# NEXT LEVEL INTELLIGENCE

**PENTAX MEDICAL**

Highly focused assistance
to find more polyps than ever
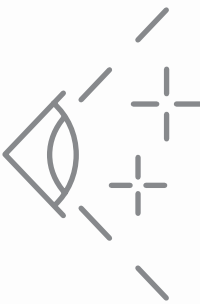
DISCOVERY **AI**

Home

Detection
Challenges

Challenge:
Human
Factor

PENTAX
Medical
DISCOVERY™

What
makes it so
intelligent?

Experience
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# Challenges in colonoscopy

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In our fight against colorectal cancer we have already achieved a lot.
However, up to 26 %[1] of lesions are still missed in examinations.
That's why we're committed to developing new solutions to overcome
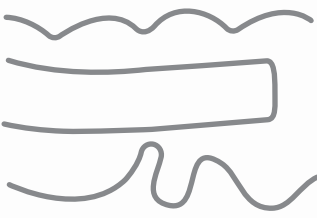daily challenges in colonoscopy routines.

## 26%

### VISIBILITY

Through digital and optical image enhancement
we were able to increase adenoma detection rates
(ADR) by up to 11 %[2].

## +11%

ADR increase

### BLIND SPOTS

By using mechanical enhancement technology
such as RetroView™ and G-EYE® the ADR could
be increased by up to 28 %[3].

## +28%

ADR increase

### HUMAN FACTOR

The unsolved challenge so far was the human factor.
Now PENTAX Medical DISCOVERY™ will help you
solve this, as well.

1) According to studies miss rates for polyps of any size are approximately
22−26 %, and an AMR (adenoma miss rate) of 27 % for serrated polyps.
Missed lesions may have the possibility to develop into cancer.

2) Bowman EA, Pfau PR, Mitra A, et al. High Definition Colonoscopy
Combined with i-SCAN Imaging Technology Is Superior in the Detection of
Adenomas and Advanced Lesions Compared to High Definition Colonoscopy
Alone. Diagn Ther Endosc. 2015;2015:167406. doi:10.1155/2015/167406

3) Shirin H, Shpak B, Epshtein J, et al. G-EYE colonoscopy is
superior to standard colonoscopy for increasing adenoma detection rate:
an international randomized controlled trial. Gastrointest Endosc. 2018

2

# The human factor

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The human factor is responsible for missing many lesions and has a negative impact on the medical outcomes of your examinations.



## FATIGUE

Due to successive, repetitive procedures, physicians often show signs of fatigue which can lead to fewer lesions detected. Studies show that early-morning cases yielded 27 % more polyps per patient than later cases. [4]



## DISTRACTIONS

Distractions reduce the ability to concentrate. Studies show that Physicians are distracted in up to 13 % of exam time, i. e. due to phone calls during the exam or external staff entering the room. [5]

4) Clinical Gastroenterology and Hepatology, Volume 7, Issue 11, November 2009, Pages 1141-1142

5) "Do absorption and realistic distraction influence performance of component task surgical procedure?" Jon R. Pluyter, Sonja N. Buzink, Anne-F. Rutkowski, Jack J. Jakimowicz; Surg Endosc. 2010 Apr; 24(4): 902–907 Published online 2009 Sep 30

# PENTAX Medical DISCOVERY™
# Next Level Intelligence

PENTAX Medical DISCOVERY™ is an innovative device working with an Artificial Intelligence. It is able to support you in the detection of unremarkable lesions and directs your attention to potential lesions.
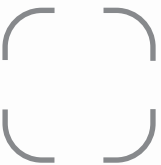
OPTIVISTA PLUS          IMAGINA          DEFINA[6]

PENTAX Medical DISCOVERY™ seamlessly integrates with various video processors and technology from PENTAX Medical.
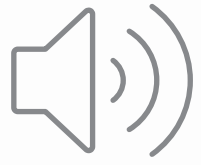
Signals in real-time

VISUAL MARKER          SOUND

6) Undergoing compatibility test

# PENTAX Medical DISCOVERY™
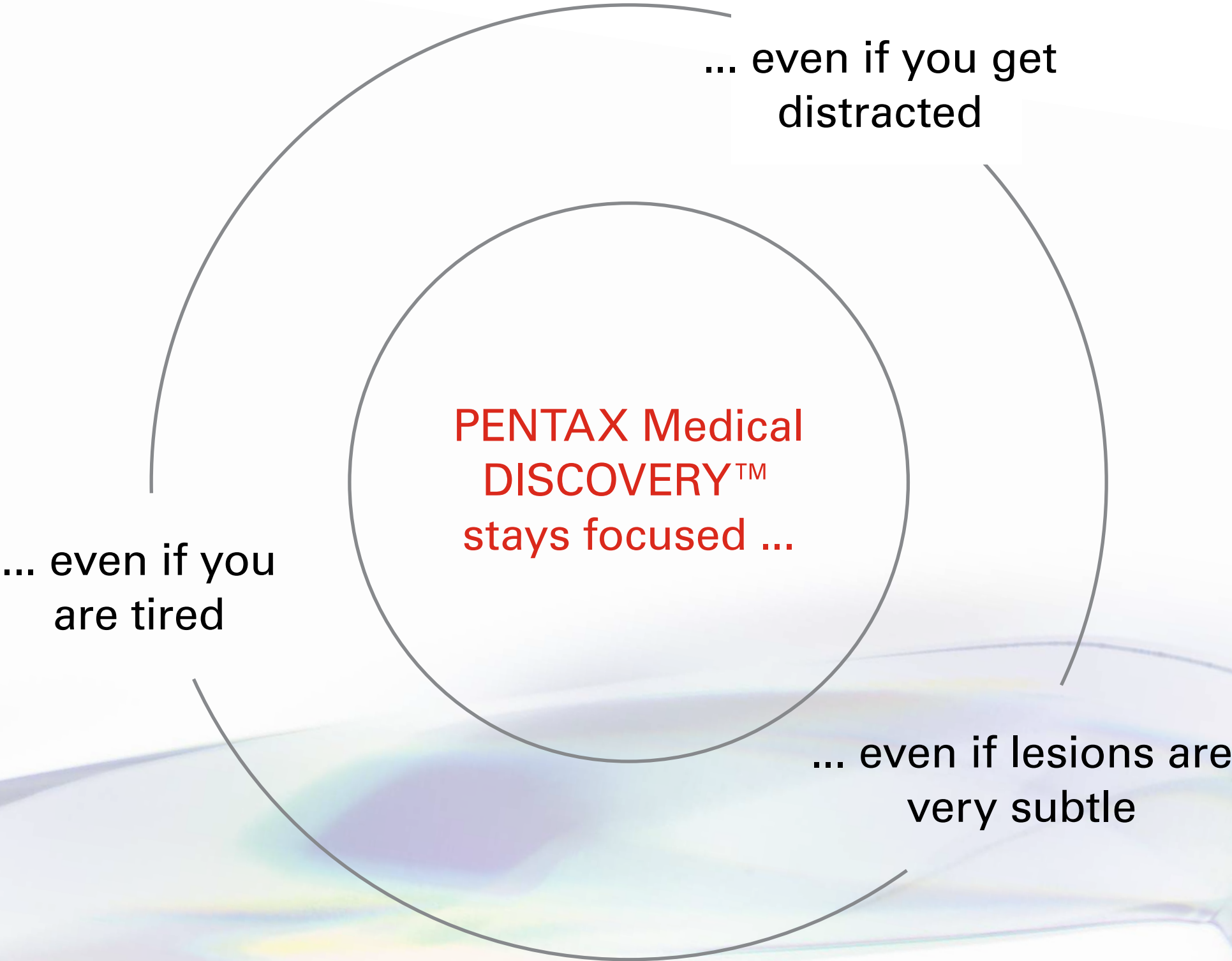# Major benefits

**1**

## GET HIGHLY FOCUSED ASSISTANCE IN YOUR EXAMS

**PENTAX Medical DISCOVERY™** assists endoscopists in finding potential polyps during a colonoscopy examination.

Multiple factors are considered to have a negative impact on the detection rate, one of them being human factor.

... even if you get distracted

PENTAX Medical DISCOVERY™ stays focused ...

... even if you are tired

... even if lesions are very subtle

# PENTAX Medical DISCOVERY™
# Major benefits

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## 2

### INCREASE CONFIDENCE IN
### THE EXAMINATION OUTCOME

Colorectal cancer prevention is the primary goal of screening and diagnostic colonoscopy. At least 50 % of all interval carcinomas (iCRCs; defined as a cancer diagnosed between screening and post-screening surveillance colonoscopies) arise from missed lesions during colonoscopy.

**PENTAX Medical DISCOVERY™** has a high potential to contribute in decreasing the appearance of (interval) colorectal cancer by assisting endoscopists in finding potential polyps during a colonoscopy examination. This might influence the frequency of the examination interval.

Increased ADR

⌄

Appropriate exam intervals

⌄

Decreased appearance of iCRC

⌄

Improved patient's quality of life

# PENTAX Medical DISCOVERY™
# Major benefits

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# 3

## IMPROVE HEALTH CARE COST-EFFICIENCY

Each 1.0 % increase of the detection rate is associated with up to 3.0 % decreased risk of iCRCs.[7] Average CRCancer cost per treatment of patient is 35.000 €.

**PENTAX Medical DISCOVERY™** could potentially contribute to improving health care cost-efficiency.

1 %
higher ADR [7]

⌄

3 %
lower risk of iCRC [7]

⌄

Reduced number of cancer patients
(cost per treatment 35,000 € on average)

⌄

PENTAX Medical DISCOVERY™
has the potential to improve
health care cost-efficiency

7) Corley DA, Jenson CD, Marks AR JR, et al. Adenoma Detection Rate and Risk of Colorectal Cancer and Death. NEJM 2014;370:1298-306.

# PENTAX Medical DISCOVERY™
# What makes it so intelligent?

The database of PENTAX Medical DISCOVERY™ is what sets it truly apart from any other solution in the market. The training of the Artificial Intelligence was based on a vast amount of expertly curated images.

## EXPERT CURATED DATABASE

PENTAX Medical DISCOVERY™ learned from a database of images including the most difficult lesions. This database contains thousands of dedicated images of each kind of polyp, annotated by renowned CRC centers worldwide. With this database, PENTAX Medical DISCOVERY™ assists endoscopists in finding potential polyps during a colonoscopy examination

Highlighting suspicious areas with frames

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# What experts say about
# PENTAX Medical DISCOVERY™

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Prof Timo Rath, Professor of Endoscopy and Molecular Imaging, University of Erlangen, Nuremberg, Germany

Dr Sergey Kashin, Head of Endoscopy Department, Yaroslavl Regional Cancer Hospital, Russia

Prof Peter Siersema, Professor of Endoscopic Gastrointestinal Oncology, Editor-in-Chief, Endoscopy, Radboud University, Netherlands

"I'm very confident that PENTAX Medical DISCOVERY™ will translate into increasing our Adenoma Detection Rate and therewith will contribute to reducing colorectal cancer mortality."

"The PENTAX Medical DISCOVERY™ uses advanced artificial intelligence to highlight the presence of pre-cancerous lesions with a visual marker in real-time – serving as an ever vigilant second observer."
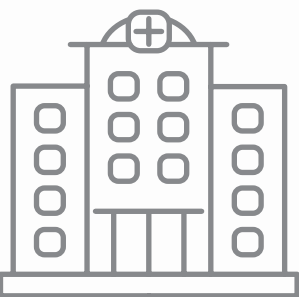
"Computer-aided detection has been shown to increase the detection of pre-cancerous colorectal lesions. The introduction of the PENTAX Medical DISCOVERY™ artificial intelligence system opens the door to a new era where endoscopists and PENTAX Medical DISCOVERY™ jointly reduce health-care costs by decreasing the prevalence of colorectal cancer."

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# Experience PENTAX Medical DISCOVERY™

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There is nothing like seeing PENTAX Medical DISCOVERY™ at work for yourself. We offer you various ways to get this personal experience as close up as you wish.

### OBSERVATION

Live case attendance at one of the institutes that already work with PENTAX Medical DISCOVERY™

### ON-SITE DEMONSTRATION

Trial at your institute supported by PENTAX Medical staff

**PENTAX MEDICAL**
**LIVE** ACADEMY

Visit the PENTAX Medical Live Academy and watch live cases online

# PENTAX Medical DISCOVERY™
# Technical information

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PENTAX Medical DISCOVERY™
Smart Assistant System SAS-M10

| TYPE | SAS-M10 |
|---|---|
| Display | 32″ LCD capacitive touch-screen |
| Max. resolution | $3,840 \times 2,160$ |
| Max. colours | 10 bits (8 bits + FRC) / 1.07B colours |
| CPU | Intel® Core™ i7 – 6820EQ Processor |
| Storage | 2.5″ Solid State Drive |
| Size and weight | $778 \times 478 \times 102$ mm (W × H × D); 20.6 kg |
| Power supply | 100 – 240 V AC; 50 – 60 Hz |
| Degree of protection against electric shock / ingress of water | Class I / IPX0 |
| Compatible Video Processors | EPK-i7010, EPK-i7000, EPK-i7000(A), EPK-i5500c, EPK-i5010, EPK-i5000, EPK-3000* |

* Undergoing compatibility test

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# Seamless integration

**PENTAX MEDICAL**

For your daily challenges in colonoscopy we offer you intelligent technologies. PENTAX Medical DISCOVERY™ works seamlessly together with the following products to provide you with a fully integrated solution.

|  | VISIBILITY | BLIND SPOT | HUMAN FACTOR |
|---|---|---|---|
| OPTIVISTA PLUS EPK-i7010 | HD+ i-scan OE i-scan SE i-scan TE i-scan CE | RetroView G-EYE® * G-EYE® PILOT | PENTAX Medical DISCOVERY™ SCOPEPILOT |
| EPK-i7000 EPK-i5000 | HD+ i-scan SE i-scan TE i-scan CE | RetroView G-EYE® * G-EYE® PILOT | PENTAX Medical DISCOVERY™ SCOPEPILOT |
| IMAGINA EPK-i5500c | HD+ i-scan SE i-scan TE i-scan CE | G-EYE® * | PENTAX Medical DISCOVERY™ SCOPEPILOT |
| DEFINA EPK-3000 | HD i-scan SE i-scan TE i-scan CE | N/A | PENTAX Medical DISCOVERY™ ** |

\* Powered by SMART Medical Systems
\** Undergoing compatibility test

| EC | REP | **EMEA Headquarter** |
|---|---|---|

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