$163,954

Non-Marketable Equity Investments

In the second quarter of 2017, the Company and Sixense Enterprises, Inc. ("Sixense") formed MVI as a privately-held joint venture for the purpose of exploring healthcare applications of virtual reality technology, with each party holding 50% of the issued and outstanding equity of MVI. On August 31, 2018 ("Transfer Agreement Closing Date"), the Company entered into a Stock Transfer Agreement (the "Transfer Agreement") between the Company, MVI and Sixense, to purchase an additional 40% of the equity interest in MVI from Sixense for an initial cash purchase price of $20.0 million, excluding the additional $4.5 million of probable future payments relating to an anti-dilution provision in the Transfer Agreement. Following the Transfer Agreement Closing Date, the Company owns a 90% equity interest in MVI and Sixense retains the remaining 10% equity interest.

Prior to the Transfer Agreement Closing Date, the Company accounted for its investment in MVI under the equity method and was not required to consolidate MVI. As of December 31, 2017 and through the nine months ended September 30, 2018, the Company determined that MVI was not a variable interest entity ("VIE"). Furthermore,

pursuant to agreements between the

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parties at the time of MVI's formation, the Company was obligated to perform certain services or make additional cash contributions to MVI for no additional equity interest. These services included, but were not limited to, information technology, accounting, other administrative services and research and development. The Company's contributions made to prior to the Transfer Agreement Closing Date are presented as a component of "Contributions to non-marketable investments" in the condensed consolidated statements of cash flows.

As of December 31, 2017, the carrying value of the non-marketable equity investment was approximately $3.9 million, representing the Company's contributions to MVI offset by the Company's share of equity method investee losses, and is presented in long-term investments on the condensed consolidated balance sheet. During the three and nine months ended September 30, 2017, MVI had no revenue and recorded a net loss of $1.1 million and $1.4 million, respectively. During the three and nine months ended September 30, 2018, prior to the Transfer Agreement Closing Date, MVI had no revenue and recorded a net loss of $1.8 million and $6.2 million, respectively. The Company reflected its 50% share of MVI's losses as equity in losses of unconsolidated investees in the condensed consolidated statements of operations through the Transfer Agreement Closing Date.

Impact of Transfer Agreement on Non-Marketable Equity Investments

The Company accounted for the Transfer Agreement as an asset acquisition, as it was determined that the transaction did not meet the definition of a business under the framework of the authoritative accounting guidance for business combinations. The total consideration transferred has been allocated to the non-monetary assets acquired and liabilities assumed based on their relative fair value.

The following table presents the components of the consideration transferred at fair value as of the Transfer Agreement Closing Date (amounts presented in thousands):

	Amount
Cash transferred	$20,000
Anti-dilution protection at Transfer Agreement Closing Date	4,500
Carrying amount of Penumbra's equity method investment in MVI	2,202
Fair value of the remaining non-controlling interest	3,365
Total consideration transferred	$30,067

In addition to the cash transferred, the consideration included a probable contingent liability related to an anti-dilution provision whereby the Company may issue additional shares of MVI to Sixense with an aggregate value of up to $4.5 million. As of September 30, 2018, the current and non-current portion of the related liability was $2.0 million and $2.5 million, respectively. The consideration transferred also included the $2.2 million carrying amount of the Company's equity method investment in MVI as of the Transfer Agreement Closing Date, which was written-off as part of the accounting for the Transfer Agreement. The Company also recorded $3.4 million in non-controlling interest on the condensed consolidated financial statements related to the fair value of the remaining equity interest held by Sixense as of the Transfer Agreement Closing Date.

The primary asset acquired in the Transfer Agreement constitutes an in-process research and development asset ("IPR&D"). Due to the nature of the other assets acquired and liabilities assumed, the difference between the fair value of the consideration transferred and the fair value of the tangible net assets acquired was allocated solely to the IPR&D. The Company recorded a charge of $30.8 million to acquired in-process research and development expense in the condensed consolidated statements of operations at the Transfer Agreement Closing Date because the Company determined that (1) MVI had not yet reached technological feasibility or had not yet reached the appropriate regulatory approval for any products and (2) the asset had no alternative future use as of the Transfer Agreement Closing Date. Following the Transfer Agreement Closing Date, the financial results of MVI have been consolidated into the accompanying condensed consolidated financial statements, with the amounts attributable to the non-controlling interest classified separately.

Fair Value of Financial Instruments

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the measurement date. The accounting guidance establishes a three-tiered hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value:
Level 1 - Quoted prices in active markets for identical assets or liabilities.

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Level 2 - Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.
The categorization of a financial instrument within the valuation hierarchy is based on the lowest level of input that is significant to the fair value measurement.
The Company classifies its cash equivalents and marketable investments within Level 1 and Level 2, as it uses quoted market prices or alternative pricing sources and models utilizing market observable inputs.
The Company determined the fair value of its Level 1 financial instruments, which are traded in active markets, using quoted market prices for identical instruments.
Financial instruments classified within Level 2 of the fair value hierarchy are valued based on other observable inputs, including broker or dealer quotations or alternative pricing sources. When quoted prices in active markets for identical assets or liabilities are not available, the Company relies on non-binding quotes from its investment managers, which are based on proprietary valuation models of independent pricing services. These models generally use inputs such as observable market data, quoted market prices for similar instruments, or historical pricing trends of a security relative to its peers. To validate the fair value determination provided by its investment managers, the Company reviews the pricing movement in the context of overall market trends and trading information from its investment managers. In addition, the Company assesses the inputs and methods used in determining the fair value in order to determine the classification of securities in the fair value hierarchy.
The following table sets forth the Company’s financial assets measured at fair value by level within the fair value hierarchy (in thousands):

	As of September 30, 2018			
	Level 1	Level 2	Level 3	Fair Value
Financial Assets				
Cash equivalents:				
Commercial paper	$—	$8,978	$—	$8,978
Money market funds	5,055	—	—	5,055
Marketable investments:				
Commercial paper	—	12,655	—	12,655
U.S. treasury	6,364	—	—	6,364
U.S. agency and government sponsored securities	—	4,185	—	4,185
U.S. states and municipalities	—	8,564	—	8,564
Corporate bonds	—	114,408	—	114,408
Total	$11,419	$148,790	$—	$160,209
Financial Liabilities:				
Contingent consideration obligations[(1)]	$—	$—	$2,519	$2,519
Total	$—	$—	$2,519	$2,519

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	As of December 31, 2017			
	Level 1	Level 2	Level 3	Fair Value
Financial Assets				
Cash equivalents:				
Commercial paper	$—	$9,185	$—	$9,185
Money market funds	2,264	—	—	2,264
Marketable investments:				
Commercial paper	—	19,933	—	19,933
U.S. treasury	6,374	—	—	6,374
U.S. agency and government sponsored securities	—	4,769	—	4,769
U.S. states and municipalities	—	12,487	—	12,487
Corporate bonds	—	120,391	—	120,391
Total	$8,638	$166,765	$—	$175,403
Financial Liabilities:				
Contingent consideration obligations[(1)]	$—	$—	$4,675	$4,675
Total	$—	$—	$4,675	$4,675

[(1)] More information on the contingent consideration obligations and the changes in fair value are presented below. As of September 30, 2018, the Company's contingent consideration liability is classified as a Level 3 measurement for which fair value is derived from various inputs, including forecasted revenues during the earn-out and milestone periods, revenue volatilities, discount rates, and estimates in the timing and likelihood of achieving revenue-based milestones. The fair value of the contingent consideration liability will be remeasured each reporting period. In addition to the revenue generated during the earn-out and milestone periods, the following table presents certain quantitative information about unobservable inputs used in the Level 3 fair value measurement of the Company's contingent consideration liability:

	Fair Value at September 30, 2018 (in thousands)	Valuation Method	Unobservable Inputs	Input (range where applicable)
Crossmed:				
Revenue-based milestones	$ 2,519	Monte Carlo Simulation	Earn-out period over which revenue-based milestone payments are made	2018 - 2019
			Risk-adjusted discount rate	15%
			Revenue volatilities for each type of revenue-based milestone	8.9% and 14.8%

The following table summarizes the changes in fair value of the contingent consideration obligation for the nine months ended September 30, 2018 (in thousands):

Fair Value of Contingent Consideration Obligation	Crossmed[(1)]
Balance at December 31, 2017	$ 4,675
Additional contingent consideration liabilities	—
Payments of contingent consideration liabilities	(3,017)
Changes in fair value	851
Foreign currency remeasurement	10
Balance at September 30, 2018	$ 2,519

(1) During the three and nine months ended September 30, 2018, the fair value of the contingent consideration obligation related to the acquisition of Crossmed S.p.A. (“Crossmed”) increased by $0.1 million and $0.9 million, respectively, which was recorded in sales, general and administrative expense in the condensed consolidated statements of operations. The fair value of the contingent consideration increased as a result of updates to the underlying forecasts based on actual results to date and changes in estimates. For more information refer to Note “5. Business Combination.”

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During the three and nine months ended September 30, 2018 and 2017, the Company did not record impairment charges related to its marketable investments and the Company did not hold any Level 3 marketable investments as of September 30, 2018 or December 31, 2017. Also, during the nine months ended September 30, 2018 and 2017, the Company did not have any transfers between Level 1, Level 2 or Level 3 of the fair value hierarchy. The Company did not have any financial assets and liabilities measured at fair value on a non-recurring basis as of September 30, 2018 or December 31, 2017.

4. Balance Sheet Components

Inventories

The following table shows the components of inventories as of September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Raw materials	$ 16,930	$ 13,529
Work in process	9,751	6,073
Finished goods	83,025	75,299
Inventories	$ 109,706	$ 94,901

Accrued Liabilities

The following table shows the components of accrued liabilities as of September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Payroll and employee-related cost	$ 32,088	$ 22,001
Sales return provision	3,000	3,035
Preclinical and clinical trial cost	1,112	1,514
Royalty	819	1,115
Product warranty	1,808	1,088
Leasehold improvement expenditures	860	1,012
Acquisition-related costs[(1)]	3,711	4,752
Other accrued liabilities	12,785	10,308
Total accrued liabilities	$ 56,183	$ 44,825

[(1)] Acquisition-related costs consist of the current portion of contingent liabilities related to (1) the cash milestone payments and working capital adjustment liabilities for the acquisition of Crossmed and (2) an anti-dilution provision for the asset acquisition of MVI. Refer to Note “5. Business Combination” for more information on the acquisition of Crossmed and Note “3. Investments and Fair Value of Financial Instruments” for more information on the MVI asset acquisition.

The following table shows the changes in the Company’s estimated product warranty accrual, included in accrued liabilities, as of September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Balance at the beginning of the period	$ 1,088	$ 1,254
Accruals of warranties issued	1,131	471
Settlements of warranty claims	(411)	(637)
Balance at the end of the period	$ 1,808	$ 1,088

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Other Non-Current Liabilities
The following table shows the components of other non-current liabilities as of September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Deferred tax liabilities	$ 3,235	$ 3,299
Licensing-related cost[1]	11,423	12,717
Asset acquisition-related costs[2]	2,500	—
Other non-current liabilities	1,997	2,462
Total other non-current liabilities	$ 19,155	$ 18,478

[1] Amount relates to the non-current liability recorded for probable future milestone payments to be made under the licensing agreement described in Note “6. Intangible Assets.” Refer therein for more information.
[2] Asset acquisition-related costs represents the non-current portion of the probable contingent liability related to an anti-dilution provision for the asset acquisition of MVI. Refer to Note “3. Investments and Fair Value of Financial Instruments” for more information on the MVI asset acquisition.

5. Business Combination

On July 3, 2017 (the “Closing Date”), the Company completed the acquisition of Crossmed, a joint stock company organized under the laws of Italy. Crossmed is engaged in the business of distributing medical supplies and equipment in Italy, San Marino, the Vatican, and Switzerland. Crossmed was the Company’s exclusive distributor in Italy, San Marino and the Vatican and the acquisition provides the Company with a direct relationship with its customers in these regions. As of the Closing Date, Crossmed became a wholly-owned subsidiary of the Company and was integrated into the Company’s core business. The acquisition of Crossmed did not result in any changes to the Company’s operating or reportable segment structure and the Company continues to operate as one operating segment.
The following table summarizes the Closing Date fair value of the consideration transferred, reflecting the measurement period adjustments recorded in the fourth quarter of 2017 (in thousands):

Cash, net of working capital and financial debt adjustments	$11,088
Fair value of contingent consideration for milestone payments	4,343
Contract purchase price	$15,431
Consideration for settlement of pre-existing receivable due from Crossmed to Penumbra	3,273
Total value of consideration transferred	$18,704

On the Closing Date, the Company paid the sellers of Crossmed an initial payment of €8.2 million, or approximately $9.4 million, subject to post-closing adjustments for working capital and financial debt. The Company is also obligated to pay additional consideration in the form of milestone payments based on Crossmed’s net revenue, and may be required to pay additional consideration based on incremental net revenue, for the year ended December 31, 2017, and each of the years ending December 31, 2018 and 2019. There is no limit on the milestone payments that can be paid out. During the nine months ended September 30, 2018, the Company made $4.4 million in cash payments to the Sellers, of which $3.0 million related to the achievement of the 2017 milestones and the remainder related to working capital and financial debt adjustments. These payments have been presented as a component of financing activities in the condensed consolidated statement of cash flows due to the nature and timing of the payments.
As of September 30, 2018, the fair value of the current and non-current portion of the related liabilities for the future cash milestone payments recorded on the condensed consolidated balance sheet was $1.3 million and $1.2 million, respectively. For more information with respect to the nature and fair value of the Company’s contingent consideration obligations, refer to Note “3. Investments and Fair Value of Financial Instruments.”

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The purchase price measurement period was closed as of June 30, 2018. The following table presents the allocation of the purchase price for Crossmed, reflecting the measurement period adjustments recorded in 2017 (in thousands):

	Acquisition-Date Fair Value	Estimated Useful Life of Finite-Lived Intangible Assets
Tangible assets acquired and (liabilities) assumed:		
Accounts receivable	$ 4,406	
Inventories	1,343	
Other current and non-current assets	1,596	
Property and equipment, net	829	
Accounts payable	(740)	
Accrued liabilities and obligations for short-term debt and credit facilities	(1,868)	
Deferred tax liabilities	(2,472)	
Other non-current liabilities	(797)	
Intangible assets acquired:		
Customer relationships	$ 6,790	15 years
Other	1,750	5 years
Goodwill	7,867	
Total purchase price	$ 18,704	

Acquired intangible assets are classified as Level 3 measurements for which fair value is derived from valuations based on inputs that are unobservable and significant to the overall fair value measurement. The Company used the income approach, specifically the discounted cash flow method and the incremental cash flow approach, to derive the fair value of the customer relationships and other intangible assets. Customer relationships are direct relationships with physicians and hospitals performing procedures with the distributed products. Other intangibles consist of non-Penumbra supplier relationships and sub-distributor relationships with third parties used to sell products, both as of the Closing Date. The intangible assets are amortized on a straight-line basis over their assigned estimated useful lives. The amortization of the acquired intangible assets are not deductible for tax purposes. As a result, a $2.5 million deferred tax liability was recorded as of the Closing Date.

The goodwill arising from the Crossmed acquisition is primarily attributed to expected synergies from future growth and assembled workforce. Goodwill will not be deductible for tax purposes.

6. Intangible Assets

Acquired Intangible Assets

The following table presents details of the Company’s acquired finite-lived and indefinite-lived intangible assets, as of September 30, 2018 and December 31, 2017 (in thousands, except weighted-average amortization period):

As of September 30, 2018	Weighted-Average Amortization Period	Gross Carrying Amount	Accumulated Amortization	Net
Customer relationships	15.0 years	$ 6,919	$ (576)	$ 6,343
Trade secrets and processes	20.0 years	5,256	(197)	5,059
Other	5.0 years	1,784	(446)	1,338
Total intangible assets subject to amortization	15.9 years	$ 13,959	$ (1,219)	$ 12,740
Intangible assets related to licensed technology		14,544	—	14,544
Total intangible assets		$ 28,503	$ (1,219)	$ 27,284

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As of December 31, 2017	Weighted-Average Amortization Period	Gross Carrying Amount	Accumulated Amortization	Net
Customer relationships	15.0 years	$7,141	$ (238)	$6,903
Other	5.0 years	1,841	(183)	1,658
Total intangible assets subject to amortization	13.1 years	$8,982	$ (421)	$8,561
Intangible assets related to licensed technology		15,217	—	15,217
Total intangible assets		$24,199	$ (421)	$23,778

The customer relationships and other intangible assets subject to amortization relate to the acquisition of Crossmed during the third quarter of 2017. The gross carrying amount and accumulated amortization of these intangible assets are subject to foreign currency translation effects. Refer to Note “5. Business Combination” for more information. The Company’s $5.3 million trade secrets and processes intangible asset was recognized in connection with a royalty buyout agreement during the first quarter of 2018, which is discussed further in Note “8. Commitments and Contingencies” and Note “9. Stockholders’ Equity.”

The following table presents the amortization recorded related to the Company’s finite-lived intangible assets (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Cost of revenue	$66	$—	$197	$—
Sales, general and administrative	205	258	631	258
Total	$271	$258	$828	$258

Licensed technology

During the third quarter of 2017, the Company entered into an exclusive technology license agreement (the “License Agreement”) that required the Company to pay an upfront payment to the licensor of $2.5 million and future revenue milestone-based payments on sales of products covered by the licensed intellectual property. The Company recorded an intangible asset equal to the total payments made and expected to be made under the License Agreement and a corresponding contingent liability for the probable future milestone payments not yet paid. The licensed technology is accounted for as an indefinite-lived intangible asset. Once regulatory approval is received to market and commercialize products utilizing the underlying technology, the Company will begin amortizing the intangible asset. At the end of each reporting period the Company adjusts the contingent liabilities to reflect the amount of future milestone payments that are probable to be paid. Prior to the commercialization of products utilizing the underlying technology, any changes in the contingent liability are recorded as an adjustment between the liability balances and the gross carrying amount of the indefinite-lived intangible asset. During the three and nine months ended September 30, 2018, the contingent liability related to the exclusive technology license agreement increased by $0.3 million and decreased by $0.7 million, respectively. The changes in the contingent liability balance were due to changes in the underlying revenue forecasts used to estimate the probable future milestone payments. As of September 30, 2018, the balance of the contingent liability related to probable future milestone payments under the Licensing Agreement was $12.0 million, of which $0.6 million and $11.4 million were included in accrued liabilities and other non-current liabilities on the condensed consolidated balance sheet, respectively.

As of September 30, 2018, the gross carrying amount of the indefinite-lived intangible asset was $14.5 million. During the nine months ended September 30, 2018, the Company noted no events or circumstances that indicate the carrying value of the licensed technology may no longer be recoverable and that an impairment loss may have

occurred.

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7. Goodwill

The following table presents the changes in goodwill during the nine months ended September 30, 2018 (in thousands):

	Total Company
Balance as of December 31, 2017	$ 8,178
Foreign currency translation	(255)
Balance as of September 30, 2018	$ 7,923

Goodwill Impairment Review

The Company reviews goodwill for impairment annually during the fourth quarter, on October 31st, or more frequently if events or circumstances indicate that an impairment loss may have occurred. During the nine months ended September 30, 2018, there were no events or changes in circumstances which triggered an impairment review.

8. Commitments and Contingencies

Lease Commitments

The Company leases its offices primarily under non-cancelable operating leases that expire at various dates through 2031, subject to its option to renew certain leases for an additional 5 to 15 years. Rent expense for non-cancelable operating leases with scheduled rent increases is recognized on a straight-line basis over the lease term. Rent expense for the three months ended September 30, 2018 and 2017 was $1.4 million and $1.4 million, respectively, and for the nine months ended September 30, 2018 and 2017 was $4.3 million and $4.3 million, respectively. In addition, the Company's lease commitments also require it to make additional payments during the lease term for taxes, insurance and other operating expenses. The Company leases other equipment and vehicles primarily under non-cancelable operating leases that expire at various dates through 2021.

Royalty Obligations

In March 2005, the Company entered into a license agreement that requires the Company to make minimum royalty payments to the licensor on a quarterly basis. As of both September 30, 2018 and December 31, 2017, the license agreement required minimum annual royalty payments of $0.1 million in equal quarterly installments. On each January 1, the quarterly calendar year minimum royalty shall be adjusted to equal the prior year's minimum royalty adjusted by a percentage equal to the percentage change in the "consumer price index for all urban consumers" for the prior calendar year as reported by the U.S. Department of Labor. Unless terminated earlier, the term of the license agreement shall continue until the expiration of the last to expire patent that covers that licensed product or for the period of 15 years following the first commercial sale of such licensed product, whichever is longer. The first commercial sale of covered products occurred in June 2007.

In April 2012, the Company entered into an agreement that requires the Company to pay, on a quarterly basis, a 5% royalty on sales of products covered under applicable patents. The first commercial sale of covered products occurred in April 2014. Unless terminated earlier, the royalty term for each applicable product shall continue for 15 years following the first commercial sale of such patented product, or when the applicable patent covering such product has expired, whichever is sooner.

In November 2013, the Company entered into an agreement that required the Company to pay, on a quarterly basis, a 3% royalty on the first $5.0 million in sales and a 1% royalty on sales thereafter of products covered under applicable patents. The agreement was terminated effective January 1, 2018.

In April 2015, the Company entered into a royalty agreement that required the Company to pay a 2% royalty on sales of certain products covered by the agreement, on a quarterly basis, in exchange for certain trade secrets and processes which were used to develop such covered products. The Company began the first commercial sale of the covered products in July 2015. In the first quarter of 2018, the Company entered into a buyout of this agreement (the "Buyout Agreement") in which future royalty payments were canceled in exchange for shares of the Company's common stock with a fair value of $5.3 million. The Company recorded an intangible asset equal to the $5.3 million buyout amount

which will be amortized into cost of sales over the period in which the Company receives future economic benefit. After determining that the pattern of future cash flows associated with this intangible asset could not be reliably estimated with a high level of precision, the Company concluded that the intangible asset will be amortized on a straight line basis over its estimated useful life. For more information refer to Note “6. Intangible Assets” and Note “9. Stockholders’ Equity.”

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Royalty expense included in cost of revenue for the three months ended September 30, 2018 and 2017, was $0.9 million and $1.0 million, respectively, and for the nine months ended September 30, 2018 and 2017 was $2.4 million and $3.0 million, respectively.

Contingencies

From time to time, the Company may have certain contingent liabilities that arise in the ordinary course of business. The Company accrues a liability for such matters when it is probable that future expenditures will be made and such expenditures can be reasonably estimated. Refer to Note “3. Investments and Fair Value of Financial Instruments,” Note “5. Business Combination” and Note “6. Intangible Assets” for more information on contingent liabilities recorded on the condensed consolidated balance sheet.

Indemnification

The Company enters into standard indemnification arrangements in the ordinary course of business. In many such arrangements, the Company agrees to indemnify, hold harmless, and reimburse the indemnified parties for losses suffered or incurred by the indemnified parties in connection with any trade secret, copyright, patent or other intellectual property infringement claim by any third-party with respect to the Company’s technology. The Company also agrees to indemnify many purchasers for product defect and similar claims. The term of these indemnification agreements is generally perpetual. The maximum potential amount of future payments the Company could be required to make under these agreements is not determinable because it involves claims that may be made against the Company in the future, but have not yet been made.

The Company has entered into indemnification agreements with its directors and officers that may require the Company to indemnify its directors and officers against liabilities that may arise by reason of their status or service as directors or officers, other than liabilities arising from willful misconduct of the individual.

The Company has not incurred costs to defend lawsuits or settle claims related to these indemnification agreements. No liability associated with any of these indemnification requirements has been recorded to date.

Litigation

From time to time, the Company is subject to other claims and assessments in the ordinary course of business. The Company is not currently a party to any such litigation matter that, individually or in the aggregate, is expected to have a material adverse effect on the Company’s business, financial condition, results of operations or cash flows.

9. Stockholders’ Equity

Common Stock

In the first quarter of 2017, the Company issued and sold an aggregate of 1,495,000 shares of common stock at a public offering price of $76.00 per share, less the underwriters’ discounts and commissions, pursuant to an underwritten public offering. The Company received approximately $106.3 million in net cash proceeds after deducting underwriting discounts and commissions of $6.8 million and other offering expenses of $0.5 million.

In the first quarter of 2018, the Company issued 53,256 fully vested restricted stock units with a fair value of $5.3 million in connection with the Buyout Agreement, as discussed in Note “6. Intangible Assets” and Note “8. Commitments and Contingencies.” The Company recorded the $5.3 million fair value of the shares issued to additional-paid in capital on the condensed consolidated balance sheet upon the issuance of the awards, with the associated expense being amortized into cost of sales over the period in which the Company receives future economic benefit from the buyout.

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Equity Incentive Plans
Stock Options
Activity of stock options under the Penumbra, Inc. 2005 Stock Plan, the Penumbra, Inc. 2011 Equity Incentive Plan and the Amended and Restated Penumbra, Inc. 2014 Equity Incentive Plan (collectively the "Plans") during the nine months ended September 30, 2018 is set forth below:

	Number of Shares	Weighted-Average Exercise Price
Balance at December 31, 2017	2,107,104	$ 17.58
Exercised	(348,316)	12.32
Canceled/Forfeited	(2,014)	22.04
Balance at September 30, 2018	1,756,774	18.62

Restricted Stock and Restricted Stock Units
Activity of unvested restricted stock and restricted stock units under the Plans during the nine months ended September 30, 2018 is set forth below:

	Number of Shares	Weighted-Average Grant Date Fair Value
Unvested at December 31, 2017	742,405	$ 38.86
Granted	109,021	110.33
Vested	(376,284)	38.67
Canceled/Forfeited	(3,625)	80.11
Unvested at September 30, 2018	471,517	55.21

As of September 30, 2018, 460,432 restricted stock and restricted stock units are expected to vest.
Stock-based Compensation
The following table sets forth the stock-based compensation expense included in the Company's condensed consolidated statements of operations for the three and nine months ended September 30, 2018 and 2017 (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Cost of revenue	$260	$316	$677	$817
Research and development	405	352	1,148	913
Sales, general and administrative	3,747	3,819	11,726	11,362
Total	$4,412	$4,487	$13,551	$13,092

As of September 30, 2018, total unrecognized compensation cost was $23.7 million related to unvested share-based compensation arrangements which is expected to be recognized over a weighted average period of 2.2 years.
The total stock-based compensation cost capitalized in inventory was $0.4 million and $0.2 million as of September 30, 2018 and December 31, 2017, respectively.
10. Accumulated Other Comprehensive (Loss) Income
Other comprehensive (loss) income consists of two components: unrealized gains or losses on the Company's available-for-sale marketable investments and gains or losses from foreign currency translation adjustments. Until realized and reported as a component of net (loss) income, these comprehensive income (loss) items accumulate and

are included within accumulated other comprehensive (loss) income. Unrealized gains and losses on the Company's marketable investments are reclassified from accumulated other comprehensive (loss) income into earnings when realized upon sale, and are determined based on specific identification of securities sold. Gains and losses from the translation of assets and liabilities denominated in non-U.S. dollar functional currencies are included in accumulated other comprehensive (loss) income.

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The following table summarizes the changes in the accumulated balances during the three and nine months ended September 30, 2018 and September 30, 2017, and includes information regarding the manner in which the reclassifications out of accumulated other comprehensive (loss) income into earnings affect the Company's condensed consolidated statements of operations and condensed consolidated statements of comprehensive (loss) income (in thousands):

	Three Months Ended September 30, 2018			Three Months Ended September 30, 2017		
	Marketable Investments	Currency Translation Adjustments	Total	Marketable Investments	Currency Translation Adjustments	Total
Balance at beginning of the period	$(451)	$ (210)	$(661)	$(38)	$ (4,657)	$(4,695)
Other comprehensive (loss) income before reclassifications:						
Unrealized gain— marketable investments	151	—	151	54	—	54
Foreign currency translation (losses)	—	(353)	(353)	—	5,845	5,845
Income tax effect — (expense)	(36)	—	(36)	—	—	—
Net of tax	115	(353)	(238)	54	5,845	5,899
Amounts reclassified from accumulated other comprehensive income to earnings:						
Realized gains — marketable investments	—	—	—	—	—	—
Income tax effect — (expense)	—	—	—	—	—	—
Net of tax	—	—	—	—	—	—
Net current-year other comprehensive income (loss)	115	(353)	(238)	54	5,845	5,899
Balance at end of the period	$(336)	$ (563)	$(899)	$16	$ 1,188	$1,204

	Nine Months Ended September 30, 2018			Nine Months Ended September 30, 2017		
	Marketable Investments	Currency Translation Adjustments	Total	Marketable Investments	Currency Translation Adjustments	Total
Balance at beginning of the period	$(235)	$ 1,804	$1,569	$(105)	$ (4,583)	$(4,688)
Other comprehensive (loss) income before reclassifications:						
Unrealized (losses) gain— marketable investments	(102)	—	(102)	157	—	157
Foreign currency translation (losses)	—	(2,145)	(2,145)	—	5,771	5,771
Income tax effect — benefit (expense)	1	(222)	(221)	—	—	—
Net of tax	(101)	(2,367)	(2,468)	157	5,771	5,928
Amounts reclassified from accumulated other comprehensive income to earnings:						
Realized (losses)— marketable investments	—	—	—	(36)	—	(36)
Income tax effect — expense	—	—	—	—	—	—
Net of tax	—	—	—	(36)	—	(36)
Net current-year other comprehensive (loss) income	(101)	(2,367)	(2,468)	121	5,771	5,892
Balance at end of the period	$(336)	$ (563)	$(899)	$16	$ 1,188	$1,204

11. Income Taxes

The Company’s income tax expense, deferred tax assets and liabilities, and reserves for unrecognized tax benefits reflect management’s best assessment of estimated current and future taxes to be paid. The Company is subject to income taxes in both the United States and foreign jurisdictions. Significant judgment and estimates are required in determining the consolidated income tax expense.

During interim periods, the Company generally utilizes the estimated annual effective tax rate method which involves the use of forecasted information. Under this method, the provision is calculated by applying an estimate of the annual effective tax rate for the full fiscal year to “ordinary” income or loss (pretax income or loss excluding unusual or infrequently occurring discrete items) for the reporting period. Jurisdictions with tax assets for which the Company believes a tax benefit cannot be realized are excluded from the computation of its annual effective tax rate.

During the three months ended September 30, 2018, the Company acquired a controlling interest in MVI which was accounted for as an asset acquisition for financial statement purposes. As a result, the Company recorded a charge of $30.8

million to acquired in-process research and development expense in the condensed consolidated statements of operations at the Transfer Agreement Closing Date, which is not deductible for tax purposes. Refer to Note "3. Investments and Fair Value of Financial Instruments" for more information on the MVI asset acquisition. The Company considers this expense a significant unusual and infrequently occurring item. As a result, the $30.8 million charge was excluded from the calculation of the Company's estimated annual effective tax rate.

The Company's provision for income taxes was a $1.6 million tax expense for the three months ended September 30, 2018, compared to a $0.5 million tax expense for the three months ended September 30, 2017. The Company's effective tax rate changed to (8.0)% for the three months ended September 30, 2018, compared to 36.8% for the three months ended September 30, 2017. The Company's provision for income taxes was a $5.3 million tax benefit in the nine months ended September 30, 2018, compared to a $2.3 million tax expense in the nine months ended September 30, 2017. The Company's effective tax rate changed to 92.1% for the nine months ended September 30, 2018, compared to (160.3)% for the nine months ended September 30, 2017. The Company's provision for/(benefit from) income taxes for the three and nine months ended September 30, 2018 was primarily due to excess tax benefits from stock-based compensation attributable to the Company's US jurisdiction, income taxes attributable to the Company's profits in its foreign jurisdictions, and a discrete tax charge resulting from the acquired in-process research and development expense associated with the MVI asset acquisition which is not deductible for tax purposes. The Company's provision for income taxes in the three and nine months ended September 30, 2017 was primarily due to income taxes attributable to the Company's foreign jurisdictions, and the tax impact from recognizing the deferred tax assets associated with intra-entity asset transfers. The tax benefits attributable to the Company's US jurisdiction were excluded from its tax provision for the three and nine months ended September 30, 2017 due to the partial valuation allowance recorded against the Company's domestic DTAs as of September 30, 2017.

On December 22, 2017, the Tax Reform Act was enacted. The Tax Reform Act significantly revised the U.S. corporate income tax regime by, including but not limited to, lowering the U.S. corporate income tax rate to 21% effective January 1, 2018, implementing a territorial tax system, imposing a one-time transition tax on previously untaxed accumulated earnings and profits of foreign subsidiaries, and creating new taxes on foreign sourced earnings. Also on December 22, 2017, the Securities and Exchange Commission issued Staff Accounting Bulletin 118 ("SAB 118"), which provides guidance on accounting for tax effects of the Tax Reform Act. SAB 118 provides a measurement period, that should not extend beyond one year from the Tax Reform Act enactment date, for companies to complete the accounting under ASC 740. In accordance with SAB 118, a company must reflect the income tax effects of those aspects of the Tax Reform Act for which the accounting under ASC 740 is complete. To the extent that a company's accounting for certain income tax effects of the Tax Reform Act is incomplete but it is able to determine a reasonable estimate, it must record a provisional estimate to be included in the financial statements.

In the nine months ended September 30, 2018, the Company recorded a provisional tax charge for the deemed repatriation tax on the undistributed earnings of its foreign subsidiaries. The Company also made sufficient progress on its global intangible low-taxed income tax analysis to reasonably estimate the effects, and therefore reflected provisional amounts in the Company's financial statements for the nine months ended September 30, 2018. Recording estimates of the tax impact of the deemed repatriation and the global intangible low-taxed income did not have a material effect on the Company's financial statements. The final impact of the Tax Reform Act may differ from these estimates, due to, among other things, changes in the Company's interpretations and assumptions, and additional guidance that may be issued.

With the adoption of ASU 2016-09, additional deferred tax assets ("DTAs") of NOL and credit carryforwards were created. With any DTAs, an assessment is necessary to determine if sufficient taxable income will be generated to realize the DTAs and, if not, a substantial valuation allowance to reduce the DTAs may be required. The Company assessed its ability to realize the benefits of its domestic DTAs by evaluating all available positive and negative evidence, objective and subjective in nature, including (1) cumulative results of operations in recent years, (2) sources of recent pre-tax income, (3) estimates of future taxable income, and (4) the length of net operating loss ("NOL")

carryforward periods.

The Company considered its projections of future taxable income in conjunction with relevant provisions of the Tax Reform Act, and concluded that sufficient future taxable income will be generated to realize the benefits of its federal DTAs prior to expiration other than its federal research and development tax credit DTAs. The Company's federal research and development tax credit DTAs, which have a 20 year carryforward period, are expected to expire prior to utilization based on future projected taxable income. As a result, the Company maintains a valuation allowance against its federal research and development tax credit DTAs as of September 30, 2018.

Consistent with prior periods, the Company maintained a full valuation allowance against its California DTAs as of September 30, 2018.

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Penumbra, Inc.
Notes to Condensed Consolidated Financial Statements
(unaudited)

12. Net (loss) income attributable to Penumbra, Inc. per Share

The Company's basic net (loss) income attributable to Penumbra, Inc. per share is calculated by dividing the net (loss) income attributable to Penumbra, Inc. by the weighted average number of shares of common stock outstanding for the period. The diluted net (loss) income per share is computed by giving effect to all potential dilutive common stock equivalents outstanding for the period. For purposes of this calculation, options to purchase common stock, restricted stock, restricted stock units and stock sold through the Company's employee stock purchase plan are considered common stock equivalents.

A reconciliation of the numerator and denominator used in the calculation of the basic and diluted (loss) income per share for the three and nine months ended September 30, 2018 and 2017 is as follows (in thousands, except share and per share amounts):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Numerator:				
Net (loss) income attributable to Penumbra, Inc.	$(18,930)	$ 238	$(58)	$ (4,426)
Denominator:				
Weighted average shares used to compute net income (loss):				
Basic	34,248,484	33,446,841	34,057,321	32,766,135
Effect of dilutive securities from stock-based benefit plans, as calculated using treasury stock method	—	2,217,431	—	—
Diluted	34,248,484	35,664,272	34,057,321	32,766,135
Net (loss) income attributable to Penumbra, Inc. per share from:				
Basic	$(0.55)	$ 0.01	$—	$ (0.14)
Diluted	$(0.55)	$ 0.01	$—	$ (0.14)

Outstanding common stock equivalents of 2.3 million and 21 thousand shares for the three months ended September 30, 2018 and 2017, respectively, and 2.3 million and 3.0 million shares for the nine months ended September 30, 2018 and 2017, respectively, were excluded from the computation of diluted net (loss) income attributable to Penumbra Inc. per share because their effect would have been anti-dilutive.

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Penumbra, Inc.
Notes to Condensed Consolidated Financial Statements
(unaudited)

13. Revenues

Adoption of ASC Topic 606, “Revenue from Contracts with Customers”

The Company adopted the guidance under ASC 606 on January 1, 2018 using the modified retrospective method for all contracts not completed as of the date of adoption. Therefore, the comparative prior year information has not been adjusted and continues to be reported under ASC 605 with the impact of the adoption reflected in opening retained earnings. As a result of adoption, the cumulative impact to our retained earnings at January 1, 2018 was $0.3 million. The adoption of ASC 606 represents a change in accounting principle that more closely aligns the timing of revenue recognition with the point in time that a performance obligation is satisfied. The Company’s performance obligations are satisfied at a point in time. The implementation of the new standard did not have a material impact on the measurement or recognition of revenue from prior periods, however additional disclosures have been added in accordance with the guidance.

As required by ASC 606, the impact of adoption of the new revenue standard on the Company's condensed consolidated statements of operations and comprehensive income and condensed consolidated balance sheets was as follows (in thousands):

	As of September 30, 2018		
	As Reported	Adjustments	Adjusted Balance Without 606 Adoption
Consolidated Balance Sheet Data:			
Assets			
Accounts receivable, net of doubtful accounts	80,435	(921)	79,514
Inventories	109,706	314	110,020
Deferred taxes	32,985	198	33,183
Equity			
Retained Earnings	2,403	(409)	1,994

	Three Months Ended September 30, 2018			Nine Months Ended September 30, 2018		
	As Reported	Adjustments	Adjusted Balance Without 606 Adoption	As Reported	Adjustments	Adjusted Balance Without 606 Adoption
Consolidated Income Statement Data:						
Revenue	111,806	(23)	111,783	324,145	(263)	323,882
Cost of revenue	36,794	(9)	36,785	110,324	(97)	110,227
Income (loss) from operations	(20,849)	(14)	(20,863)	(7,521)	(166)	(7,687)
Income (loss) before income taxes and equity in losses of unconsolidated investee	(19,908)	(14)	(19,922)	(5,741)	(166)	(5,907)
(Benefit from) provision for income taxes	1,598	(5)	1,593	(5,288)	(54)	(5,342)
Net income (loss) attributable to Penumbra, Inc.	(18,930)	(9)	(18,939)	(58)	(112)	(170)

Revenue Recognition

Revenue is recognized in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. All revenue recognized in the income statement is considered to be revenue from contracts with customers.

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Penumbra, Inc.
Notes to Condensed Consolidated Financial Statements
(unaudited)

The Company's revenues disaggregated by geography, based on the destination to which the Company ships its products, for the three and nine months ended September 30, 2018 and 2017 was as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
United States	$72,991	$55,652	$210,070	$157,559
Japan	10,131	8,499	31,427	24,483
Other International	28,684	19,760	82,648	55,671
Total	$111,806	$83,911	$324,145	$237,713

The Company's revenues disaggregated by product category, for the three and nine months ended September 30, 2018 and 2017 was as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2017	2018	2017
Neuro	$74,689	$58,670	$220,318	$165,122
Peripheral Vascular	37,117	25,241	103,827	72,591
Total	$111,806	$83,911	$324,145	$237,713

Performance Obligations

Delivery of Penumbra products - Penumbra's contracts with customers typically contain a single performance obligation, delivery of Penumbra products. Satisfaction of that performance obligation occurs when control of the promised goods transfers to the customer, which is generally upon shipment for non-consignment sale agreements and upon utilization for consignment sale agreements.

Payment terms - Our payment terms vary by the type and location of our customer. The timing between fulfillment of performance obligations and when payment is due is not significant and does not give rise to financing transactions. The Company did not have any contracts with significant financing components as of September 30, 2018.

Product returns - The Company may allow customers to return products purchased at the Company's discretion. The Company estimates the amount of its product sales that may be returned by its customers and records this estimate as a reduction of revenue in the period the related product revenue is recognized. The Company currently estimates product return liabilities using its own historic sales information, trends, industry data, and other relevant data points.

Warranties - Penumbra offers its standard warranty to all customers and it is not available for sale on a standalone basis. Penumbra's standard warranty represents its guarantee that its products function as intended, are free from defects, and comply with agreed-upon specifications and quality standards. This assurance does not constitute a service and is not a separate performance obligation.

Transaction Price

Revenue is recorded at the net sales price, which includes estimates of variable consideration such as product returns utilizing historical return rates, rebates, discounts, and other adjustments to net revenue. To the extent the transaction price includes variable consideration, the Company estimates the amount of variable consideration that should be included in the transaction price. When determining if variable consideration should be constrained, management considers whether there are factors that could result in a significant reversal of revenue and the likelihood of a potential reversal. Variable consideration is included in revenue only to the extent that it is probable that a significant reversal of the revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved. These estimates are re-assessed each reporting period as required. When the Company performs shipping and handling activities after control of goods is transferred to the customer, they are considered as fulfillment activities, and costs are accrued for when the related revenue is recognized. Taxes collected from

customers relating to product sales and remitted to governmental authorities are excluded from revenues.

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ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the unaudited condensed consolidated financial statements and the related notes thereto included elsewhere in this Quarterly Report on Form 10-Q and the audited consolidated financial statements and notes thereto and management's discussion and analysis of financial condition and results of operations for the year ended December 31, 2017, included in our Annual Report on Form 10-K filed with the Securities and Exchange Commission ("SEC") on February 27, 2018.

This Quarterly Report on Form 10-Q contains "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). In some cases, you can identify these statements by forward-looking words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "should," "estimate," or "co similar expressions or variations. Such forward-looking statements are subject to risks, uncertainties and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified below, and those discussed in the section titled "Risk Factors" included in our Annual Report on Form 10-K for the year ended December 31, 2017. The forward-looking statements in this Quarterly Report on Form 10-Q represent our views as of the date of this Quarterly Report on Form 10-Q. Except as may be required by law, we assume no obligation to update these forward-looking statements or the reasons that results could differ from these forward-looking statements. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Quarterly Report on Form 10-Q.

Overview

Penumbra ("we," "our," "us," "Penumbra," and the "Company") is a global healthcare company focused on innovative therapie We design, develop, manufacture and market medical devices and have a broad portfolio of products that addresses challenging medical conditions and significant clinical needs across two major markets.

Our team focuses on developing, manufacturing and marketing products for use by specialist physicians, including interventional neuroradiologists, neurosurgeons, interventional neurologists, interventional radiologists, interventional cardiologists and vascular surgeons. We design our products to provide these specialist physicians with a means to drive improved clinical outcomes, and we believe that the cost-effectiveness of our products is attractive to our hospital customers.

Since our founding in 2004, we have invested heavily in our product development capabilities in our two key markets: neuro and peripheral vascular. We launched our first neurovascular product in 2007, our first peripheral vascular product in 2013 and our first neurosurgical product in 2014. We expect to continue to develop and build our portfolio of products based on our thrombectomy, embolization and access technologies. Generally, when we introduce a next generation product or a new product designed to replace a current product, sales of the earlier generation product or the product replaced decline. Our research and development activities are centered around the development of new products and clinical activities designed to support our regulatory submissions and demonstrate the effectiveness of our products. In addition to the development of thrombectomy, embolization and access technologies, in the second quarter of 2017, we formed MVI Health Inc. ("MVI"), a privately-held joint venture, with Sixense Enterprises, Inc. ("Sixense") for the purpose of exploring healthcare applications of virtual reality technology. At the time MVI was formed, we held 50% of the issued and outstanding equity of MVI with Sixense holding the remaining 50%. On August 31, 2018, we acquired a 90% controlling interest in MVI and expect to continue to make investments to further develop MVI's business which is currently in the development stage. The underlying technology MVI is developing has not yet reached technological feasibility or has not yet reached the appropriate regulatory approval for any products to date. Therefore, MVI was pre-revenue for the three and nine months ended September 30, 2018.

To address the challenging and significant clinical needs of our two key markets, we developed products that fall into the following broad product offering families:

Our neuro products fall into four broad product families:

- Neuro thrombectomy - the Penumbra System, consisting of reperfusion catheters and separators, aspiration tubing and aspiration pump, and the 3D revascularization device designed for mechanical thrombectomy

- Neuro embolization - Penumbra Coil 400, Penumbra SMART COIL and PX SLIM
- Neuro access - delivery catheters, consisting of Neuron, Neuron MAX, Select, BENCHMARK and DDC
- Neurosurgical - the Artemis Neuro Evacuation Device

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Our peripheral products fall into two broad product families:

- Peripheral thrombectomy - the Indigo System, consisting of aspiration catheters, separators, aspiration pump and accessories
- Peripheral embolization - the Ruby Coil System, POD System, POD Packing Coil, and the Penumbra LANTERN Delivery Microcatheter

We sell our products to hospitals primarily through our direct sales organization in the United States, most of Europe, Canada and Australia, as well as through distributors in select international markets. In the nine months ended September 30, 2018 and 2017, 35.2% and 33.7% of our revenue, respectively, was generated from customers located outside of the United States. Our sales outside of the United States are denominated principally in the euro and Japanese yen, with some sales being denominated in other currencies. As a result, we have foreign exchange exposure, but do not currently engage in hedging.

We generated revenue of $324.1 million and $237.7 million for the nine months ended September 30, 2018 and 2017, respectively, an increase of $86.4 million.

Impact of the MVI Asset Acquisition

During the three and nine months ended September 30, 2018, we incurred a $30.8 million acquired in-process research and development ("IPR&D") charge in connection with the acquisition of a controlling interest in MVI which was accounted for as an asset acquisition. As a result of the acquired IPR&D charge, we generated an operating loss of $7.5 million for the nine months ended September 30, 2018, compared to an operating loss of $2.7 million for the nine months ended September 30, 2017.

Factors Affecting Our Performance

There are a number of factors that have impacted, and we believe will continue to impact, our results of operations and growth. These factors include:

- The rate at which we grow our salesforce and the speed at which newly hired salespeople become fully effective can impact our revenue growth or our costs incurred in anticipation of such growth.
- Our industry is intensely competitive and, in particular, we compete with a number of large, well-capitalized companies. We must continue to successfully compete in light of our competitors' existing and future products and their resources to successfully market to the specialist physicians who use our products.
- We must continue to successfully introduce new products that gain acceptance with specialist physicians and successfully transition from existing products to new products, ensuring adequate supply. In addition, as we introduce new products, we generally hire and train additional personnel and build our inventory of components and finished goods in advance of sales, which may cause quarterly fluctuations in our operating results and financial condition.
- Publications of clinical results by us, our competitors and other third parties can have a significant influence on whether, and the degree to which, our products are used by specialist physicians and the procedures and treatments those physicians choose to administer for a given condition.
- The specialist physicians who use our products may not perform procedures during certain times of the year, such as those periods when they are at major medical conferences or are away from their practices for other reasons, the timing of which occurs irregularly during the year and from year to year.
- Most of our sales outside of the United States are denominated in the local currency of the country in which we sell our products. As a result, our revenue from international sales can be significantly impacted by fluctuations in foreign currency exchange rates.

In addition, we have experienced and expect to continue to experience meaningful variability in our quarterly revenue, gross profit and gross margin percentage as a result of a number of factors, including, but not limited to: the number of available selling days, which can be impacted by holidays; the mix of products sold; the geographic mix of where products are sold; the demand for our products and the products of our competitors; the timing of or failure to obtain regulatory approvals or clearances for products; increased competition; the timing of customer orders; inventory write-offs due to obsolescence; costs, benefits and timing of new product introductions; costs, benefits and timing of the acquisition and integration of businesses and product lines we may acquire; the availability and cost of components and raw materials; and fluctuations in foreign currency exchange rates. We may experience quarters in which we have significant revenue growth sequentially followed by quarters of moderate or no revenue growth.

Additionally, we may experience quarters in which operating expenses, in particular research and development expenses, fluctuate depending on the stage and timing of product development.

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Components of Results of Operations

Revenue. We sell our products directly to hospitals and through distributors for use in procedures performed by specialist physicians to treat patients in two key markets: neuro and peripheral vascular disease. We sell our products through purchase orders, and we do not have long term purchase commitments from our customers. However, with respect to products that we consign to hospitals, which primarily consist of coils, we recognize revenue at the time hospitals utilize products in a procedure. Revenue also includes shipping and handling costs that we charge to customers.

Cost of Revenue. Cost of revenue consists primarily of the cost of raw materials and components, personnel costs, including stock-based compensation, inbound freight charges, receiving costs, inspection and testing costs, warehousing costs, royalty expense, shipping and handling costs and other labor and overhead costs incurred in the manufacturing of products. We manufacture substantially all of our products in our manufacturing facility at our campus in Alameda, California.

Operating Expenses

Research and Development (R&D). R&D expenses primarily consist of product development, clinical and regulatory expenses, materials, depreciation and other costs associated with the development of our products. R&D expenses also include salaries, benefits and other related costs, including stock-based compensation, for personnel and consultants. We expense R&D costs as they are incurred.

We expect our R&D expenses to continue to increase as we innovate and develop new products, add personnel, engage in ongoing clinical research and expand our information technologies.

Sales, General and Administrative (SG&A). SG&A expenses primarily consist of salaries, benefits and other related costs, including stock-based compensation, for personnel and consultants engaged in sales, marketing, finance, legal, compliance, administrative, facilities and information technology and human resource activities. Our SG&A expenses also include marketing trials, medical education, training, commissions, generally based on a percentage of sales, to direct sales representatives, amortization of acquired intangible assets and acquisition-related costs.

We expect our SG&A expenses to continue to increase as we expand our marketing programs, information technologies, operations and salesforce. Further, while the medical device excise tax was suspended for an additional two-year period commencing January 1, 2018, absent further legislative action, it will be reinstated in 2020.

Income Tax Expense. We are taxed at the rates applicable within each jurisdiction in which we operate. The composite income tax rate, tax provisions, deferred tax assets and deferred tax liabilities will vary according to the jurisdiction in which profits arise. Tax laws are complex and subject to different interpretations by management and the respective governmental taxing authorities, and require us to exercise judgment in determining our income tax provision, our deferred tax assets and deferred tax liabilities and the potential valuation allowance recorded against our net DTAs. Deferred tax assets and liabilities are determined using the enacted tax rates in effect for the years in which those tax assets are expected to be realized. A valuation allowance is established when it is more likely than not that the future realization of all or some of the DTAs will not be achieved.

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Results of Operations

The following table sets forth the components of our condensed consolidated statements of operations in dollars and as a percentage of revenue for the periods presented:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2018		2017		2018		2017	
	(in thousands, except for percentages)							
Revenue	$111,806	100.0 %	$83,911	100.0 %	$324,145	100.0 %	$237,713	100.0 %
Cost of revenue	36,794	32.9	29,134	34.7	110,324	34.0	84,298	35.5
Gross profit	75,012	67.1	54,777	65.3	213,821	66.0	153,415	64.5
Operating expenses:								
Research and development	9,092	8.1	8,132	9.7	25,298	7.8	23,260	9.8
Sales, general and administrative	55,934	50.0	45,962	54.8	165,209	51.0	132,846	55.9
Acquired in-process research and development	30,835	27.6	—	—	30,835	9.5	—	—
Total operating expenses	95,861	85.7	54,094	64.5	221,342	68.3	156,106	65.7
(Loss) income from operations	(20,849)	(18.6)	683	0.8	(7,521)	(2.3)	(2,691)	(1.1)
Interest income, net	771	0.7	658	0.8	2,240	0.7	1,926	0.8
Other income (expense), net	170	0.2	(102)	(0.1)	(460)	(0.1)	(665)	(0.3)
(Loss) income before income taxes and equity in losses of unconsolidated investee	(19,908)	(17.8)	1,239	1.5	(5,741)	(1.8)	(1,430)	(0.6)
Provision for (benefit from) provision for income taxes	1,598	1.4	456	0.5	(5,288)	(1.6)	2,293	1.0
(Loss) income before equity in losses of unconsolidated investee	(21,506)	(19.2)	783	0.9	(453)	(0.1)	(3,723)	(1.6)
Equity in losses of unconsolidated investee	(920)	(0.8)	(545)	(0.6)	(3,101)	(1.0)	(703)	(0.3)
Consolidated net (loss) income	$(22,426)	(20.1)%	$238	0.3 %	$(3,554)	(1.1)%	$(4,426)	(1.9)%
Net loss attributable to non-controlling interest	(3,496)	(3.1)	—	—	(3,496)	(1.1)	—	—
Net (loss) income attributable to Penumbra, Inc.	$(18,930)	(16.9)%	$238	0.3 %	$(58)	— %	$(4,426)	(1.9)%

Three Months Ended September 30, 2018 Compared to the Three Months Ended September 30, 2017

Revenue

	Three Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
Neuro	$74,689	$58,670	$16,019	27.3%
Peripheral Vascular	37,117	25,241	11,876	47.1%
Total	$111,806	$83,911	$27,895	33.2%

Revenue increased $27.9 million, or 33.2%, to $111.8 million in the three months ended September 30, 2018, from $83.9 million in the three months ended September 30, 2017. Our revenue growth resulted from further market penetration of our existing products and sales of new products. Sales within our neuro and peripheral vascular businesses accounted for slightly less than 60% and slightly more than 40% of the revenue increase, respectively, in the three months ended September 30, 2018.

Revenue from our neuro products increased $16.0 million, or 27.3%, to $74.7 million in the three months ended September 30, 2018, from $58.7 million in the three months ended September 30, 2017. This was primarily attributable to

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increased sales of our Penumbra System products, which accounted for approximately 90% of the total change in neuro revenue. Our sales of Penumbra System products experienced strong momentum due to further market penetration and growth in the market for endovascular treatment of stroke. This growth was partially offset by a decrease in sales of our neuro embolization products, which decreased by approximately 10% of the total change in neuro revenue, as demand for our neuro embolization products fluctuates from period to period due to the number of procedures performed. Prices for our neuro products remained substantially unchanged during the period.

Revenue from our peripheral vascular products increased $11.9 million, or 47.1%, to $37.1 million in the three months ended September 30, 2018, from $25.2 million in the three months ended September 30, 2017. This increase was driven by sales of our Indigo System products which accounted for slightly more than half of the peripheral vascular revenue increase in the three months ended September 30, 2018. This was primarily attributable to further market penetration which led to increases in the number of procedures performed by specialist physicians using our products. Prices for our peripheral vascular products remained substantially unchanged during the period.

Revenue by Geographic Area

The following table presents revenue by geographic area and from countries that exceeded 10% of our total revenue, based on our customers' shipping destinations:

	Three Months Ended September 30,				Change	
	2018		2017		$	%
	(in thousands, except for percentages)					
United States	$72,991	65.3 %	$55,652	66.4 %	$17,339	31.2%
Japan	10,131	9.1 %	8,499	10.1 %	1,632	19.2%
Other International	28,684	25.6 %	19,760	23.5 %	8,924	45.2%
Total	$111,806	100.0%	$83,911	100.0%	$27,895	33.2%

Revenue from sales in international markets increased $10.6 million, or 37.4%, to $38.8 million in the three months ended September 30, 2018, from $28.3 million in the three months ended September 30, 2017. Revenue from international sales represented 34.7% and 33.6% of our total revenue for the three months ended September 30, 2018 and 2017, respectively.

Gross Margin

	Three Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
Cost of revenue	$36,794	$29,134	$7,660	26.3%
Gross profit	$75,012	$54,777	$20,235	36.9%
Gross margin %	67.1 %	65.3 %		

Gross margin increased by 1.8 percentage points to 67.1% in the three months ended September 30, 2018, from 65.3% in the three months ended September 30, 2017. The increase in gross margin was primarily due to a more favorable product and geographic mix.

Research and Development (R&D)

	Three Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
R&D	$9,092	$8,132	$960	11.8%
R&D as a percentage of revenue	8.1 %	9.7 %		

R&D expenses increased by $1.0 million, or 11.8%, to $9.1 million in the three months ended September 30, 2018, from $8.1 million in the three months ended September 30, 2017. The increase was primarily due to a $0.9 million increase in personnel-related expenses primarily due to an increase in headcount to support our growth and a $0.6

million increase in product development and testing costs. This was partially offset by a $0.4 million decrease in clinical trial costs and a $0.3 million decrease in consultant and contractor expenses.

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We have made investments, and plan to continue to make investments, in the development of our products, which includes hiring additional research and development employees. As a result, we expect that operating expenses may increase in the near term. In addition, we have experienced in the past, and may continue to experience in the future, variability in expenses incurred due to the timing and costs of clinical trials.

Sales, General and Administrative (SG&A)

	Three Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
SG&A	$55,934	$45,962	$9,972	21.7%
SG&A as a percentage of revenue	50.0 %	54.8 %		

SG&A expenses increased by $10.0 million, or 21.7%, to $55.9 million in the three months ended September 30, 2018, from $46.0 million in the three months ended September 30, 2017. The increase was primarily due to a $7.6 million increase in personnel-related expenses largely attributable to an increase in headcount to support our growth and a $1.2 million increase related to a benefit recorded in the third quarter of the prior year due to a net refund of previously paid medical device excise tax.

As we continue to invest in our growth, we have expanded and expect to continue to expand our sales, marketing, general and administrative teams through the hiring of additional employees. In addition, we have experienced in the past, and may continue to experience in the future, variability in expenses incurred due to the timing and costs of investments in infrastructure to support the business.

Acquired In-Process Research and Development

	Three Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
Acquired in-process research and development	$30,835	$ —	$30,835	not meaningful
Acquired in-process research and development as a percentage of revenue	27.6 %	—%		

During the three months ended September 30, 2018, we recorded a $30.8 million acquired IPR&D charge in connection with the acquisition of a controlling interest in MVI Health Inc. which was accounted for as an asset acquisition.

Provision for Income Taxes

	Three Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
Provision for income taxes	$1,598	$456	$1,142	250.4%
Effective tax rate	(8.0)%	36.8 %		

Our provision for income taxes changed by $1.1 million, to $1.6 million of tax provision in the three months ended September 30, 2018, compared to $0.5 million of tax provision in the three months ended September 30, 2017. Our effective tax rate changed to (8.0)% for the three months ended September 30, 2018, compared to 36.8% for the three months ended September 30, 2017. The tax provision for income taxes for the three months ended September 30, 2018 was primarily due to income taxes attributable to profits in our foreign jurisdictions, a discrete tax charge resulting from the acquired IPR&D expense associated with the acquisition of a controlling interest in MVI Health Inc., which is not deductible for tax purposes, offset by the inclusion of excess tax benefits from stock-based compensation attributable to our U.S. jurisdiction. The tax provision for the three months ended September 30, 2017 was primarily due to income taxes attributable to our foreign jurisdictions, and the tax impact associated with

intra-entity asset transfers. The tax benefits attributable to our U.S. jurisdiction were excluded from our tax provision for the three months ended September 30, 2017 due to the partial valuation allowance recorded against our domestic DTAs as of September 30, 2017.

A valuation allowance is established when it is more likely than not that the future realization of all or some of the DTAs will not be achieved. Valuation allowances can be affected by changes to tax laws, statutory tax rates, and projections of future

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taxable income. Changes to the valuation allowance could cause us to experience an effective tax rate significantly different from previous periods.

Nine Months Ended September 30, 2018 Compared to the Nine Months Ended September 30, 2017

Revenue

	Nine Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
Neuro	$220,318	$165,122	$55,196	33.4%
Peripheral Vascular	103,827	72,591	31,236	43.0%
Total	$324,145	$237,713	$86,432	36.4%

Revenue increased $86.4 million, or 36.4%, to $324.1 million in the nine months ended September 30, 2018, from $237.7 million in the nine months ended September 30, 2017. Our revenue growth resulted from further market penetration of our existing products and sales of new products. Increased sales within our neuro and peripheral vascular businesses accounted for slightly less than two-thirds and slightly more than one-third of the revenue increase, respectively, in the nine months ended September 30, 2018.

Revenue from our neuro products increased $55.2 million, or 33.4%, to $220.3 million in the nine months ended September 30, 2018, from $165.1 million in the nine months ended September 30, 2017. This was primarily attributable to increased sales of our Penumbra System products and neuro access products which accounted for approximately 80% and approximately 15% of the neuro revenue increase, respectively. Our neuro product sales experienced strong momentum due to further market penetration and growth in the market for endovascular treatment of stroke. The overall market growth has led to increases in the number of procedures performed by specialist physicians using our products. Further, there was greater demand for our neuro access products, which can fluctuate from period to period due to the number of procedures performed. Prices for our neuro products remained substantially unchanged during the period.

Revenue from our peripheral vascular products increased $31.2 million, or 43.0%, to $103.8 million in the nine months ended September 30, 2018, from $72.6 million in the nine months ended September 30, 2017. This was driven by increased sales of Indigo System products, which accounted for approximately half of the peripheral vascular revenue increase. This increase was primarily attributable to further market penetration which led to increases in the number of procedures performed by specialist physicians using our products. Prices for our peripheral vascular products remained substantially unchanged during the period.

Revenue by Geographic Area

The following table presents revenue by geographic area and from countries that exceeded 10% of our total revenue, based on our customer's shipping destination, for the nine months ended September 30, 2018 and 2017:

	Nine Months Ended September 30,				Change	
	2018		2017		$	%
	(in thousands, except for percentages)					
United States	$210,070	64.8%	$157,559	66.3%	$52,511	33.3%
Japan	31,427	9.7%	24,483	10.3%	6,944	28.4%
Other International	82,648	25.5%	55,671	23.4%	26,977	48.5%
Total	$324,145	100.0%	$237,713	100.0%	$86,432	36.4%

Revenue from sales in international markets increased $33.9 million, or 42.3%, to $114.1 million in the nine months ended September 30, 2018, from $80.2 million in the nine months ended September 30, 2017. Revenue from international sales represented 35.2% and 33.7% of our total revenue for the nine months ended September 30, 2018 and 2017, respectively.

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Gross Margin

	Nine Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
Cost of revenue	$110,324	$84,298	$26,026	30.9%
Gross profit	$213,821	$153,415	$60,406	39.4%
Gross margin %	66.0 %	64.5 %		

Gross margin increased 1.5 percentage points to 66.0% in the nine months ended September 30, 2018, from 64.5% in the nine months ended September 30, 2017. The increase in gross margin was primarily due to a more favorable product and geographic mix.

Research and Development (R&D)

	Nine Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
R&D	$25,298	$23,260	$2,038	8.8%
R&D as a percentage of revenue	7.8 %	9.8 %		

R&D expenses increased by $2.0 million, or 8.8%, to $25.3 million in the nine months ended September 30, 2018, from $23.3 million in the nine months ended September 30, 2017. The increase was primarily a $2.9 million increase in personnel-related expenses primarily due to an increase in headcount to support our growth and a $2.1 million increase in product development and testing costs. This was partially offset by a $2.6 million decrease in clinical trial costs and a $0.6 million decrease in consultant and contractor expenses.

We have made investments, and plan to continue to make investments, in the development of our products, which includes hiring additional research and development employees. As a result, we expect that operating expenses may increase in the near term. In addition, we have experienced in the past, and may continue to experience in the future, variability in expenses incurred due to the timing and costs of clinical trials.

Sales, General and Administrative (SG&A)

	Nine Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
SG&A	$165,209	$132,846	$32,363	24.4%
SG&A as a percentage of revenue	51.0 %	55.9 %		

SG&A expenses increased by $32.4 million, or 24.4%, to $165.2 million in the nine months ended September 30, 2018, from $132.8 million in the nine months ended September 30, 2017. The increase was primarily due to a $23.4 million increase in personnel-related expense largely attributable to an increase in headcount to support our growth, $3.0 million increase in travel-related expenses, and a $1.2 million increase related to a benefit recorded in the third quarter of the prior year due to a net refund of previously paid medical device excise tax.

As we continue to invest in our growth, we have expanded and expect to continue to expand our sales, marketing, general and administrative teams through the hiring of additional employees. In addition, we have experienced in the past, and may continue to experience in the future, variability in expenses incurred due to the timing and costs of investments in infrastructure to support the business.

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Acquired In-Process Research and Development

	Nine Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
Acquired in-process research and development	$30,835	$ —	$30,835	not meaningful
Acquired in-process research and development as a percentage of revenue	9.5 %	—%		

During the nine months ended September 30, 2018, we recorded a $30.8 million acquired IPR&D charge in connection with the acquisition of a controlling interest in MVI which was accounted for as an asset acquisition.

(Benefit from) Provision for Income Taxes

	Nine Months Ended September 30,		Change	
	2018	2017	$	%
	(in thousands, except for percentages)			
(Benefit from) provision for income taxes	$(5,288)	$2,293	$(7,581)	(330.6)%
Effective tax rate	92.1 %	(160.3)%		

Our provision for income taxes changed by $7.6 million, to a $5.3 million tax benefit in the nine months ended September 30, 2018, from $2.3 million of tax provision in the nine months ended September 30, 2017. Our effective tax rate changed to 92.1% for the nine months ended September 30, 2018, compared to (160.3)% for the nine months ended September 30, 2017. The tax benefit from income taxes for the nine months ended September 30, 2018, was primarily due to the inclusion of excess tax benefits from stock-based compensation attributable to our U.S. jurisdiction, offset by income taxes attributable to profits in our foreign jurisdictions, and a discrete tax charge resulting from the acquired IPR&D expense associated with the acquisition of a controlling interest in MVI, which is not deductible for tax purposes. The tax provision for the nine months ended September 30, 2017 was primarily due to income taxes attributable to our foreign jurisdictions, and the tax impact from recognizing the deferred tax assets associated with intra-entity asset transfers. The tax benefits attributable to our U.S. jurisdiction were excluded from our tax provision for the nine months ended September 30, 2017 due to the partial valuation allowance recorded against our domestic DTAs as of September 30, 2017.

A valuation allowance is established when it is more likely than not that the future realization of all or some of the DTAs will not be achieved. Valuation allowances can be affected by changes to tax laws, statutory tax rates, and projections of future taxable income. Changes to the valuation allowance could cause us to experience an effective tax rate significantly different from previous periods.

Prospectively, our effective tax rate will likely be driven by (1) permanent differences in taxable income for tax and financial reporting purposes, (2) tax expense attributable to our foreign jurisdictions, and (3) discrete tax adjustments such as excess tax benefits related to stock based compensation. Our income tax provision is subject to volatility as the amount of excess tax benefits can fluctuate from period to period based on the price of our stock, the volume of share-based grants settled or vested, and the fair value assigned to equity awards under U.S. GAAP.

Liquidity and Capital Resources

As of September 30, 2018, we had $332.5 million in working capital, which included $47.7 million in cash and cash equivalents and $146.2 million in marketable investments. As of September 30, 2018, we held approximately 41.2% of our cash and cash equivalents in foreign entities.

In March 2017, we issued and sold an aggregate of 1,495,000 shares of our common stock at public offering price of $76.00 per share, less the underwriters' discounts and commissions, pursuant to an underwritten public offering. We received approximately $106.3 million in net cash proceeds after deducting underwriting discounts and commissions of $6.8 million and other offering expenses of $0.5 million. We intend to use the net proceeds from this offering for general corporate purposes, including working capital, continued development of our products, including research and development and clinical trials, potential acquisitions and other business opportunities. Pending the use of the net proceeds from this offering, we are investing the net proceeds in investment grade, interest bearing securities.

In addition to our existing cash and cash equivalents and marketable investment balances, our principal source of liquidity is our accounts receivable. We believe our sources of liquidity will be sufficient to meet our liquidity requirements for at least

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the next 12 months. Our principal liquidity requirements are to fund our operations, including our research and development, capital expenditures and contingent consideration. We may also lease or purchase additional facilities to facilitate our growth. We expect to continue to make investments as we launch new products, expand our manufacturing operations and further expand into international markets. We may, however, require or elect to secure additional financing as we continue to execute our business strategy. If we require or elect to raise additional funds, we may do so through equity or debt financing, which may not be available on favorable terms, could result in dilution to our stockholders and could require us to agree to covenants that limit our operating flexibility.

The following table summarizes our cash and cash equivalents, marketable investments and selected working capital data as of September 30, 2018 and December 31, 2017:

	September 30, 2018	December 31, 2017
	(in thousands)	
Cash and cash equivalents	$47,742	$ 50,637
Marketable investments	146,176	163,954
Accounts receivable, net	80,435	58,007
Accounts payable	8,869	6,757
Accrued liabilities	56,183	44,825
Working capital[(1)]	332,543	330,652

(1) Working capital consists of total current assets less total current liabilities.

The following table sets forth, for the periods indicated, our beginning balance of cash and cash equivalents, net cash flows provided by (used in) operating, investing and financing activities and our ending balance of cash and cash equivalents:

	Nine Months Ended September 30,	
	2018	2017
	(in thousands)	
Cash and cash equivalents and restricted cash at beginning of period	$50,637	$13,236
Net cash provided by operating activities	21,277	13,598
Net cash (used in) investing activities	(10,010)	(61,259)
Net cash (used in) provided by financing activities	(12,983)	101,914
Cash and cash equivalents and restricted cash at end of period	47,742	65,621

Net Cash Provided by Operating Activities

Net cash provided by operating activities consists primarily of net income adjusted for certain non-cash items (including depreciation and amortization, accretion of discounts or amortization of premiums on marketable investments, stock-based compensation expense, loss on non-marketable equity investments, provision for doubtful accounts, inventory write-offs and write-downs, changes in deferred tax balances, changes in the fair value of contingent consideration and acquired IPR&D), and the effect of changes in working capital and other activities.

Net cash provided by operating activities was $21.3 million during the nine months ended September 30, 2018 and consisted of a consolidated net loss of $3.6 million and non-cash items of $48.3 million, offset by net changes in operating assets and liabilities of $23.4 million. The change in operating assets and liabilities includes an increase in accounts receivable of $23.3 million and an increase in inventories of $15.4 million to support our revenue growth, partially offset by an increase in accrued expenses and other non-current liabilities of $12.8 million, an increase in accounts payable of $1.7 million as a result of the growth in our business activities and a decrease in prepaid expenses and other current and non-current assets of $0.7 million.

Net cash provided by operating activities was $13.6 million during the nine months ended September 30, 2017 and consisted of a consolidated net loss of $4.4 million and non-cash items of $18.3 million, offset by net changes in operating assets and liabilities of $0.3 million. The change in operating assets and liabilities include the increase in

inventories of $14.7 million to support our revenue growth, partially offset by an increase in accrued expenses and other non-current liabilities of $9.5 million, a decrease in prepaid expenses and other current and non-current assets of $3.3 million, an increase in accounts payable of $0.9 million as a result of the growth in our business activities and a decrease in accounts receivable of $0.7 million.

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Net Cash Used in Investing Activities

Net cash used in investing activities relates primarily to purchases of marketable investments, the acquisition of assets or a business, capital expenditures and contributions towards non-marketable investments, partially offset by proceeds from maturities and sales of marketable investments.

Net cash used in investing activities was $10.0 million during the nine months ended September 30, 2018 and consisted of payments for the MVI asset acquisition, net of cash acquired, of $19.9 million, capital expenditures of $6.6 million and contributions to non-marketable investments of $1.4 million, partially offset by proceeds from maturities and sales of marketable investments, net of purchases, of $17.8 million.

Net cash used in investing activities was $61.3 million during the nine months ended September 30, 2017 and consisted of net purchases from sales and maturities of marketable investments of $37.6 million, the acquisition of a business, net of cash acquired of $9.3 million, capital expenditures of $6.8 million, purchase of non-marketable investments of $5.1 million, and purchases of intangibles of $2.5 million.

Net Cash (Used in) Provided by Financing Activities

Net cash used in and provided by financing activities primarily relates to capital raising activities through equity and certain acquisition-related payments.

Net cash used in financing activities was $13.0 million during the nine months ended September 30, 2018 and primarily consisted of $16.0 million of payments of employee taxes related to vested restricted stock and restricted stock units and $4.4 million of payments made in 2018 in connection with our acquisition in 2017. This was partially offset by proceeds from exercises of stock options of $4.3 million and proceeds from issuance of stock under our employee stock purchase plan of $3.6 million.

Financing activities in the nine months ended September 30, 2017 provided net cash of $101.9 million due to proceeds from issuance of common stock net of issuance cost of $106.3 million, proceeds from issuance of stock under our employee stock purchase plan of $2.9 million, and proceeds from exercises of stock options of $4.2 million. This was partially offset by payment of employee taxes related to vested restricted stock of $10.6 million and payment of obligation in debt and credit facilities of $0.9 million.

Contractual Obligations and Commitments

On September 17, 2018, we entered into a lease of certain property in Roseville, California, for a fifteen year term, commencing upon substantial completion of improvements to the property. Annual base rent is approximately $1 million in the first three years of the lease, subject to a ten-month rent abatement during the first year. The total estimated lease payments over the fifteen year lease term is approximately $35.7 million. We also have the option to renew the lease for an additional five to ten years.

There have been no other material changes to our contractual obligations and commitments as of September 30, 2018 from those disclosed in our Annual Report on Form 10-K for the year ended December 31, 2017.

Off-Balance Sheet Arrangements

We do not have any significant off-balance sheet arrangements or holdings in variable interest entities.

Critical Accounting Policies and Estimates

We have prepared our financial statements in accordance with U.S. GAAP. Our preparation of these financial statements requires us to make estimates, assumptions, and judgments that affect the reported amounts of assets, liabilities, expenses, and related disclosures at the date of the financial statements, as well as revenue and expenses recorded during the reporting periods. We evaluate our estimates and judgments on an ongoing basis. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results could therefore differ materially from these estimates under different assumptions or conditions.

There have been no material changes to our critical accounting policies from those described in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” included in our Annual Report on Form 10-K for the year ended December 31, 2017, other than the adoption of Accounting Standards Codification 606 during the first quarter of 2018. The impact of adoption and its effects on our accounting policies and estimates are described in Note “2. Summary of

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Significant Accounting Policies" and Note "13. Revenues" to our condensed consolidated financial statements in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Recently Issued Accounting Standards

For information with respect to recently issued accounting standards and the impact of these standards on our condensed consolidated financial statements, see Note "2. Summary of Significant Accounting Policies" to our condensed consolidated financial statements in Part I, Item 1 of this Quarterly Report on Form 10-Q.

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ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

We are exposed to various market risks, which may result in potential losses arising from adverse changes in market rates, such as interest rates and foreign exchange rates. We do not enter into derivatives or other financial instruments for trading or speculative purposes and do not believe we are exposed to material market risk with respect to our cash and cash equivalents and/or our marketable investments.

Interest Rate Risk. We had cash and cash equivalents of $47.7 million as of September 30, 2018, which consisted of funds held in general checking and savings accounts. In addition, we had marketable investments of $146.2 million, which consisted primarily of commercial paper, corporate bonds, non-U.S. government debt securities, U.S. agency and government sponsored securities, U.S. states and municipalities and U.S. Treasury. Our investment policy is focused on the preservation of capital and supporting our liquidity needs. Under the policy, we invest in highly rated securities, while limiting the amount of credit exposure to any one issuer other than the U.S. government. We do not invest in financial instruments for trading or speculative purposes, nor do we use leveraged financial instruments. We utilize external investment managers who adhere to the guidelines of our investment policy. A hypothetical 100 basis point change in interest rates would not have a material impact on the value of our cash and cash equivalents or marketable investments.

Foreign Exchange Risk Management. We operate in countries other than the United States, and, therefore, we are exposed to foreign currency risks. We bill most sales outside of the United States in local currencies, primarily euro and Japanese yen, with some sales being denominated in other currencies. We expect that the percentage of our sales denominated in foreign currencies may increase in the foreseeable future as we continue to expand into international markets. When sales or expenses are not denominated in U.S. dollars, a fluctuation in exchange rates could affect our net income. We do not believe our net income would be materially impacted by an immediate 10% adverse change in foreign exchange rates. We do not currently hedge our exposure to foreign currency exchange rate fluctuations; however, we may choose to hedge our exposure in the future.

We do not believe that inflation and changes in prices had a significant impact on our results of operations for any periods presented on our condensed consolidated financial statements.

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ITEM 4. CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

An evaluation as of September 30, 2018 was carried out under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, of the effectiveness of our "disclosure controls and procedures," which are defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended ("the Exchange Act"), as controls and other procedures of a company that are designed to ensure that the information required to be disclosed by a company in the reports that it files or submits under the Exchange Act 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 the company's management, including its principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure. Based upon that evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) were effective at September 30, 2018.

Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the quarterly period ended September 30, 2018 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Limitations on the Effectiveness of Controls

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. Because of inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues, if any, within a company have been detected. Accordingly, our disclosure controls and procedures are designed to provide reasonable, not absolute, assurance that the objectives of our disclosure control system are met and, as set forth above, our principal executive officer and principal financial officer have concluded, based on their evaluation as of the end of the period covered by this report, that our disclosure controls and procedures were effective to provide reasonable assurance that the objectives of our disclosure control system were met.

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PART II - OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS.
None.

ITEM 1A. RISK FACTORS.
There have been no material changes to our risk factors reported or new factors identified since the filing of our Annual Report on Form 10-K for the year ended December 31, 2017, which was filed with the SEC on February 27, 2018.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS.
Issuer Purchases of Equity Securities

Period	(a) Total Number of Shares Purchased[(1)]	(b) Average Price Paid per Share	(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Dollar Value of Shares of Shares that May Yet be Purchased Under the Plans or Programs
July 1, 2018 - July 31, 2018	—	—	—	—
August 1, 2018 - August 31, 2018	428	$124.35	—	—
September 1, 2018 - September 30, 2018	—	—	—	—
Total	428	$124.35	—	—

[(1)] During the three months ended September 30, 2018, the Company withheld 428 shares of restricted stock at an aggregate cost of approximately $53,222, as permitted by the applicable equity award agreements, to satisfy employee tax withholding requirements related to the vesting of restricted stock awards.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES.
None.

ITEM 4. MINE SAFETY DISCLOSURE.
None.

ITEM 5. OTHER INFORMATION.
None.

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ITEM 6. EXHIBITS.

Exhibit Number	Description	Form	File No.	Exhibit(s)	Filing Date
31.1*	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.				
31.2*	Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.				
32.1**	Certification of Principal Executive Officer and Principal Financial Officer Required Under Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350.				
101*	The following materials from the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2018 formatted in Extensible Business Reporting Language (XBRL) include: (i) Condensed Consolidated Balance Sheets as of September 30, 2018 and December 31, 2017, (ii) Condensed Consolidated Statements of Operations for the three and nine months ended September 30, 2018 and 2017, (ii) Condensed Consolidated Comprehensive Income (Loss) for the three and nine months ended September 30, 2018 and 2017, (iii) Condensed Consolidated Statements of Cash Flows for the nine months ended September 30, 2018 and 2017, and (iv) Notes to Condensed Consolidated Financial Statements.				

* Filed herewith.

** Furnished herewith.

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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 hereunto duly authorized.

PENUMBRA, INC.

Date: November 5, 2018

By: /s/ Sri Kosaraju
Sri Kosaraju
Chief Financial Officer and Head of Strategy
(Principal Financial and Accounting Officer)