

Putnam VT Global Health Care Fund

Prospectus

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IMPORTANT NOTICE: Delivery of paper fund reports

In accordance with regulations adopted by the Securities and Exchange Commission, beginning on or after January 1, 2021, at the election of your insurance provider, you may not receive paper copies of the fund's annual and semiannual reports in the mail from the insurance provider that offers your variable annuity contract or variable life insurance policy unless you specifically request it. Instead, they will be available on a website, and your insurance provider will notify you by mail whenever a new one is available, and provide you with a website link to access the report.

If you wish to continue to receive paper reports free of charge after January 1, 2021, please contact your insurance provider.

If you already receive these reports electronically, no action is required.

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This prospectus explains what you should know about Putnam VT Global Health Care Fund, one of the funds of Putnam Variable Trust, which is available for purchase by separate accounts of insurance companies. Please read it carefully. Certain shares of other funds of the Trust are offered through other prospectuses.

These securities have not been approved or disapproved by the Securities and Exchange Commission (SEC) nor has the SEC passed upon the accuracy or adequacy of this prospectus. Any statement to the contrary is a crime.

Fund summary

Goal

Putnam VT Global Health Care Fund seeks capital appreciation.

Fees and expenses

The following table describes the fees and expenses you may pay if you buy and hold shares of the fund. The fees and expenses information does not reflect insurance-related charges or expenses borne by contract holders indirectly investing in the fund. If it did, expenses would be higher.

Annual fund operating expenses

(expenses you pay each year as a percentage of the value of your investment)

Share class	Management fees	Distribution and service (12b-1) fees	Other expenses	Total annual fund operating expenses
Class IA	0.62%	N/A	0.15%	0.77%
Class IB	0.62%	0.25%	0.15%	1.02%

Example

The following hypothetical example is intended to help you compare the cost of investing in the fund with the cost of investing in other funds. The example does not reflect insurance-related charges or expenses. If it did, expenses would be higher. It assumes that you invest \$10,000 in the fund for the time periods indicated and then redeem or hold all your shares at the end of those periods. It assumes a 5% return on your investment each year and that the fund's operating expenses remain the same. Your actual costs may be higher or lower.

Share class	1 year	3 years	5 years	10 years
Class IA	\$79	\$246	\$428	\$954
Class IB	\$104	\$325	\$563	\$1,248

Portfolio turnover

The fund pays transaction-related costs, such as commissions, when it buys and sells securities (or "turns over" its portfolio). A higher turnover rate may indicate higher transaction costs. These costs, which are not reflected in annual fund operating expenses or the above example, affect fund performance. The fund's turnover rate in the most recent fiscal year was 86%.

Investments, risks, and performance

Investments

For this non-diversified fund concentrating in the health care industries, we invest mainly in common stocks (growth or value stocks or both) of large and midsize companies worldwide that we believe have favorable investment potential. Under normal circumstances, we invest at least 80% of the fund's net assets in securities of companies in the health care industries. This policy may be changed only after 60 days' notice to shareholders. Potential investments include companies that manufacture health care supplies or provide health care-related services,

and companies in the research, development, production and marketing of pharmaceuticals and biotechnology products. We may purchase stocks of companies with stock prices that reflect a value lower than that which we place on the company. We may also consider other factors that we believe will cause the stock price to rise. We may consider, among other factors, a company's valuation, financial strength, growth potential, competitive position in its industry, projected future earnings, cash flows and dividends when deciding whether to buy or sell investments. We may also use derivatives, such as futures, options, certain foreign currency transactions, warrants and swap contracts, for both hedging and non-hedging purposes, and may engage in short sales of securities.

The use of the term "global" in the fund's name is meant to emphasize that we look for investment opportunities on a worldwide basis and that our investment strategies are not constrained by the countries or regions in which companies are located. Under normal market conditions, the fund intends to invest in at least five different countries and at least 40% of its net assets in securities of foreign companies (or, if less, at least the percentage of net assets that is ten percentage points less than the percentage of the fund's benchmark represented by foreign companies, as determined by the providers of the benchmark).

Risks

It is important to understand that you can lose money by investing in the fund.

The value of investments in the fund's portfolio may fall or fail to rise over extended periods of time for a variety of reasons, including general economic, political or financial market conditions, investor sentiment and market perceptions, government actions, geopolitical events or changes, and factors related to a specific issuer, geography, industry or sector. These and other factors may lead to increased volatility and reduced liquidity in the fund's portfolio holdings. Growth stocks may be more susceptible to earnings disappointments, and value stocks may fail to rebound. These risks are generally greater for small and midsize companies. The health care industries may be affected by product obsolescence, dependence on patents and intellectual property rights, expenses and losses from product liability and similar claims, changes in government programs or regulatory requirements (including approval policies for drugs, medical devices or procedures), and pricing pressures (including as a result of increased competition, changes in governmental and private reimbursement rates and payment systems, or other reforms). Our policy of concentrating on a limited group of industries and the fund's "non-diversified" status, which means the fund may invest a greater percentage of its assets in fewer issuers than a "diversified fund," can increase the fund's vulnerability to adverse developments affecting a single industry or issuer, which may result in greater losses and volatility for the fund. The value of international investments traded in foreign currencies may be adversely impacted by fluctuations in exchange rates.

International investments, particularly investments in emerging markets, may carry risks associated with potentially less stable economies or governments (such as the risk of seizure by a foreign government, the imposition of currency or other restrictions, or high levels of inflation), and may be or become illiquid. Our use of derivatives may increase the risks of investing in the fund by increasing investment exposure (which may be considered leverage) or, in the case of many over-the-counter instruments, because of the potential inability to terminate or sell derivatives positions and the potential failure of the other party to the instrument to meet its obligations. Our use of short selling may result in losses if the securities appreciate in value.

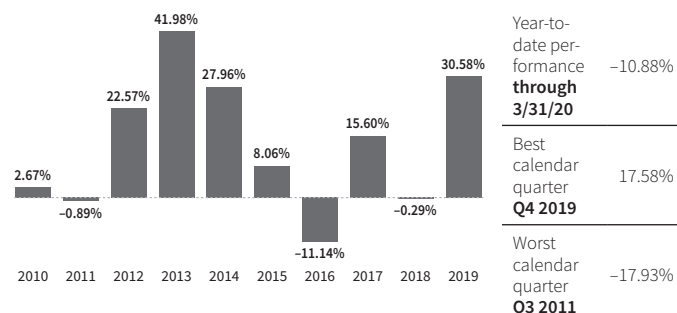
There is no guarantee that the investment techniques, analyses, or judgments that we apply in making investment decisions for the fund will produce the intended outcome or that the investments we select for the fund will perform as well as other securities that were not selected for the fund. We, or the fund's other service providers, may experience disruptions or operating errors that could negatively impact the fund.

The fund may not achieve its goal, and it is not intended to be a complete investment program. An investment in the fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency.

Performance

The performance information below gives some indication of the risks associated with an investment in the fund by showing the fund's performance year to year and over time. The performance information does not reflect insurance-related charges or expenses. If it did, performance would be lower. Please remember that past performance is not necessarily an indication of future results.

Annual total returns for class IA shares



Average annual total returns

(for periods ended 12/31/19)

Share class	1 year	5 years	10 years
Class IA	30.58%	7.64%	12.59%
Class IB	30.29%	7.37%	12.32%
MSCI World Health Care Index (ND) (no deduction for fees or expenses)	23.24%	8.50%	12.29%

Your fund's management

Investment advisor

Putnam Investment Management, LLC

Portfolio manager

Michael Maguire, Portfolio Manager, Analyst, portfolio manager of the fund since 2016

Sub-advisors

Putnam Investments Limited*

The Putnam Advisory Company, LLC*

* Though the investment advisor has retained the services of both Putnam Investments Limited (PIL) and The Putnam Advisory Company, LLC (PAC), PIL and PAC does not currently manage any assets of the fund.

Purchase and sale of fund shares

Fund shares are offered to separate accounts of various insurers. The fund requires no minimum investment, but insurers may require minimum investments from those purchasing variable insurance products for which the fund is an underlying investment option. Insurers may purchase or sell shares on behalf of separate accounts by submitting an order to Putnam Retail Management any day the New York Stock Exchange (NYSE) is open. Some restrictions may apply.

Tax information

Generally, owners of variable insurance contracts are not taxed currently on income or gains realized with respect to such contracts. However, some distributions from such contracts may be taxable at ordinary income tax rates and distributions to contract owners younger than 59½ may be subject to a 10% penalty tax. For more information, please see the prospectus (or other offering document) for your variable insurance contract.

Payments to insurance companies

The fund is offered as an underlying investment option for variable insurance contracts. The fund and its related companies may make payments to the sponsoring insurance company (or its affiliates) and dealers for distribution and/or other services. These payments may create an incentive for the insurance company to include the fund, rather than another investment, as an option in its products and may create a conflict of interest for dealers in recommending the fund over another investment. The prospectus (or other offering document) for your variable insurance contract may contain additional information about these payments.

What are the fund's main investment strategies and related risks?

This section contains greater detail on the fund's main investment strategies and the related risks you would face as a fund shareholder. It is important to keep in mind that risk and reward generally go hand in hand; the higher the potential reward, the greater the risk. As mentioned in the fund summary, we pursue

the fund's goal by investing mainly in common stocks (growth or value stocks or both) of large and midsize companies worldwide in the health care industries.

- **Global investing.** The use of the term "global" in the fund's name is meant to emphasize that we look for investment opportunities on a worldwide basis and that our investment strategies are not constrained by the countries or regions in which companies are located. We seek to invest mainly in common stocks of U.S. or foreign companies in the health care industries that we believe have favorable investment potential.

By way of illustration, as of December 31, 2019, the allocation between U.S. and foreign companies reflected in the MSCI World Health Care Index (ND), a key market index used to evaluate the fund's performance, is 68.74% invested in U.S. companies and 31.26% invested in foreign companies.

As noted above, however, the portions of the fund's investments represented by U.S. and foreign companies may differ from those of these indexes based on our assessment of relative investment potential at any particular time.

As a result, the portions of the fund that are invested in U.S. and foreign companies will change over time based on both the number and size of U.S. and foreign companies in such group of industries and on our assessment of the relative investment potential of such companies.

Under normal market conditions, the fund intends to invest in at least five different countries and at least 40% of its net assets in securities of foreign companies (or, if less, at least the percentage of net assets that is 10% less than the percentage of the fund's benchmark represented by foreign companies, as determined by the providers of the benchmark). For purposes of determining whether securities held by the fund are securities of a foreign company, we will consider a company to be a foreign company if we determine that the company's securities trade on a market outside the United States, the company is headquartered or organized outside the United States, the company derives a majority of its revenues or profits outside the United States, or the company is significantly exposed to the economic fortunes and risks of regions outside the United States.

- **Common stocks.** Common stock represents an ownership interest in a company. The value of a company's stock may fall as a result of factors directly relating to that company, such as decisions made by its management or lower demand for the company's products or services. A stock's value may also fall because of factors affecting not just the company, but also other companies in the same industry or in a number of different industries, such as increases in production costs. From time to time, the fund may invest a significant portion of its assets in companies in one or more related industries or sectors, which would make the fund more vulnerable to adverse developments affecting those companies, industries or sectors. The value of a company's stock may also be affected by changes in the financial

markets that are relatively unrelated to the company or its industry, such as changes in interest rates or currency exchange rates. In addition, a company's stock generally pays dividends only after the company invests in its own business and makes required payments to holders of its bonds and other debt. For this reason, the value of a company's stock will usually react more strongly than its bonds and other debt to actual or perceived changes in the company's financial condition or prospects.

Growth stocks — Stocks of companies we believe are fast-growing may trade at a higher multiple of current earnings than other stocks. The values of these stocks may be more sensitive to changes in current or expected earnings than the values of other stocks. If our assessment of the prospects for a company's earnings growth is wrong, or if our judgment of how other investors will value the company's earnings growth is wrong, then the price of the company's stock may fall or may not approach the value that we have placed on it. In addition, growth stocks, at times, may not perform as well as value stocks or the stock market in general, and may be out of favor with investors for varying periods of time.

Value stocks — Companies whose stocks we believe are undervalued by the market may have experienced adverse business developments or may be subject to special risks that have caused their stocks to be out of favor. If our assessment of a company's prospects is wrong, or if other investors do not similarly recognize the value of the company, then the price of the company's stock may fall or may not approach the value that we have placed on it. In addition, value stocks, at times, may not perform as well as growth stocks or the stock market in general, and may be out of favor with investors for varying periods of time.

- **Foreign investments.** Foreign investments involve certain special risks, including:
 - Unfavorable changes in currency exchange rates: Foreign investments are typically issued and traded in foreign currencies. As a result, their values may be affected by changes in exchange rates between foreign currencies and the U.S. dollar.
 - Political and economic developments: Foreign investments may be subject to the risks of seizure by a foreign government, direct or indirect impact of sovereign debt default, imposition of economic sanctions or restrictions on the exchange or export of foreign currency, and tax increases.
 - Unreliable or untimely information: There may be less information publicly available about a foreign company than about most publicly-traded U.S. companies, and foreign companies are usually not subject to accounting, auditing and financial reporting standards and practices as stringent as those in the United States. Foreign securities may trade on markets that are closed when U.S. markets are open. As a result, accurate pricing information based on foreign market prices may not always be available.

- Limited legal recourse: Legal remedies for investors may be more limited than the remedies available in the United States.
- Limited markets: Certain foreign investments may be less liquid (harder to buy and sell) and more volatile than most U.S. investments, which means we may at times be unable to sell these foreign investments at desirable prices. For the same reason, we may at times find it difficult to value the fund's foreign investments.
- Trading practices: Brokerage commissions and other fees are generally higher for foreign investments than for U.S. investments. The procedures and rules governing foreign transactions and custody may also involve delays in payment, delivery or recovery of money or investments.

The risks of foreign investments are typically increased in countries with less developed markets, which are sometimes referred to as emerging markets. Emerging markets may have less developed economies and legal and regulatory systems, and may be susceptible to greater political and economic instability than developed foreign markets. Countries with emerging markets are also more likely to experience high levels of inflation or currency devaluation, and investments in emerging markets may be more volatile and less liquid than investments in developed markets. For these and other reasons, investments in emerging markets are often considered speculative.

Certain risks related to foreign investments may also apply to some extent to U.S.-traded investments that are denominated in foreign currencies, investments in U.S. companies that are traded in foreign markets or investments in U.S. companies that have significant foreign operations.

- **Industry focus.** Under normal circumstances, we invest at least 80% of the fund's net assets in securities of companies in the health care industries. This policy may be changed only after 60 days' notice to shareholders. Companies that we consider to be in the health care industries encompass two main groups of companies. The first group includes companies who manufacture health care supplies or provide health care-related services, including distributors of products, providers of basic health care services and owners and operators of care facilities and organizations. The second group includes companies in the research, development, production and marketing of pharmaceuticals and biotechnology products. We consider a company to be in the health care industries if, at the time of investment, we determine that at least 50% of the company's assets, revenues or profits are derived from these industries, or if an independent industry source considers it to be in these industries.

Events that affect the health care industries will have a greater effect on the fund than they would on a fund that is more widely diversified among a number of unrelated industries. Examples of such events include technological advances that make existing products and services obsolete, dependence on patents and intellectual property rights, expenses and losses from product liability and similar claims, and changes in government programs

or regulatory requirements (including policies concerning approvals of new drugs, medical devices or procedures). In addition, pricing pressure within the health care industries, including as the result of increased competition, changes in governmental and private reimbursement rates and payment systems (such as increased use of managed care arrangements) or other reforms, may be more likely to adversely affect the fund than if the fund were more widely diversified.

- **Derivatives.** We may engage in a variety of transactions involving derivatives, such as futures, options, certain foreign currency transactions, warrants and swap contracts. Derivatives are financial instruments whose value depends upon, or is derived from, the value of something else, such as one or more underlying investments, pools of investments, indexes or currencies. We may make use of "short" derivatives positions, the values of which typically move in the opposite direction from the price of the underlying investment, pool of investments, index or currency. We may use derivatives both for hedging and non-hedging purposes. For example, we may use foreign currency transactions to increase or decrease the fund's exposure to a particular currency or group of currencies. We may also use derivatives as a substitute for a direct investment in the securities of one or more issuers. However, we may also choose not to use derivatives based on our evaluation of market conditions or the availability of suitable derivatives. Investments in derivatives may be applied toward meeting a requirement to invest in a particular kind of investment if the derivatives have economic characteristics similar to that investment.

Derivatives involve special risks and may result in losses. The successful use of derivatives depends on our ability to manage these sophisticated instruments. Some derivatives are "leveraged," which means they provide the fund with investment exposure greater than the value of the fund's investment in the derivatives. As a result, these derivatives may magnify or otherwise increase investment losses to the fund. The risk of loss from certain short derivatives positions is theoretically unlimited. The value of derivatives may move in unexpected ways due to the use of leverage or other factors, especially in unusual market conditions, and may result in increased volatility.

Other risks arise from the potential inability to terminate or sell derivatives positions. A liquid secondary market may not always exist for the fund's derivatives positions. In fact, many over-the-counter instruments (investments not traded on an exchange) will not be liquid. Over-the-counter instruments also involve the risk that the other party to the derivatives transaction will not meet its obligations. For further information about additional types and risks of derivatives and the fund's asset segregation policies, see *Miscellaneous Investments, Investment Practices and Risks* in the Statement of Additional Information (SAI).

- **Small and midsize companies.** These companies, some of which may have a market capitalization of less than \$1 billion, are more likely than larger companies to have limited product

lines, markets or financial resources, lack profitability or depend on a small management group. Stocks of these companies often trade in smaller volumes, and their prices may fluctuate more than stocks of larger companies. Stocks of small and midsize companies may therefore be more vulnerable to adverse developments than those of larger companies. In addition, stocks of small and midsize companies, at times, may not perform as well as stocks of larger companies or the stock market in general, and may be out of favor with investors for varying periods of time. Small companies in foreign countries could be relatively smaller than those in the United States.

- **Liquidity and illiquid investments.** We may invest up to 15% of the fund's assets in illiquid investments, which may be considered speculative and which may be difficult to sell. The sale of many of these investments is prohibited or limited by law or contract. Some investments may be difficult to value for purposes of determining the fund's net asset value. We may not be able to sell the fund's investments when we consider it desirable to do so, or we may be able to sell them only at less than their value.
- **Market risk.** The value of investments in the fund's portfolio may fall or fail to rise over extended periods of time for a variety of reasons, including general economic, political or financial market conditions; investor sentiment and market perceptions (including perceptions about monetary policy, interest rates or the risk of default); government actions (including protectionist measures, intervention in the financial markets or other regulation, and changes in fiscal, monetary or tax policies); geopolitical events or changes (including natural disasters, epidemics or pandemics, terrorism and war); and factors related to a specific issuer, geography, industry or sector. Foreign financial markets have their own market risks, and they may be more or less volatile than U.S. markets and may move in different directions. These and other factors may lead to increased volatility and reduced liquidity in the fund's portfolio holdings. During those periods, the fund may experience high levels of shareholder redemptions, and may have to sell securities at times when it would otherwise not do so, and at unfavorable prices.
- **Short sales.** We may engage in short sales, which are transactions in which the fund sells a security it does not own to a third party by borrowing the security in anticipation of purchasing the same security at the market price on a later date to close out the short position. The price the fund pays at the later date may be more or less than the price at which the fund sold the security. If the price of the security sold short increases between the time of the short sale and the time the fund replaces the borrowed security, the fund will incur a loss that is theoretically unlimited. The fund's investment strategy of reinvesting proceeds received from selling securities short may effectively create leverage, which can amplify the effects of market volatility on the fund's share price and make the fund's returns more volatile. This is because leverage tends to magnify the effect of any increase or decrease in the value of the fund's portfolio securities. The use of leverage may also cause the fund to liquidate portfolio positions

when it would not be advantageous to do so in order to satisfy its obligations.

- **Management and operational risk.** The fund is actively managed and its performance will reflect, in part, our ability to make investment decisions that seek to achieve the fund's investment objective. There is no guarantee that the investment techniques, analyses, or judgments that we apply in making investment decisions for the fund will produce the intended outcome or that the investments we select for the fund will perform as well as other securities that were not selected for the fund. As a result, the fund may underperform its benchmark or other funds with a similar investment goal and may realize losses. In addition, we, or the fund's other service providers, may experience disruptions or operating errors that could negatively impact the fund. Although service providers are required to have appropriate operational risk management policies and procedures, and to take appropriate precautions to avoid and mitigate risks that could lead to disruptions and operating errors, it may not be possible to identify all of the operational risks that may affect the fund or to develop processes and controls to completely eliminate or mitigate their occurrence or effects.
- **Other investments.** In addition to the main investment strategies described above, the fund may make other types of investments, such as investments in preferred stocks, convertible securities, and debt instruments. The fund may also loan portfolio securities to earn income. These practices may be subject to other risks, as described under *Miscellaneous Investments, Investment Practices and Risks* in the SAI.
- **Temporary defensive strategies.** In response to adverse market, economic, political or other conditions, we may take temporary defensive positions, such as investing some or all of the fund's assets in cash and cash equivalents, that differ from the fund's usual investment strategies. However, we may choose not to use these temporary defensive strategies for a variety of reasons, even in very volatile market conditions. These strategies may cause the fund to miss out on investment opportunities, and may prevent the fund from achieving its goal. Additionally, while temporary defensive strategies are mainly designed to limit losses, such strategies may not work as intended.
- **Changes in policies.** The Trustees may change the fund's goal, investment strategies and other policies set forth in this prospectus without shareholder approval, except as otherwise provided in the prospectus or SAI.
- **Portfolio turnover rate.** The fund's portfolio turnover rate measures how frequently the fund buys and sells investments. A portfolio turnover rate of 100%, for example, would mean that the fund sold and replaced securities valued at 100% of the fund's assets within a one-year period.

From time to time the fund may engage in frequent trading.

High turnover may also cause a fund to pay more brokerage commissions and other transaction costs, which may detract from performance. The fund's portfolio turnover rate and the

amount of brokerage commissions it pays will vary over time based on market conditions.

- **Portfolio holdings.** The SAI includes a description of the fund’s policies with respect to the disclosure of its portfolio holdings. For more specific information on the fund’s portfolio, you may visit the Putnam Investments website, putnam.com/individual/annuities, where the fund’s top 10 holdings and related portfolio information may be viewed monthly beginning approximately 15 days after the end of each month, and full portfolio holdings may be viewed beginning quarterly on the 8th business day after the end of each calendar quarter. This information will remain available on the website at least until the fund files a Form N-CSR or publicly available Form N-PORT with the SEC for the period that includes the date of the information, after which such information can be found on the SEC’s website at <http://www.sec.gov>.

Who oversees and manages the fund?

The fund’s Trustees

As a shareholder of a mutual fund, you have certain rights and protections, including representation by a Board of Trustees. The Putnam Funds’ Board of Trustees oversees the general conduct of the fund’s business and represents the interests of the Putnam fund shareholders. At least 75% of the members of the Putnam Funds’ Board of Trustees are independent, which means they are not officers of the fund or affiliated with Putnam Investment Management, LLC (Putnam Management).

The Trustees periodically review the fund’s investment performance and the quality of other services such as administration, custody, and investor services. At least annually, the Trustees review the fees paid to Putnam Management and its affiliates for providing or overseeing these services, as well as the overall level of the fund’s operating expenses. In carrying out their responsibilities, the Trustees are assisted by an administrative staff, auditors and legal counsel that are selected by the Trustees and are independent of Putnam Management and its affiliates.

Contacting the fund’s Trustees

Address correspondence to:
The Putnam Funds Trustees
100 Federal Street
Boston, MA 02110

The fund’s investment manager

The Trustees have retained Putnam Management, which has managed mutual funds since 1937, to be the fund’s investment manager, responsible for making investment decisions for the fund and managing the fund’s other affairs and business.

The basis for the Trustees’ approval of the fund’s management contract and the sub-management and sub-advisory contracts described below is discussed in the fund’s semiannual report to shareholders dated June 30, 2019.

The fund pays a monthly management fee to Putnam Management. The fee is calculated by applying a rate to the fund’s average net assets for the month. The rate is based on the monthly average of the aggregate net assets of all open-end funds sponsored by Putnam Management (excluding net assets of funds that are invested in, or that are invested in by, other Putnam funds to the extent necessary to avoid “double counting” of those assets), and generally declines as the aggregate net assets increase.

The fund paid Putnam Management a management fee (after any applicable waivers) of 0.62% of average net assets for the fund’s last fiscal year.

Putnam Management’s address is 100 Federal Street, Boston, MA 02110.

Putnam Management has retained its affiliate PIL to make investment decisions for such fund assets as may be designated from time to time for its management by Putnam Management. PIL is not currently managing any fund assets. If PIL were to manage any fund assets, Putnam Management (and not the fund) would pay a quarterly sub-management fee to PIL for its services at the annual rate of 0.35% of the average net asset value (NAV) of any fund assets managed by PIL. PIL, which provides a full range of international investment advisory services to institutional clients, is located at 16 St James’s Street, London, England, SW1A 1ER.

Putnam Management and PIL have retained their affiliate PAC to make investment decisions for such fund assets as may be designated from time to time for its management by Putnam Management or PIL, as applicable. PAC is not currently managing any fund assets. If PAC were to manage any fund assets, Putnam Management or PIL, as applicable (and not the fund), would pay a quarterly sub-advisory fee to PAC for its services at the annual rate of 0.35% of the average NAV of any fund assets managed by PAC. PAC, which provides financial services to institutions and individuals through separately-managed accounts and pooled investment vehicles, has its headquarters at 100 Federal Street, Boston, MA 02110, with additional investment management personnel located in Singapore.

Pursuant to these arrangements, Putnam investment professionals who are based in foreign jurisdictions may serve as portfolio managers of the fund or provide other investment services, consistent with local regulations.

- **Portfolio manager.** The officer of Putnam Management identified below is primarily responsible for the day-to-day management of the fund’s portfolio.

Portfolio manager	Joined fund	Employer	Positions over past five years
Michael Maguire	2016	Putnam Management 2009 – Present	Portfolio Manager, Analyst

The SAI provides information about this individual's compensation, other accounts managed by this individual and this individual's ownership of securities in the fund.

How to buy and sell fund shares

The Trust has an underwriting agreement relating to the fund with Putnam Retail Management, 100 Federal Street, Boston, Massachusetts 02110. Putnam Retail Management presently offers shares of the fund continuously to separate accounts of various insurers. The underwriting agreement presently provides that Putnam Retail Management accepts orders for shares at NAV and no sales commission or load is charged.

Shares are sold or redeemed at the NAV per share next determined after receipt of an order. Orders for purchases or sales of shares of the fund must be received by Putnam Retail Management before the close of regular trading on the NYSE in order to receive that day's NAV. No fee is charged to a separate account when it redeems fund shares.

Please check with your insurance company to determine whether the fund is available under your variable annuity contract or variable life insurance policy. The fund may not be available in your state due to various insurance regulations. This prospectus should be read in conjunction with the prospectus of the separate account of the specific insurance product which accompanies this prospectus.

The fund currently does not foresee any disadvantages to policy owners arising out of the fact that the fund offers its shares to separate accounts of various insurance companies to serve as the investment medium for their variable products. Nevertheless, the Trustees intend to monitor events in order to identify any material irreconcilable conflicts which may possibly arise, and to determine what action, if any, should be taken in response to such conflicts. If such a conflict were to occur, one or more insurance companies' separate accounts might be required to withdraw their investments in the fund and shares of another fund may be substituted. This might force the fund to sell portfolio securities at disadvantageous prices. In addition, the Trustees may refuse to sell shares of the fund to any separate account or may suspend or terminate the offering of shares of the fund if such action is required by law or regulatory authority or is in the best interests of the shareholders of the fund.

The fund typically expects to send you payment for your shares one business day after your request is received in good order. However, it is possible that payment of redemption proceeds may take up to seven days. Under unusual circumstances, the Trust may suspend redemptions or postpone payment for more than seven days, as permitted by federal securities law. Under normal market conditions, the fund typically expects to satisfy redemption requests by using holdings of cash and cash equivalents or selling portfolio assets to generate cash. Under stressed market conditions, the fund may also satisfy redemption requests by borrowing under the fund's lines of credit or interfund lending

arrangements. For additional information regarding the fund's lines of credit and interfund lending arrangements, please see the SAI.

To the extent consistent with applicable laws and regulations, the fund reserves the right to satisfy all or a portion of a redemption request by distributing securities or other property in lieu of cash ("in-kind" redemptions), under both normal and stressed market conditions. The fund generally expects to use in-kind redemptions only in stressed market conditions or stressed conditions specific to the fund, such as redemption requests that represent a large percentage of the fund's net assets in order to minimize the effect of the large redemption on the fund and its remaining shareholders. Any in-kind redemption will be effected through a pro rata distribution of all publicly traded portfolio securities or securities for which quoted bid prices are available, subject to certain exceptions. The securities distributed in an in-kind redemption will be valued in the same manner as they are valued for purposes of computing the fund's net asset value. Once distributed in-kind to an investor, securities may increase or decrease in value before the investor is able to convert them into cash. Any transaction costs or other expenses involved in liquidating securities received in an in-kind redemption will be borne by the redeeming investor. The fund has committed, in connection with an election under Rule 18f-1 under the Investment Company Act of 1940, to pay all redemptions of fund shares by a single shareholder during any 90-day period in cash, up to the lesser of (i) \$250,000 or (ii) 1% of the fund's net assets measured as of the beginning of such 90-day period. For information regarding procedures for in-kind redemptions, please contact Putnam Retail Management.

How does the fund price its shares?

The price of the fund's shares is based on its NAV. The NAV per share of each class equals the total value of its assets, less its liabilities, divided by the number of its outstanding shares. Shares are only valued as of the scheduled close of regular trading on the NYSE each day the exchange is open.

The fund values its investments for which market quotations are readily available at market value. It values all other investments and assets at their fair value, which may differ from recent market prices. For example, the fund may value a stock at its fair value when the relevant exchange closes early or trading in the stock is suspended. It may also value a stock at fair value if recent transactions in the stock have been very limited or if, in the case of a security traded on a market that closes before the NYSE closes, material information about the issuer becomes available after the close of the relevant market.

The fund translates prices for its investments quoted in foreign currencies into U.S. dollars at current exchange rates, which are generally determined as of 4:00 p.m. Eastern Time each day the NYSE is open. As a result, changes in the value of those currencies in relation to the U.S. dollar may affect the fund's NAV. Because

foreign markets may be open at different times than the NYSE, the value of the fund's shares may change on days when shareholders are not able to buy or sell them. Many securities markets and exchanges outside the U.S. close before the close of the NYSE, and the closing prices for securities in those markets or exchanges may not reflect events that occur after the close but before the scheduled close of regular trading on the NYSE. As a result, the fund has adopted fair value pricing procedures, which, among other things, require the fund to fair value foreign equity securities if there has been a movement in the U.S. market that exceeds a specified threshold. Although the threshold may be revised from time to time and the number of days on which fair value prices will be used will depend on market activity, it is possible that fair value prices will be used by the fund to a significant extent. As noted above, the value determined for an investment using the fund's fair value pricing procedures may differ from recent market prices for the investment.

Distribution plan and payments to dealers

The Trust has adopted a Distribution Plan with respect to class IB shares to compensate Putnam Retail Management for services provided and expenses incurred by it as principal underwriter of the class IB shares, including the payments to insurance companies and their affiliated dealers mentioned below. The plan provides for payments by the fund to Putnam Retail Management at the annual rate (expressed as a percentage of average net assets) of up to 0.35% on class IB shares. The Trustees currently limit payments on class IB shares to 0.25% of average net assets. Because these fees are paid out of the fund's assets on an ongoing basis, they will increase the cost of your investment.

Putnam Retail Management compensates insurance companies (or affiliated broker-dealers) whose separate accounts invest in the Trust through class IB shares for providing services to their contract holders investing in the Trust.

Putnam Retail Management makes quarterly payments to dealers at the annual rate of up to 0.25% of the average NAV of class IB shares.

Putnam Retail Management may suspend or modify its payments to dealers. The payments are also subject to the continuation of the Distribution Plan, the terms of service agreements between dealers and Putnam Retail Management, and any applicable limits imposed by the Financial Industry Regulatory Authority (FINRA).

In addition to the payments described above with respect to class IB shares, Putnam Retail Management and its affiliates also pay additional compensation to selected insurance companies (or affiliated broker-dealers) to whom shares of the fund are offered ("Record Owners") and to dealers that sell variable insurance products ("dealers") in recognition of their marketing and/or administrative services support. These payments may create an incentive for a Record Owner firm, dealer firm or their representatives to recommend or offer shares of the fund or

other Putnam funds, or insurance products for which the fund serves as an underlying investment, to its customers. These additional payments are made by Putnam Retail Management and its affiliates and do not increase the amount paid by you or the fund as shown under *Fund summary — Fees and expenses*.

The additional payments to Record Owners and dealers by Putnam Retail Management and its affiliates are generally based on one or more of the following factors: average net assets of the fund attributable to that Record Owner or dealer, sales or net sales of the fund attributable to that Record Owner or dealer, or on the basis of a negotiated lump sum payment for services provided. Payments made by Putnam Retail Management and its affiliates for marketing and/or administrative support services to any one Record Owner or dealer are not expected, with certain limited exceptions, to exceed 0.25% of the average assets of the fund attributable to that Record Owner or dealer on an annual basis. These payments are made for marketing and/or administrative support services provided by Record Owners and dealers, including business planning assistance, educating dealer personnel about the fund and shareholder financial planning needs, placement on the dealer's preferred or recommended fund company list, access to sales meetings, sales representatives and management representatives of the dealer and administrative services performed by the Record Owner or dealer. Putnam Retail Management and its affiliates may make other payments (including payments in connection with educational seminars or conferences) or allow other promotional incentives to Record Owners and dealers to the extent permitted by SEC and National Association of Security Dealers, Inc. (as adopted by FINRA) rules and by other applicable laws and regulations.

You can find a list of all Record Owners and dealers to which Putnam made marketing and/or administrative support services payments in 2019 in the SAI, which is on file with the SEC and is also available on Putnam's website at putnam.com. You can also find other details in the SAI about the payments made by Putnam Retail Management and its affiliates and the services provided by your Record Owner or dealer. In addition, you can ask your Record Owner or dealer for information about any payments it receives from Putnam Retail Management and its affiliates and any services provided by your Record Owner or dealer.

Policy on excessive short-term trading

- **Risks of excessive short-term trading.** Excessive short-term trading activity may reduce the fund's performance and harm all fund shareholders by interfering with portfolio management, increasing the fund's expenses and diluting the fund's NAV. Depending on the size and frequency of short-term trades in the fund's shares, the fund may experience increased cash volatility, which could require the fund to maintain undesirably large cash positions or buy or sell portfolio securities it would not have bought or sold otherwise. The need to execute additional

portfolio transactions due to these cash flows may also increase the fund's brokerage and administrative costs.

Because the fund invests in foreign securities, its performance may be adversely impacted and the interests of longer-term shareholders may be diluted as a result of time-zone arbitrage, a short-term trading practice that seeks to exploit changes in the value of the fund's investments that result from events occurring after the close of the foreign markets on which the investments trade, but prior to the later close of trading on the NYSE, the time as of which the fund determines its NAV. If an arbitrageur is successful, he or she may dilute the interests of other shareholders by trading shares at prices that do not fully reflect their fair value.

Because the fund invests in securities that may trade infrequently or may be more difficult to value, such as securities of smaller companies, it may be susceptible to trading by short-term traders who seek to exploit perceived price inefficiencies in the fund's investments. In addition, the market for securities of smaller companies may at times show "market momentum," in which positive or negative performance may continue from one day to the next for reasons unrelated to the fundamentals of the issuer. Short-term traders may seek to capture this momentum by trading frequently in the fund's shares, which will reduce the fund's performance and may dilute the interests of other shareholders. Because securities of smaller companies may be less liquid than securities of larger companies, the fund may also be unable to buy or sell these securities at desirable prices when the need arises (for example, in response to volatile cash flows caused by short-term trading). Similar risks may apply if the fund holds other types of less liquid securities, including below-investment-grade bonds.

- **Fund policies and limitations.** In order to protect the interests of long-term shareholders of the fund, Putnam Management and the fund's Trustees have adopted policies and procedures intended to discourage excessive short-term trading. The fund seeks to discourage excessive short-term trading by using fair value pricing procedures to value investments under some circumstances. In addition, Putnam Management monitors aggregate cash flows in each insurance company separate account that invests in the fund. If high cash flows relative to the size of the account or other information indicate that excessive short-term trading may be taking place in a particular separate account, Putnam Management will contact the insurance company that maintains accounts for the underlying contract holders and seek to have the insurance company enforce the separate account's policies on excessive short-term trading. As noted below, each insurance company's policies on excessive short-term trading will vary, and some insurance companies may not have adopted specific policies on excessive short-term trading.

As noted above, the fund's shareholders are separate accounts sponsored by various insurance companies. Because Putnam Management currently does not have comprehensive access to trading records of individual contract holders, it is difficult (and in some cases impossible) for Putnam Management to determine if a particular contract holder is engaging in excessive short-term trading. In certain circumstances, there currently are also operational or technological constraints on Putnam Management's ability to monitor trading activity. In addition, even in circumstances when Putnam Management has access to sufficient information to permit a review of trading, its detection methods may not capture all excessive short-term trading.

As a result of these limitations, the fund's ability to monitor and deter excessive short-term trading ultimately depends on the capabilities, policies and cooperation of the insurance companies that sponsor the separate accounts. Some of the separate accounts have adopted transfer fees, limits on exchange activity, or other measures to attempt to address the potential for excessive short-term trading, while other separate accounts currently have not. For more information about any measures applicable to your investment, please see the prospectus of the separate account of the specific insurance product that accompanies this prospectus. The measures used by Putnam Management or a separate account may or may not be effective in deterring excessive short-term trading. In addition, the terms of the particular insurance contract may also limit the ability of the insurance company to address excessive short-term trading. As a result, the fund can give no assurances that market timing and excessive short-term trading will not occur in the fund.

In compliance with Rule 22c-2 under the Investment Company Act of 1940, as amended, Putnam Retail Management and Putnam Investor Services, on behalf of the fund, have entered into written agreements with the fund's financial intermediaries, under which the intermediary must, upon request, provide the fund with certain shareholder identity and trading information so that the fund can enforce its market timing policies.

- **Account monitoring.** In instances where trading records of individual contract holders are made available to Putnam Management, Putnam Management measures excessive short-term trading by the number of "round trip" transactions above a specified dollar amount within a specified period of time. A "round trip" transaction is defined as a transfer into a fund followed, or preceded, by a transfer out of the same fund. A transfer is defined as a transaction requested by the contract owner to reallocate part or all of their contract value among the funds available in the contract. Generally, if a contract holder has been identified as having completed two "round trip" transactions with values above a specified amount within a rolling 90-day period, Putnam Management will request that the separate account's financial intermediary issue a written warning to the contract holder. Putnam Management's practices for measuring excessive short-term trading activity and requesting warnings

to be issued may change from time to time. Certain types of transactions are exempt from monitoring, such as transfers that are executed automatically pursuant to a company-sponsored contractual or systematic program such as transfer of assets as a result of “dollar cost averaging” programs, asset allocation programs or automatic rebalancing programs. Also exempt are annuity payouts, loans, and systematic withdrawal programs; payment of a death benefit; any deduction of fees; or payments such as loan repayments, scheduled contributions, withdrawals or surrenders; retirement plan salary reduction contributions or planned premium payments.

- **Account restrictions.** In addition to these monitoring practices, Putnam Management and the fund reserve the right to reject or restrict transfers for any reason. Continued excessive short-term trading activity by a contract holder following a warning may lead to the termination of the transfer privilege for that contract holder or the insurance company separate account. Putnam Management or the fund may determine that a contract holder’s trading activity is excessive or otherwise potentially harmful based on various factors, including trading history in the fund, other Putnam funds or other investment products, and may aggregate activity in multiple accounts in the fund or other Putnam funds under common ownership or control for purposes of determining whether the activity is excessive. If the fund identifies a contract holder as a potential excessive trader, depending on the capabilities of the intermediary, it may, among other things, require future trades by the contract holder or the insurance company separate account to be submitted by mail rather than by phone or over the Internet, impose limitations on the amount, number, or frequency of future purchases or exchanges, or temporarily or permanently bar the contract holder or insurance company separate account from investing in the fund or other Putnam funds. The fund may take these steps in its discretion even if the contract holder’s activity does not fall within the fund’s current monitoring parameters.

Fund distributions and taxes

The fund normally distributes any net investment income and any net realized capital gains annually. Distributions will be reinvested in additional shares of the fund, unless an election is made on behalf of a separate account to receive some or all of the distributions in cash.

Distributions are reinvested without a sales charge, using the NAV determined on the ex-dividend date. Distributions on each share are determined in the same manner and are paid in the same amount, regardless of class, except for such differences as are attributable to different class expenses.

Generally, holders of variable annuity and variable life insurance contracts are not taxed currently on income or gains realized with respect to such contracts. However, some distributions from such contracts may be taxable at ordinary income tax rates. In addition, distributions made to a contract holder who is younger

than 59½ may be subject to a 10% penalty tax. Investors should ask their own tax advisors for more information on their own tax situation, including possible foreign, state or local taxes.

In order for investors to receive the favorable tax treatment available to holders of variable annuity and variable life insurance contracts, the separate accounts underlying such contracts, as well as the funds in which such accounts invest, must meet certain diversification requirements. The fund intends to diversify its assets in accordance with these requirements. If the fund does not meet such requirements, income allocable to the contracts would be taxable currently to the holders of such contracts. In addition, if the Internal Revenue Service finds an impermissible level of “investor control” over the investment options underlying variable annuity or variable life insurance contracts, the advantageous tax treatment provided with respect to insurance company separate accounts under the Internal Revenue Code of 1986, as amended, will no longer be available. Please see the SAI for further discussion.

The fund intends to qualify as a “regulated investment company” for federal income tax purposes and to meet all other requirements necessary for it to be relieved of federal income taxes on income and gains it timely distributes to the separate accounts. For information concerning federal income tax consequences for the holders of variable annuity contracts and variable life insurance policies, contract holders should consult the prospectus of the applicable separate account.

The fund’s investments in foreign securities may be subject to foreign withholding or other taxes. In that case, the fund’s return on those investments would be decreased.

The fund’s use of derivatives, if any, may affect the amount and timing of distributions to shareholders, potentially requiring the fund to liquidate other investments, including when it is not advantageous to do so, in order to satisfy its distribution requirements.

The foregoing discussion is very general and is based on the assumption that the shareholders in the fund will be insurance company separate accounts. For further information, please see *Taxes* in the SAI.

Information about the Summary Prospectus, Prospectus, and SAI

The summary prospectus, prospectus, and SAI for a fund provide information concerning the fund. The summary prospectus, prospectus, and SAI are updated at least annually and any information provided in a summary prospectus, prospectus, or SAI can be changed without a shareholder vote unless specifically stated otherwise. The summary prospectus, prospectus, and the SAI are not contracts between the fund and its shareholders and do not give rise to any contractual rights or obligations or any shareholder rights other than any rights conferred explicitly by federal or state securities laws that may not be waived.

Financial highlights

The financial highlights tables are intended to help you understand the fund's recent financial performance. Certain information reflects financial results for a single fund share. The total returns represent the rate that an investor would have earned or lost on an investment in the fund, assuming reinvestment of all dividends and distributions. Total returns and expense ratios do not reflect insurance related charges or expenses; if these charges and expenses were reflected, performance would be lower and expenses would be higher. This information has been derived from the fund's financial statements, which have been audited by PricewaterhouseCoopers LLP. The Independent Registered Public Accounting Firm's report and the fund's financial statements are included in the fund's annual report to shareholders, which is available upon request.

Financial highlights (For a common share outstanding throughout the period)

Period ended	INVESTMENT OPERATIONS:				LESS DISTRIBUTIONS:			RATIOS AND SUPPLEMENTAL DATA:					
	Net asset value, beginning of period	Net investment income (loss) ^a	Net realized and unrealized gain (loss) on investments	Total from investment operations	From net investment income	From net realized gain on investments	Total distributions	Net asset value, end of period	Total return at net asset value (%) ^{b, c}	Net assets, end of period (in thousands)	Ratio of expenses to average net assets (%) ^{b, d}	Ratio of net investment income (loss) to average net assets (%)	Portfolio turnover (%)
Class IA													
12/31/19	\$13.92	.15	3.97	4.12	(.04)	(.68)	(.72)	\$17.32	30.58	\$46,266	.77	1.01	86
12/31/18	16.92	.11	(.17)	(.06)	(.21)	(2.73)	(2.94)	13.92	(.29)	40,061	.77	.69	54
12/31/17	16.10	.13	2.29	2.42	(.14)	(1.46)	(1.60)	16.92	15.60	45,157	.78	.79	60
12/31/16	20.52	.13	(2.41)	(2.28)	—	(2.14)	(2.14)	16.10	(11.14)	44,197	.77 ^e	.78 ^e	24
12/31/15	20.52	.12	1.57	1.69	—	(1.69)	(1.69)	20.52	8.06	63,810	.75	.57	16
Class IB													
12/31/19	\$13.44	.11	3.83	3.94	—	(.68)	(.68)	\$16.70	30.29	\$102,025	1.02	.76	86
12/31/18	16.44	.07	(.18)	(.11)	(.16)	(2.73)	(2.89)	13.44	(.59)	88,885	1.02	.45	54
12/31/17	15.68	.09	2.22	2.31	(.09)	(1.46)	(1.55)	16.44	15.30	97,792	1.03	.54	60
12/31/16	20.09	.09	(2.36)	(2.27)	—	(2.14)	(2.14)	15.68	(11.35)	93,369	1.02 ^e	.53 ^e	24
12/31/15	20.17	.06	1.55	1.61	—	(1.69)	(1.69)	20.09	7.79	134,481	1.00	.31	16

^a Per share net investment income (loss) has been determined on the basis of the weighted average number of shares outstanding during the period.

^b The charges and expenses at the insurance company separate account level are not reflected.

^c Total return assumes dividend reinvestment.

^d Includes amounts paid through expense offset and brokerage/service arrangements, if any. Also excludes acquired fund fees and expenses, if any.

^e Reflects a voluntary waiver of certain fund expenses in effect during the period. As a result of such waivers, the expenses of each class reflect a reduction of less than .01% as a percentage of average net assets per share for each class.

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For more information about Putnam VT Global Health Care Fund

The fund's SAI and annual and semiannual reports to shareholders include additional information about the fund. The SAI, and the auditor's report and the financial statements included in the fund's most recent annual report to shareholders, are incorporated by reference into this prospectus, which means they are part of this prospectus for legal purposes. The fund's annual report discusses the market conditions and investment strategies that significantly affected the fund's performance during its last fiscal year. You may get free copies of these materials, request other information about any Putnam fund, or make shareholder inquiries, by contacting your financial representative, by visiting Putnam's website at putnam.com/individual/annuities, or by calling Putnam toll-free at 1-800-225-1581.

You may access reports and other information about the fund on the EDGAR Database on the Securities and Exchange Commission's website at <http://www.sec.gov>. You may get copies of this information, with payment of a duplication fee, by electronic request at the following E-mail address: publicinfo@sec.gov. You may need to refer to the fund's file number.

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