

Factors Influencing on Consumers' Decision Making in Purchasing Drug Coated Balloon

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Abstract

The objectives of the study are to 1) identify and analyze the factors that influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand. 2) further provide recommendations for people related to the medical devices industry and recommendations for further research and 3) use the results for company's marketing plans to introduce the Drug-Coated Balloon to Thai market. The target group of this research are patients, who has Peripheral artery disease (PAD) living in Bangkok. There are a total of 225 hospitals to maintain the right proportion of public and private hospitals in different area of Bangkok and choose total 8 hospitals from the northern, southern, eastern, and western part of Bangkok from a total of 253 patients. The questionnaires composed of 4 sections, which are demographic background, marketing mix, health conditions, and consumers' decision making.

For the demographic factor the results show that from all 7 demographic factors there are 4 factors (57%) that the results show to have relationship with consumers' decision making in purchasing drug coated balloon, which are, age, education, reimbursement, and income. For marketing mix factors the results show that all 4 marketing factors don't have relationship with consumers' decision making in purchasing drug coated balloon. For health conditions factors from all 5 factors only duration of illness and other disease factor (40%) have an influence to consumers' decision making in purchasing drug coated balloon.

Keywords: Peripheral artery disease; Drug coated balloon; Consumers' decision making

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ปัจจัยที่มีอิทธิพลต่อการตัดสินใจเลือกซื้อบอลลูนชนิดเคลือบยาของผู้บริโภค

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บทคัดย่อ

การวิจัยนี้เป็นการวิจัยเชิงปริมาณ มีวัตถุประสงค์เพื่อ 1. พิสูจน์และวิเคราะห์ปัจจัยที่มีอิทธิพลต่อการตัดสินใจเลือกซื้อบอลลูนชนิดเคลือบยาในเขตกรุงเทพมหานคร 2. นำผลวิจัยที่ได้ไปแนะนำบุคคลที่อยู่ในวงการธุรกิจอุตสาหกรรมเครื่องมือแพทย์, และการทำวิจัยในอนาคต และ 3. โดยนำผลการวิจัยที่ได้ไปใช้ในการวางแผนทางการตลาดเพื่อโปรโมทสินค้า โดยใช้กลุ่มตัวอย่าง เป็นกลุ่มผู้ป่วยที่มีปัญหาเรื่องหลอดเลือดส่วนปลายตีบ ในโรงพยาบาลในเขตกรุงเทพมหานคร รวมทั้งสิ้น 225 แห่ง จากโรงพยาบาลของรัฐ และ โรงพยาบาลเอกชน จากทางตอนเหนือ ตอนใต้ ตะวันออก และตะวันตก ของกรุงเทพฯ จากกลุ่มตัวอย่างจำนวน 253 ราย โดยแบบสอบถามประกอบด้วย 4 ส่วนคือ 1) ด้านประชากรศาสตร์ด้านการตลาดสุขภาพและ การตัดสินใจของผู้บริโภค 2) เกี่ยวกับการผสมผสานด้านการตลาด 3) เป็นเรื่องเกี่ยวกับภาวะสุขภาพ และ 4) เกี่ยวกับการตัดสินใจของผู้บริโภค โดยใช้โปรแกรมสถิติในการวิเคราะห์ประมวลผล

ผลการวิจัยพบว่า

จำนวนประชากร 4 ใน 7 ขององค์ประกอบซึ่งได้แก่ อายุ, การศึกษา, การชำระเงินคืน, รายได้ มีความสัมพันธ์ต่อการตัดสินใจเลือกซื้อบอลลูนชนิดเคลือบยา สำหรับองค์ประกอบที่สำคัญในการดำเนินงานการตลาดไม่มีความสัมพันธ์ต่อการตัดสินใจเลือกซื้อบอลลูนชนิดเคลือบยา และมีเพียงองค์ประกอบเดียวทางด้านภาวะสุขภาพ คือ ระยะเวลาของการเจ็บป่วยที่มีผลต่อการตัดสินใจเลือกซื้อบอลลูนชนิดเคลือบยา

คำสำคัญ: หลอดเลือดส่วนปลายตีบ; บอลลูนชนิดเคลือบยา; การตัดสินใจของผู้บริโภค

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Introduction

The Asia-Pacific market is a great opportunity for medical device producers. The region was the fastest growing medical device market, rising at a rate of 10% from 2008 to 2014 and settling at US\$90,916.5 billion in 2014. The market growth was catalyzed by the accelerate expansion rate of the healthcare industry, as

the revenue of medical service industry in Asia Pacific has been rising at a rate of 8% in USD from 2008 to 2014, representing the highest growth in the regions worldwide. The revenue growth in the regional healthcare industry is expected to continue an increase in 2016. (Morgan Philips Executive Search, 2016)

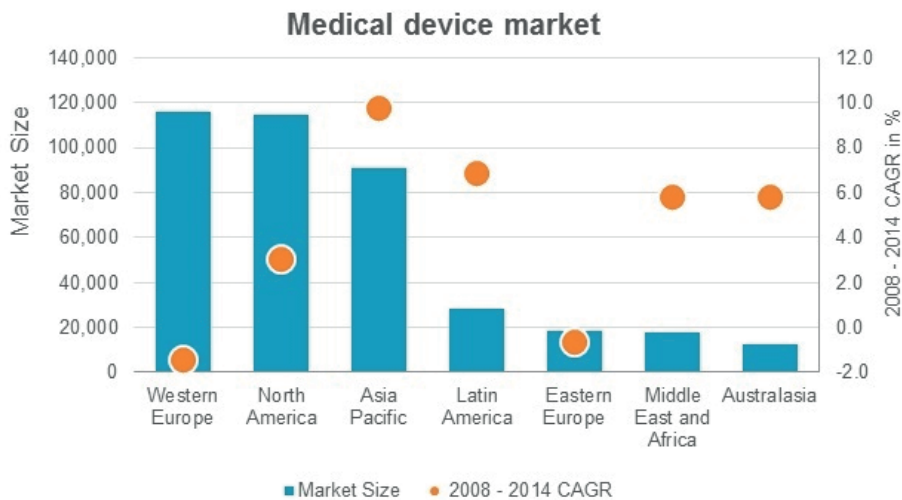


Figure 1 Medical Device Market Growth

Source: Morgan Philips executive Search, 2016: Online

Although the medical equipment market in Asia Pacific has proved difficult to enter, there has been a strong diminishment of market access barriers towards foreign investors recently. Traditionally, international firms have struggled to overcome challenging regulatory procedures, complex tendering for purchasing medical devices, working culture and service, and quality expectations to effectively reach

the hospitals directly, and to provide products that address local needs (like medical equipment designed for smaller body types, or cheaper, yet qualitative instruments). For instance, in January the leading global medical device producer Medtronic announced a partnership with a Chinese municipal government to increase an access to diabetic treatments. Medtronic also plans to invest in

a manufacturing facility in Chengdu, China. (Euro monitor International, 2016)

Drug-Coated Balloon Market

1. Drug-Coated Balloon Market Worldwide

The Global Peripheral Vascular Devices Market is expected to reach USD 8,918.8 million by 2020, growing at an estimated CAGR (Compound Annual Growth Rate) of 7.2% from 2014 to 2020, according to a new study by Grand View Research, Inc. The growing global geriatric population has triggered incidence rates of target diseases, increased presence of both private and public external funding programs, lifestyle changing and eating habits are expected to be crucial driving factors for this market in the next six years. Also, the untapped potential of the emerging markets of Asia-Pacific regions, Brazil, India and the ever- growing health awareness are also expected to aid this market with growth opportunities in the foreseeable future.

Peripheral vascular stents dominated the peripheral vascular devices market in terms of shares at over 30.8% in 2013; driven by increasing demand for drug-eluting and bioabsorbable stents. The embolic protection devices market is expected to grow at the fastest CAGR of 9.2%; due to growing demand for minimally invasive endovascular surgical method for removing atherosclerosis from large blood vessels. North America was the largest regional market in 2013, accounting for 40.3% of the global revenue. Presence

of sophisticated healthcare infrastructure, high patient awareness levels, healthcare expenditure and high R&D related to drug discovery and development are some of the factors accounting for its large share. The Asia Pacific peripheral vascular devices market is expected to grow at the fastest CAGR of 10.0% from 2014 to 2020; primarily owing to the wide presence of unmet medical needs coupled with rapidly improving healthcare infrastructure in emerging markets of India and China.

Therefore, it can be seen that there is huge potential for the usage of DCB (Drug Coated Balloon) in the worldwide medical devices market as it is both more efficient and cost-effective compared to the other available procedures and the fact that the market has massive potential for growth. (Bard Peripheral Vascular, 2015)

2. Potential for the Drug-Coated Balloon Market in Thailand

Thailand is one of the countries that have a huge opportunity for medical companies to penetrate the medical equipment-related market due to its large pharmaceutical market, national healthcare access and foreign-friendly regulatory environment. Like other industry countries, Thailand has higher tendency to longer life expectancy. The ageing population come with the prevalent diseases such as Heart disease, Cardiovascular Accident (Stroke), and peripheral artery disease (PAD). The demand for vascular procedures using the drug-coated

balloon (DCB) for treatment is also higher.

A. Thailand Medical Device Market Size

- \$1 billion
- Projected Growth Rate: 12%

B. Thailand Pharmaceutical Market Size

- \$5 billion
- Projected Growth Rate: 5%

C. Thailand Economic Statistics and Demographics

- GDP (PPP): \$1.1 trillion
- Per Capita GDP (PPP): \$16,000
- Real GDP Growth Rate: 2.5%
- Population (millions): 68.7
- Ethnic Diversity: 75% Thai; 14% Chinese; 11% other

According to claims by Pacific Bridge Medical, healthcare expenditures in Thailand reached approximately \$220/person in 2013. Although the application is limited, the national healthcare policy has 99% coverage of medical expenses for Thai population. There are more than 850 public hospitals and almost 600 private hospitals in Thailand. Pacific Bridge Medical claims that there was the investment of a \$1 billion medical device market in Thailand with an annual growth rate of 15% by the end of year 2013. About 66 % of the medical devices currently used in Thailand are imported. Only lower-end devices, such as surgical latex gloves, disposable test kits and syringes are manufactured and supplied domestically.

The growing healthcare and medical devices market combined with the ageing

population of Thailand implies a tremendous growth potential for the usage of Drug-Coated Balloons in Thailand. (Bard Peripheral Vascular, 2015)

Drug-coated balloons can be used in a variety of the treatment of vascular diseases such as a hypertension or diabetes-induced disease and peripheral artery disease (PAD) The main usage of DCBs, however, is with peripheral artery disease which is explained in more detail below. (NIH, 2016)

Peripheral Artery Disease

Peripheral artery disease (PAD) is a disease in which plaque builds up in the arteries that carry blood throughout the body. Plaque is made up of fat, cholesterol, calcium, fibrous tissue, and other blood substances.

When plaque builds up in the arteries, the condition is called atherosclerosis. Over time, plaque can harden and narrow the arteries. This limits the flow of oxygen-rich blood to your organs and other parts of your body.

PAD usually affects the arteries in the legs, but it also can affect the arteries that carry blood from the heart to other organs. This article focuses on PAD that affects blood flow to the legs. (NIH, 2016)

Market Opportunity: Thailand

In 2016, Thailand's health-care expenses grew from \$25.83 to \$27.46 billion compared to 2015 which is a 6.3% increase. Thai health-care expenses grew exponentially over the past 6 years, and it increased from 5.1% to

6.2% from 2010 to 2015. Thailand is one of the most visited destinations for tourists seeking medical attention with a 1.2 million arrivals just in 2014. In the APAC region, Thailand is the 3rd fastest increasing market with a 2015-2020

CAGR of 11.4%. When it comes to the medical device market, Thailand takes the 8th place in the APAC region, with a value of \$1.28 billion in 2015. In Thailand, the market of the medical device production is estimated around \$1,093.

Conceptual Framework

The conceptual framework of the research is shown in the figure below

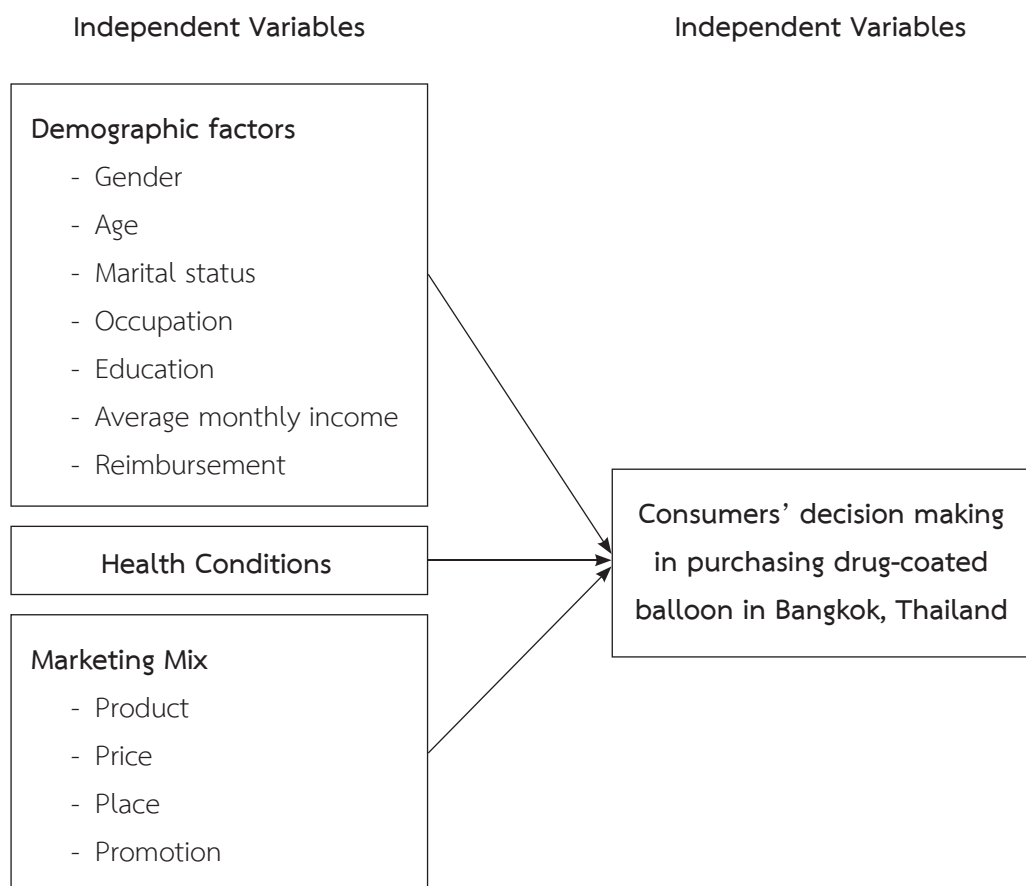


Figure 2 Conceptual Framework

The objectives of the study are to identify and analyze demographic, marketing mix, and health condition factors that influence consumers' decision making in purchasing

drug-coated balloon in Bangkok, Thailand. Then, further provide a recommendation for people who are related to the medical devices industry and implement company's marketing

plans to introduce the Drug-Coated Balloon to Thai market. The target group of this research are patients, who has Peripheral artery disease (PAD) living in Bangkok. The research uses a questionnaire as a tool to collect the data, and apply statistical techniques to analyze the results.

Research Design

This research is a quantitative research. 253 questionnaires have been launched to PAD patients treated in both public and private hospitals in Bangkok, who are willing to cooperate within our research scheme. The questionnaires composed of 4 sections, which are demographic background, marketing mix, health conditions, and consumers' decision making. The first part will be about the demographic background of the respondents. Then, the following section will be about marketing mix, in which this research will focus on 4Ps (product, price, place, promotion). The third section will be about health conditions, and the last one will be about consumer's decision-making.

The researcher chooses the respondents intentionally with specific criteria. The researcher asks for the collaboration from the public and private hospitals in distributing questionnaires to PAD patients living in Bangkok. According to the information from the ministry of public health in 2016 there are a total of 225 hospitals in Bangkok, which 119 (53%) are public hospitals and 106 (47%) are private. Out of 253 questionnaires,

134 questionnaires were collected from respondents at public hospitals, and 119 were collected from respondents at private hospitals to maintain the right proportion of public and private hospitals in Bangkok. The researcher visited hospitals in different area of Bangkok and choose total 8 hospitals from the northern, southern, eastern, and western part of Bangkok 2 hospitals (1 private hospital, and 1 public hospital) from each area.

Research Instrument

The instrument used in this research is the questionnaires. The researcher will distribute questionnaires to 253 PAD patients living in Bangkok to collected data needed for the research, by contacting hospital in Bangkok to ask for their corporation in setting a meeting with patients.

The researcher has come up with the following hypotheses

H1: Demographic factors influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand

H2: Marketing mix factors influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand

H3: Health Conditions influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand

Data Collection

There are two types of data primary data and secondary data, this research uses both primary and secondary data to collect

information use to find the conclusion for the research. Then after gaining the information needed .The two major methods used this research used in collecting data are related researches in literature reviews (secondary data) and the questionnaires that will be distributed to collect data the target group (Primary data).

Data Analysis

After collecting the data, the data will then be transfer into statistical program using statistical techniques to analyze the results. For the descriptive statistics the researcher will use frequency and percentage, and mean and standard deviation techniques to analyze the data. For the inferential statistics the researcher will use chi-square and Chi-Square technique to test hypotheses.

Table 1

Statistical tools used for different type of variables measurement

Question	Type	Method
Demographics	Nominal & Ordinal	Frequency & Percentage
Health Conditions	Nominal & Ordinal	Frequency & Percentage
Marketing Mix (4Ps)	Interval	Mean&Standard deviation
Consumer' Decision-Making	Nominal	Frequency & Percentage

Table 2

Statistical tools that use in this research for testing the hypotheses

Hypothesis	Statistical
H1: Demographic factors influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square
H2: Marketing mix factors influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square
H3: Health Conditions influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square

Result and Discussion

Moving on to hypotheses testing as shown in Table 3 below for H1: Demographic factor has an influence on consumers' decision making

in drug-coated balloon in Bangkok, Thailand. From all 7 demographic factors there are 4 factors (57%) that the results show to have relationship with consumers' decision making,

which are, age, education, reimbursement, and income, therefore, H1: Demographic factor has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand, is partially accepted.

Table 3

Summary of the result for H1: Demographic factor has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand

Hypothesis	Technique	Result
H1: Demographic factors influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Partially Accepted
H1.1: Gender influences consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H1.2: Age influences consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Accepted
H1.3: Marital status influences consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H1.4: Occupation influences consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H1.5: Educations factor has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Accepted
H1.6: Income factor has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Accepted
H1.7: Reimbursement factor of the Expenses for Medical Treatment has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Accepted

For H2: Marketing mix factors have influences on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand, using Chi-Square technique the results show all four marketing mix factors is rejected as shown in Table 4

Table 4

Summary of the result for H3: Health factors has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand

Hypothesis	Technique	Result
H2: Marketing mix factors influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H2.1: Product influences consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H2.2: Price influences consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H2.3: Place influences consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H2.4: Promotion influences consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected

For H3: Health factors have an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand. As shown in table 5 below from all 5 factors only duration of illness and other disease factors (40%) have an influence to consumers' decision making, therefore, H3: Health factors has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand, is partially rejected.

Table 5

Summary of the result for H3: Health factors has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand

Hypothesis	Technique	Result
H3: Health Conditions influence consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Partially Rejected
H3.1: Duration of illness factor has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Accepted

Table 5

Summary of the result for H3: Health factors has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand (continued)

Hypothesis	Technique	Result
H3.2: The frequency of medical-checkup factor has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H3.3: The frequency of medical consumption factor has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H3.4: Other medical treatments factor have an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Rejected
H3.5: Other disease factor has an influence on consumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand	Chi-Square	Accepted

Conclusion

An estimated 202 million people have been affected by Peripheral Artery Disease (PAD) worldwide. This represents 23.5% increase in the number of PAD patients within a decade. It is a leading cause of partial, and up to 90 % of total amputations worldwide for people with the age of 50 or above. There are many different procedures to help deal with PAD such as bypass grafting, angioplasty and atherectomy. A drug-coated balloon is another good option to use as a device for the treatment of PAD. The drug-coated balloon has been well-known and use worldwide, but it still new and not well-known in Thailand. Therefore, the factors influence the con-

sumers' decision making in purchasing drug-coated balloon in Bangkok, Thailand have been studied.

4 out of 7 demographic factors (57%) are related to the customer's decision making in purchasing drug coated balloon, which are age, education, reimbursement, and income. 4 marketing mix factors don't have a relationship with consumers' decision making in purchasing drug coated balloon. 5 health condition factors only duration of illness and other disease factor (40%) have an influence to consumers' decision making in purchasing drug

As a result of marketing mix factor (4Ps) for this researcher is rejected the future researchers might also expands a research

from a scope of 4Ps to 7Ps marketing mix factors. The service sector might have an influence on consumer's decision making in purchasing drug coated balloon. They might also need to add more factors for demographic background that may significantly be correlated to the decision making in a purchasing of the drug-coated stents more.

Recommendations

In view of the marketing campaign, the company should publicize the benefit of the products by collaboration with the hospitals in order to penetrate the customer groups via the hospital media channel such as a monthly magazine, information leaflets, a poster at the hospitals. The advertisement can be a

comparative case study of the different outcomes of a group of patients who use a treatment of drug-coated balloon, and those who use other types of treatment.

Moreover, the research shows that people with health insurance or guarantee of payment (GOP) from any private or public organization has a higher chance of a purchase of drug-coated balloon treatment than those without the privilege of the reimbursement. As results, the company should have a good connection with an offer of a good deal contract of product pricing to any private/public hospitals or health coverage company so that patient in all health care sectors can afford the device of PAD treatment, including the patients with the social security or the National health care.

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