

Low pain disposable automatic safety lancet for cross infection prevention

Youth Startup Academy alumni company
EOI Incorporation

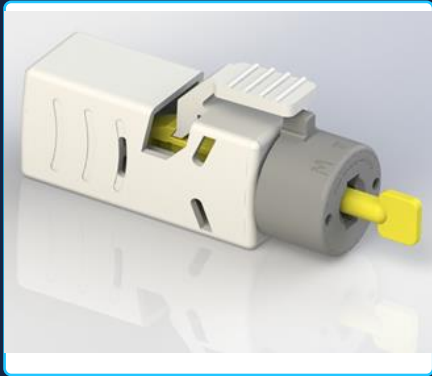


E.O.I Inc. Song, Gwang-hoon

Overview of our item

Disposable automatic safety lancet

is used in all public places performing blood collection (The Korean Red Cross Blood Centers, domestic and foreign hospitals and clinics, nursing homes, public health centers, military hospitals and blood donation centers). It enables small amount of blood sampling and therefore is used as a disposable medical device in various diagnostics sectors for checking cholesterol, glycated hemoglobin (HbA1c), hemoglobin, types A/B/C hepatitis, HI test, etc., and its use has been on the rise significantly every year.



Project Background

Globally, cross infections caused by re-usage of disposable lancet in diagnostic tests has been continuously on the rise. The US, Europ and Japan have already legislated that all the blood collection for disease diagnosis shall be done by using a disposable safety lancet^{『1』}.



The screenshot shows the homepage of 'The Medical News' website. The header includes the site logo and name. Below the header is a navigation bar with categories like '전체', '정책·행정', '의원·병원', '학회·학술', '의료기기·IT', '제약·유통', and '약사·약학'. A search bar is present with the text '검색어를 입력하세요.' and a '검색' button. The main content area features the article title '『Due diligence against the reuse of medical devices strengthens』' and the author '홍성익 기자 (hongsi@bosa.co.kr)'. Below the article title is a link '다른 기사 보기'. At the bottom of the article preview, there are social media sharing icons for print, email, RSS, and various social media platforms.

<Source: The Medical News Nov 16, 2012, Sung-ik Hong (hongsi@bosa.co.kr) >

Reuse of disposable medical devices prohibited

Congressman Jaechul Shim submitted the revision bill for the Medical Act...Violation is punishable by up to 1 year in jail

The revision of the Medical Act is now underway to prohibit the reuse of disposable medical devices such as syringes. Congressman Jaechul Shim formulated the revision bill of the Medical Act, specifying the reuse of medical devices. This revision contains penalty provisions of up to 1 year of jail term and KRW 5 million in fine for those who reuse disposable medical devices. Congressman Shim said, "Though some medical institutions are reusing single-use medical devices and receiving insurance

coverage, there is no legal grounds to punish these people as the law does not clearly define disposable medical devices", explaining his rationale behind the revision. "By providing a clear definition of what disposable medical devices are and setting penalty rules for those who break the law, it is hopeful that infections stemming from disposable medical devices in hospitals can be minimized and the health and life of the public can be protected," said the congressman.

<Source: Hankook Ilbo, Feb 16, 2016, Bora Nam, rarara@hankookilbo.com >

A single-use automatic safety lancet that causes little pain and prevents cross infection

Phase 1: Prevent the reuse of medical devices

Phase 2: Advance blood draw technology

Phase 3 : Making contributions to the medical health and safety of the people

1) 『KFDA Notice in March 2009』: It is imperative to prepare lancing devices that prevent cross infection.

Motivation for Product Development

“Since 2009, 11,592 blood donors suffered from the adverse effects after drawing blood.”

Congresswoman Jeong-Lim Moon said, “Drawing blood may cause a huge medical accident...and it is necessary to review a policy to reduce blood collection”

[2014 National Assembly Audit] “Every day, at least one blood donor experiences adverse effects”

[Table 1] Blood collection related accidents over the past 5 years

Year	Number of cases	Compensation (KRW)
2010	309	70,140,357
2011	343	385,990,048
2012	379	69,377,014
2013	371	82,337,560
2014.6	210	44,033,671
Total	1,612	651,878,650

※ Source: Data submitted by the Korean Red Cross

< Source: Congresswoman Hyun-sook Kim's office, Health and Welfare Committee of the National Assembly >

Medical compensation for blood draw related adverse effects

(Unit: Case, KRW)

	Case (Number)	Compensation (KRW)
2009	300	46,081,150
2010	309	70,140,357
2011	343	385,990,048
2012	379	69,377,014
2013.6	176	35,559,600
Total	1,507	607,148,169

- There is a difference between the date of estimating compensation for adverse effects and the date of compensation pay-out. The table shows compensation on the date of pay-out.

• Reference: Korean Red Cross Blood Service
On 22th, Congresswoman Jong-Lim Moon of the Health and Welfare Committee reported that a total of 11,592 blood donors have experienced adverse effects during blood transfusion and the compensation for them has amounted to KRW 600 million since 2009 based on her analysis of data submitted by the Korean Red Cross.

< Source: Daily Health (dailyh.co.kr) Reporter Noh Eui-guen nogija@empas.com >

A single-use automatic safety lancet that causes little pain and prevents cross infection

Phase 1: Prevent the reuse of medical devices

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Preparation and history of product

Certificate of award

Excellence award

Sector : manufacturing
Name : Song, Gwang-hoon

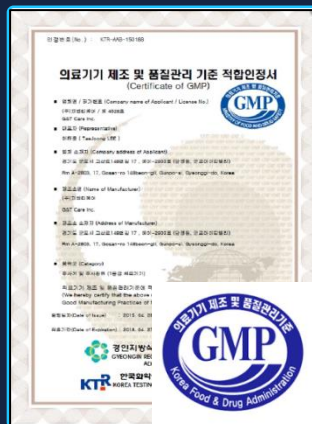
This award is presented to the person above in recognition of the excellent performance in the Gyeonggi-DKU Venture Startup Competition hosted by the Dankook University Startup Enterprise Support Foundation as part of the nationwide preliminary competition for 「the 2016 K-startup League」

April 29th, 2016

Son, Sung U
President of the Dankook University
Enterprise Support Foundation

Name	Experience		
	Major	Period	Description
Song, Gwang-hoon (Applicant)	Industrial Engineering	From 2012 - today	<ul style="list-style-type: none"> - Participated in G&T Care's development of the prototype of a single touch automatic blood draw device (medical device). - Developed and analyzed General Lancet (medical device), a disposable lancet - Established a system for overseas licensing and certification for medical devices (CE, ISO13485, GMP, FDA) - Prepared technical documents and managed the quality of medical devices at the Ministry of Food and Drug Safety - Completed medical device technical document course (Korea Testing & Research Institute) - Completed medical device GMP training course (Medical Device Information & Technology Assistance Center/Ministry of Food and Drug Safety)
		From 2009 to 2011	<ul style="list-style-type: none"> - Completed medical device quality manager course (Korea Testing & Research Institute) - Completed Start-up Academy training (Small and Medium Business Corporation) - Completed FTA and country-of-origin manager course (Seoul Business Agency)
		From 2005 to 2009	<ul style="list-style-type: none"> - 1st vender registration from Samsung, LG, SKT, Pantech, KTFT, etc - Performed reliability-related functions, operated MSA (GAGE R&R) and delivered in-house quality management lectures - Translated technical standards and guidelines in English/Conducted Q-COST analysis and COPQ - Conducted FMEA (DFMEA) to resolve problems at development stage - Analyzed environmentally harmful materials and worked to meet international environmental standards (Eco Partner, RoHS, WEEE, REACH) - Completed Samsung and LG environmental manager training course
			<ul style="list-style-type: none"> - Developed quality improvement plans for injection molding - Participated in a project to verify correlations between PCB processes and the properties of plating products - Provided MSA education and analysis - Conducted education on quality system (ISO9001/14001) for partners

SWOT analysis of the company



- Experience and know-how in relevant fields
- Experience in quality assurance and optimal solutions
- Unique and independent technology (basic design completed)
- Knowledge networks in the area of medical device
- Sales networks and a pool of buyers at home and abroad
- Passion and commitment to business start-up

Strength

- Increasing importance of POCT and its market
- Increasing demands for health and welfare services as a result of population aging
- Rising awareness about the reuse of medical devices
- Declining customs duties on exports thanks to Free Trade Agreements
- Market expansion as a result of stronger regulations on disposable medical devices

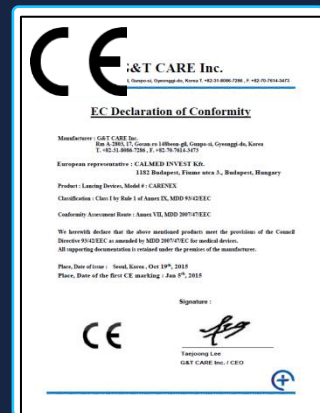
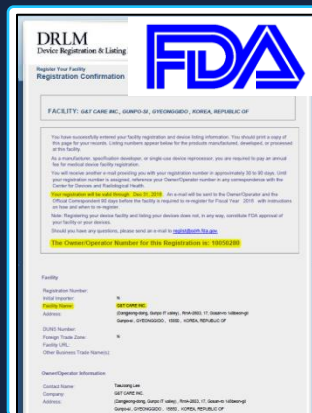
Opportunity

- Investments and financing (molding, certification)
- Sustained R&D investments and stable profits
- Lack of experience in business start-up and operation

Weakness

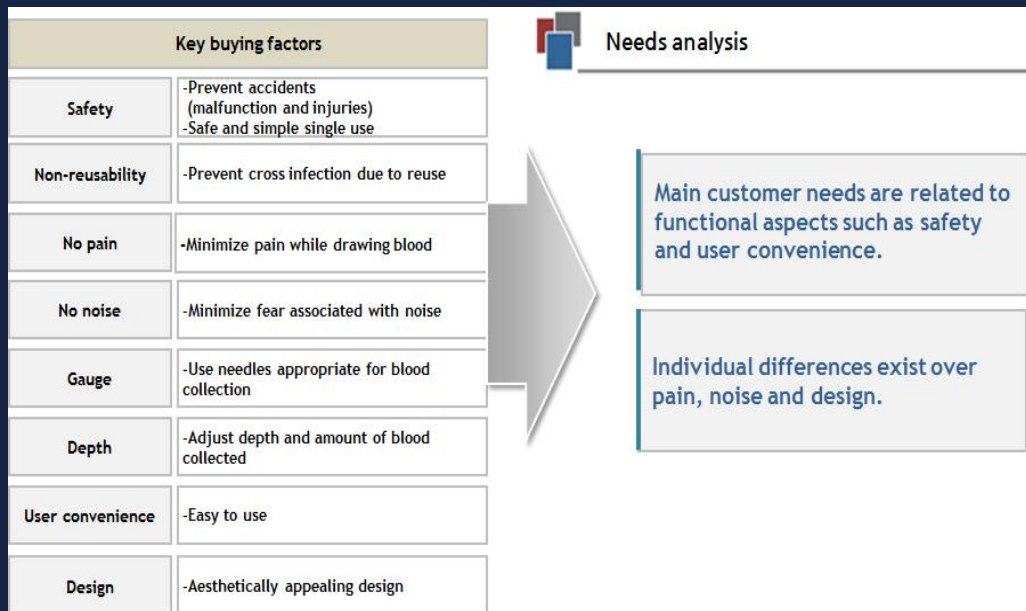
- Price competition from low cost Chinese products
- Protection of intellectual properties and technological security
- Distribution of counterfeit products in the market

Threat

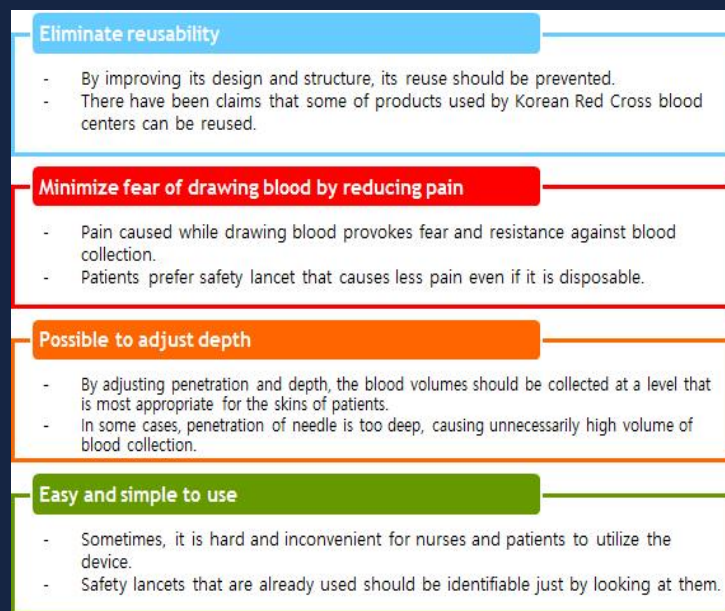


Project name and content	Development period	Organization	Applicant's role	Supporting organization
A single touch automatic loading low pain blood-draw device	May 2, 2014 – Mar 31 2015	G&T Care	Participating researcher (R&D)	Small & Medium Business Corporation
Product manufacturing support project	Jan 2, 2013 – Sep 30, 2013	GMMC	Participating researcher (R&D)	Korea Industrial Complex Corporation
Production technology commercialization support project (Application for industrial property rights)	May 22 2013- Jul 3, 2013	GMMC	Participating researcher (R&D)	Korea Industrial Complex Corporation

Clients' requests for product development

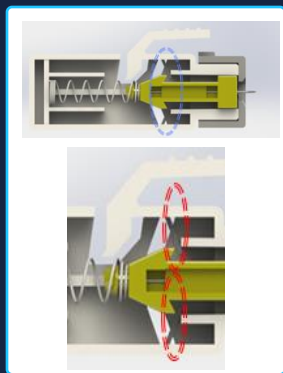


< Source: Korea Management Association Consultants (KMAC) marketing strategy for blood draw devices>



< Korea Red Cross's needs and demands for single-use automatic safety lancets>

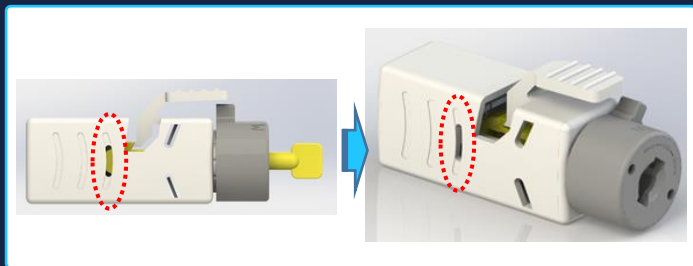
Technology applied to the item








I . Prevention of re-usage and design for low pain



II . Strength adjustment system

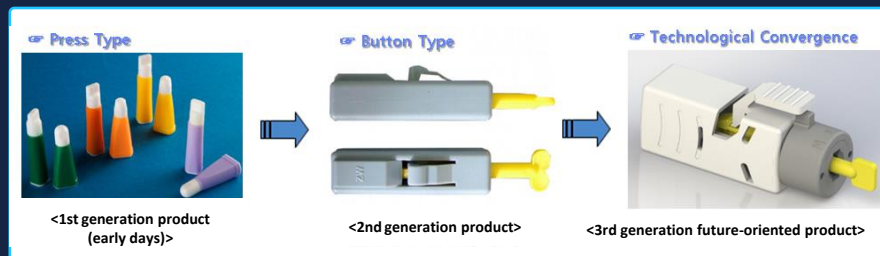


III . Safety sign to indicate before/after the use

No.	Manufacturer (country)	Model (product name)	Product image	Pain mitigation (How to use)	Strength adjustment	Use/unused sign	Note
1	Sterilance (China)	McKesson(Xinda) SAFETY LANCET		Simple blood draw (PRESS TYPE)	Adjustment unavailable	No sign (Not reusable)	
2	HTL (Poland)	PLUS SAFETY-LANCET		Simple blood draw (PRESS TYPE)	Adjustment unavailable	No sign (Not reusable)	
3	Arkray USA (The U.S.)	Micro-Flow Safety-Lancet		Simple blood draw (PRESS TYPE)	Adjustment unavailable	No sign (Not reusable)	
4	OwenMumford (England)	Unistik 2 SAFETY LANCET		Simple blood draw (BUTTON TYPE)	Adjustment unavailable	No sign (Reusable)	
5	K Start-Up (Korea)	K-Start-Up potential start-up company SAFETY-LANCET		I. Shock-absorbing guide system (BUTTON TYPE)	II. Strength adjustment system (Weak/Safe/Strong)	III. Sign (use/unused) function (Not reusable)	

< [Table 1] Comparisons with the products of competitors (products)>

Excellence of our item



< Future of automatic safety lancet >

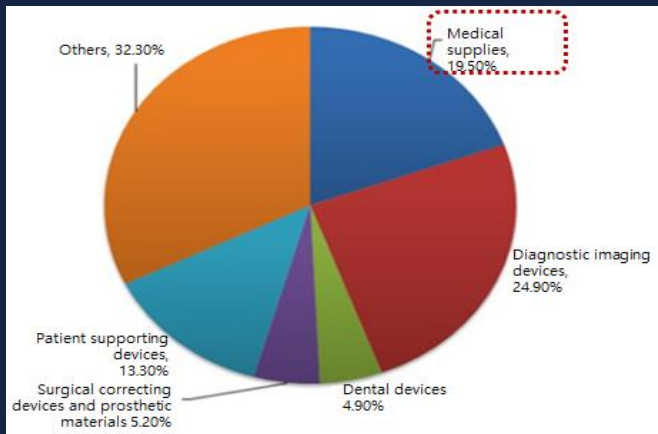
(Unit : 100PCS/1BOX)										
No.	Our product (A)			Competitor (B)			Competitor (C)			Our product (A) versus competitors' products (B)/(C)
	Item	Cost	Share	Item	Cost	Share	Item	Cost	Share	Price comparison Savings (%)
1	Material costs	\$6.50		Material costs	\$8.50		Material costs	\$7.50		\$1.50 23.1%
2	Assembly costs	\$4.50		Assembly costs	\$5.50		Assembly costs	\$5.50		\$1.00 22.2%
3	General expenses	\$1.50	13.6%	General expenses	\$2.50	17.9%	General expenses	\$2.00	15.4%	\$0.75 50.0%
4	Profit	\$2.00	16%	Profit	\$2.00	12.1%	Profit	\$2.00	13.3%	\$ - -
Our price (A)		Competitor's price (B)			Competitor's price (C)			(\$2.50/14.9% price competitiveness)		
		\$14.50		\$18.50		\$17.00				

< Comparison of our product versus competitors' products in terms of costs and sales prices >

	Competitors		(K Start-Up)
Manufacturer (Country)	Medipurpose (the U.S.)	OwenMumford (England)	Start-up (Korea)
Product name	SurgiLance	Unistik 2	SAFETY-PRO (provisional)
How to use	Press type <Not reusable>	Button type (load) <Reusable>	Button type (strength adjustment function) <Not reusable>
Product image			
Sales price	\$19.0/BOX/100PCS	\$17.0/BOX/100PCS	\$14.5/BOX/100PCS (projected price)
Advantages of start-up	<ul style="list-style-type: none"> - Sustainable growth potentials based upon creative and unique technologies. - Price competitiveness through efficiency in assembly and cost reduction. - Diversified distribution channels in overseas markets established through participation in overseas exhibitions and fairs. - Sales expansion through diversification of market channels and profit models. - A profit model that taps into existing operation channels (overseas) and networks. - Preparation and knowledge for medical device licensing and certification. 		

< Comparisons with the similar offerings of competitors >

Commercial feasibility of our item

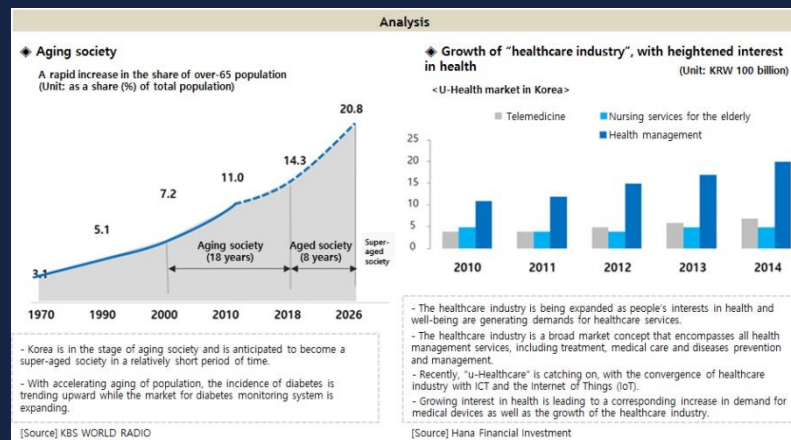
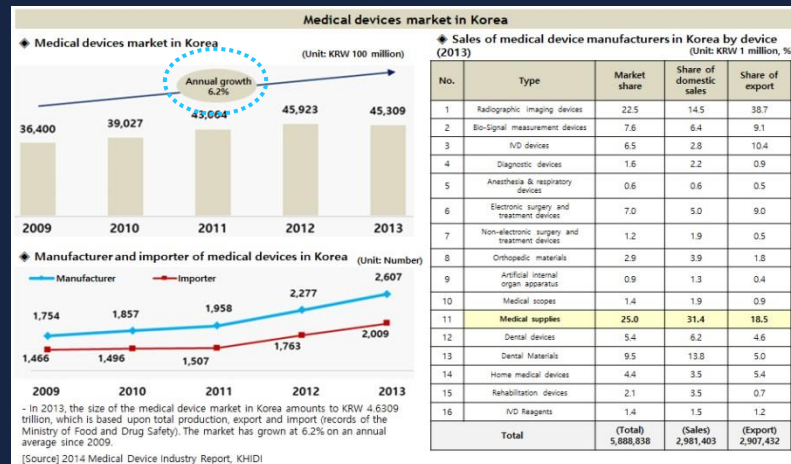


Growth outlook for medical devices(2013-2020)

Type	Annual average growth(%)
Medical supplies	6.3
Surgical correcting devices and prosthetic materials	6.3
Diagnostic imaging devices	4.9
Dental devices	4.3
Patient supporting devices	2.4
Others*	2.4

Note: "Others" include all medical devices that are not classified into other categories.

< The ratio and growth rate of the global medical device market by item (based on the revenue in 2014) >



Commercialization plan & marketing strategy

Medical device market

B2B: Large scale consumer market

- Participate in procurement bids for blood supply and management (Red Cross blood centers)
- Hospitals, long-term care facilities, nursing homes, public health centers, health specialists, military hospitals, care facilities

B2C: Small scale consumer market

- Disposable medical devices markets (Online distribution channels, pharmacies, wholesalers)

Niche market
penetration

- All settings that require the use of a single-use diagnostic device
- All public settings concerned about the reuse of medical devices and cross infection



Sales execution plan

Type	Criteria	Channel and target market
Direct channel	IVC and clinical diagnostics businesses + Mass market	<ul style="list-style-type: none">- Korean Red Cross Blood Service (Blood donation centers)- Medical device procurement bids
	Medical device manufacturers for IVD and clinical diagnostics	<ul style="list-style-type: none">- IVD medical devices companies at home and abroad
Indirect channel	Individual market	<ul style="list-style-type: none">- Online distribution channel- Business to customer offline market
	Medical device distributors	<ul style="list-style-type: none">- Distributors of medical devices

Commercialization plan & marketing strategy



<Overseas distribution network & global base >

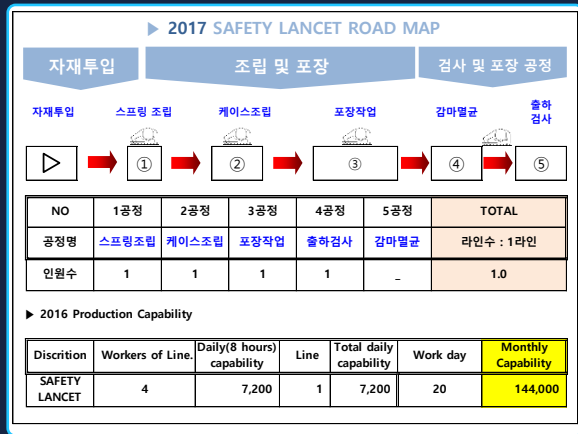
Classification	Name of exhibition	Schedule	Promotional plan	Hosting country/city
Overseas exhibition	Arab Health	January 2018	Visiting the booths of existing business partners and discussing plans, market research and finding new partners(finding clients in the Middle East)	UAE, Dubai
	MedTrade	April 2017	Having meeting with new US partners, market research and finding new business partners	The US , Las Vegas
	ExpoMed	April 2017	Eastern European market research and discovering new business partners	Turkey, Istanbul
	Africa Health	May 2017	African market research, having meetings with existing business partners and finding new partners	South Africa, Johannesburg
	AACC	July 2017	Having meetings with existing US partners, market research and finding new business partners	The US, LA
	MedTrade	October 2017	Having meetings with existing US partners, market research and finding new business partners	The US, Atlanta
	Medica	November 2017	Visiting the booths of existing business partners, account settling, discussing plans and finding new business partners	Germany, Dusseldorf

Classification	Online	Schedule	Promotional plan	Others
Advertisement	Google search words Alibaba Lab Medica	Year round Year round Twice ~ three times a year	Making product keywords on new website Maintaining the golden supplier status Advertisement in January, advertisement through media and during the exhibition period in the US in November	- - -

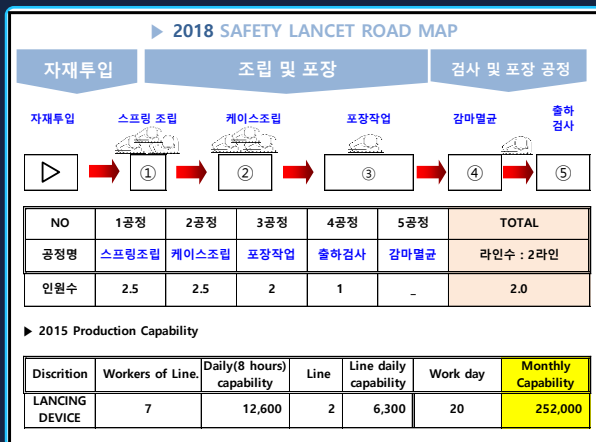
< Establishment of overseas online distribution network >

Business growth and employment plan by phase

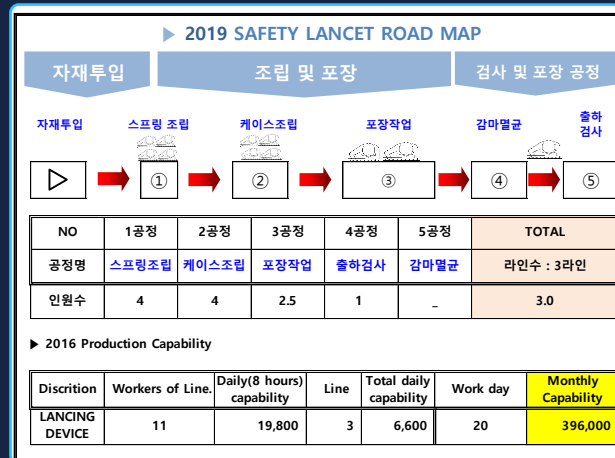
Production plan & job creation plan by phase



Create 4 jobs



Create 7 jobs



Create 11 jobs

Profit & loss plans by business growth phase

Revenue growth and profit & loss plan by phase





결승을 향한 20팀의 생존 경합 ③
(주)지앤티케어의 최종 점수는?

KBS1

오늘밤
10:00

대한민국
VS 뉴질랜드
핸드볼

—
Thank you

World's first low-pain disposable automatic safety lancet
designed to prevent cross-infection