

2004 Pacific Basin Nuclear Conference
March 21-25, 2004
Sheraton Waikiki Hotel, Honolulu, Hawaii

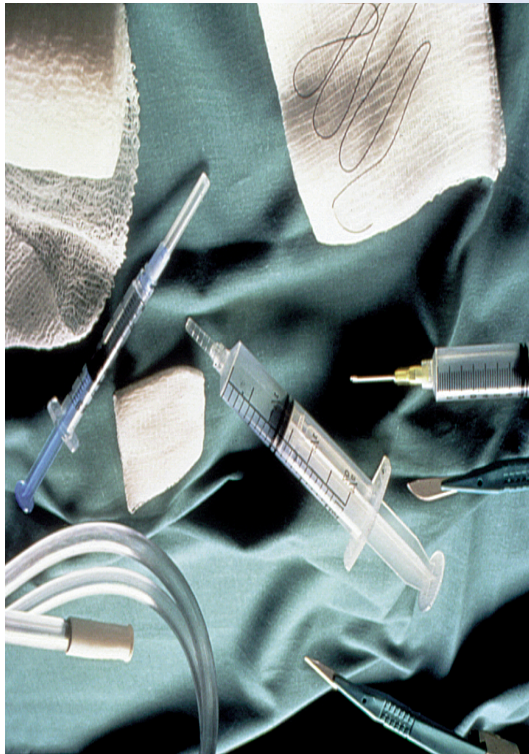
“New Applications of Radiation Technology to Advance Global Health”

Grant Malkoske,
Vice-President, Engineering & Technology,
MDS Nordion

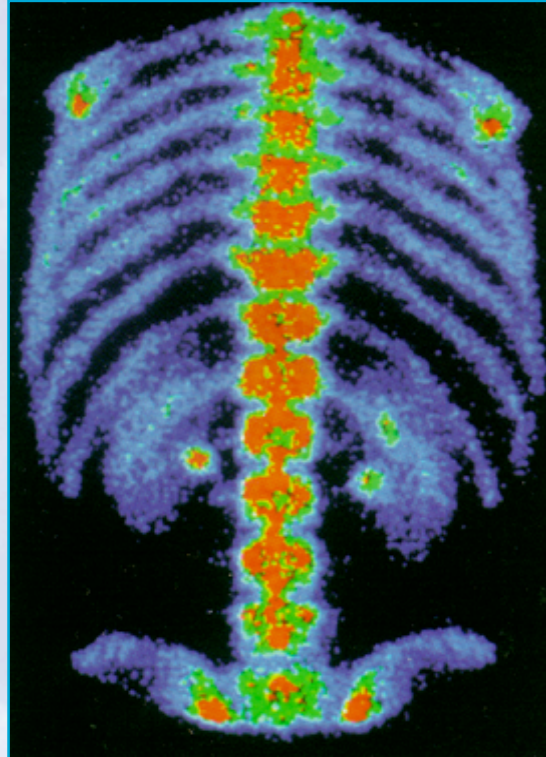


... innovation in radiation technology applications

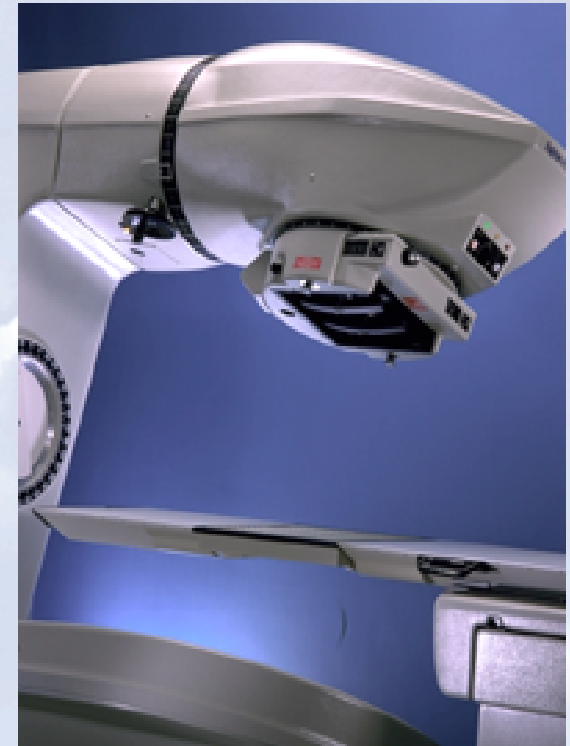
Sterilizing products



Nuclear medicine



Cancer therapy

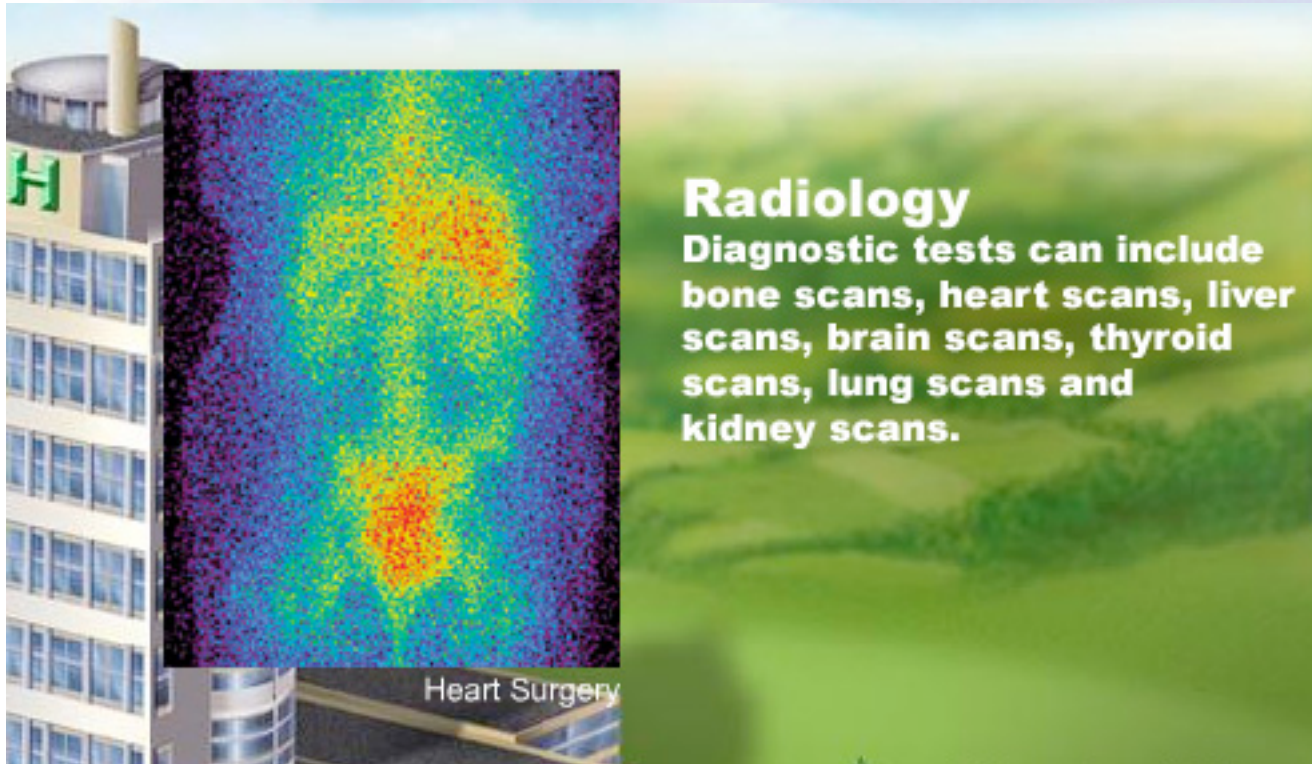


- ⇒ *improving health worldwide*
- ⇒ *enhancing food safety*
- ⇒ *benefiting everyday life*

Come visit “our virtual hospital”...



Diagnosing disease



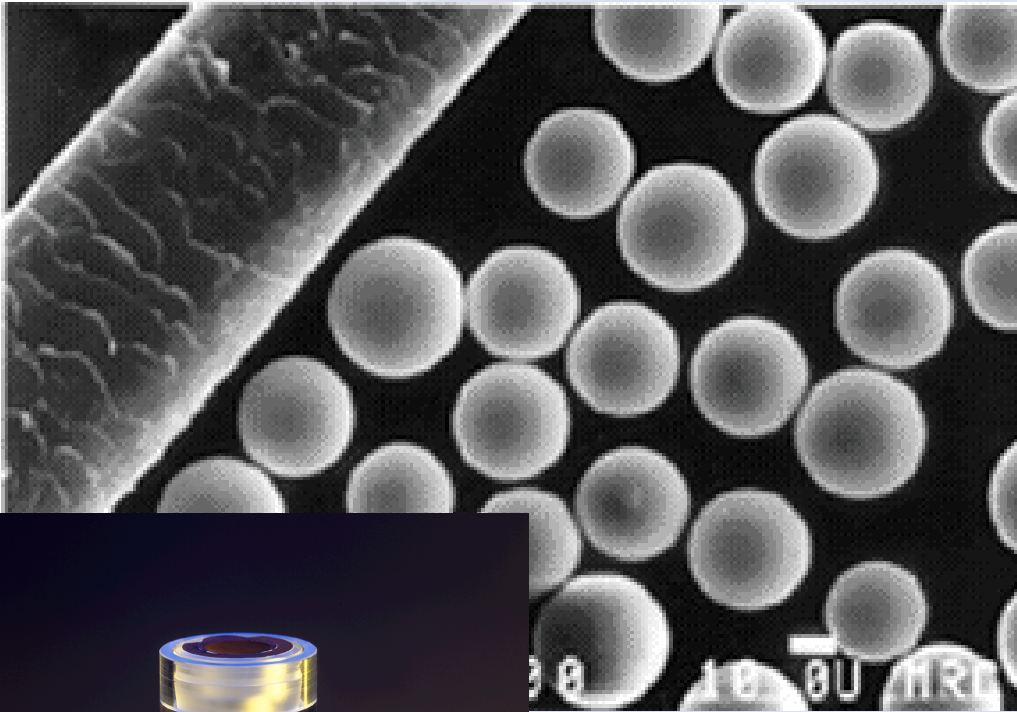
Treating cancer



Oncology
Inoperable hepatocellular carcinoma, a form of liver cancer, can be treated using MDS Nordion's TheraSphere.

Pharmacology
Heart Surgery

TheraSphere



- A proprietary product
- Treats liver cancer
- Y-90
- Irradiated glass spheres, smaller than a human hair

Treating cancer



**Cancer Clinic -
Outpatient Centre**
A fixed tumour can be treated
with cobalt-60 external beam
radiation therapy, using the
THERATRON machine.

Pharmacology
Heart Surgery

Preventing disease with sterilization



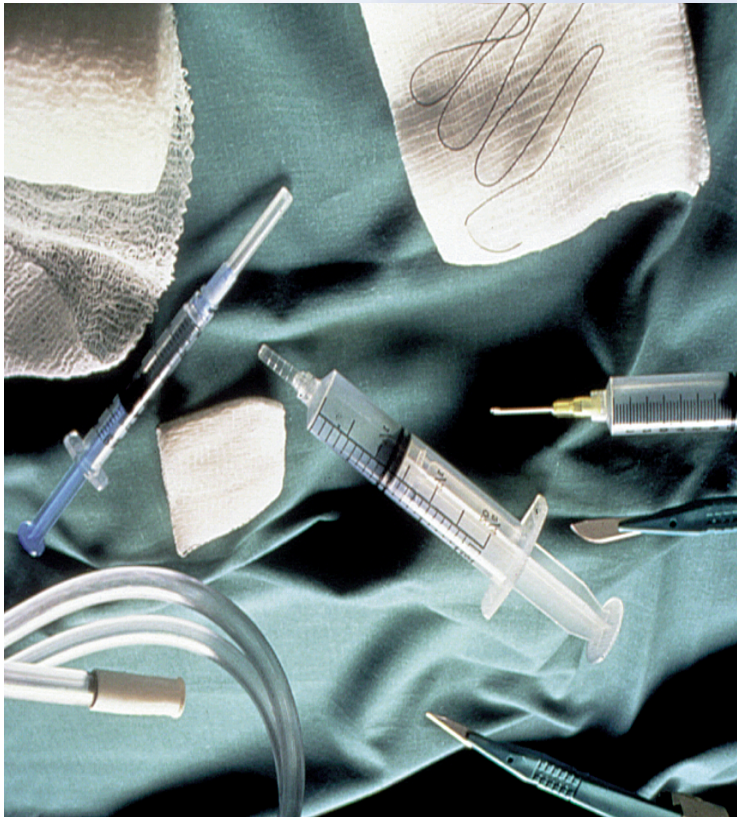
General Surgery and Supplies

Many single-use supplies found throughout the hospital are sterilized using gamma irradiation.

Pharmacology

Heart Surgery

Sterilizing medical supplies



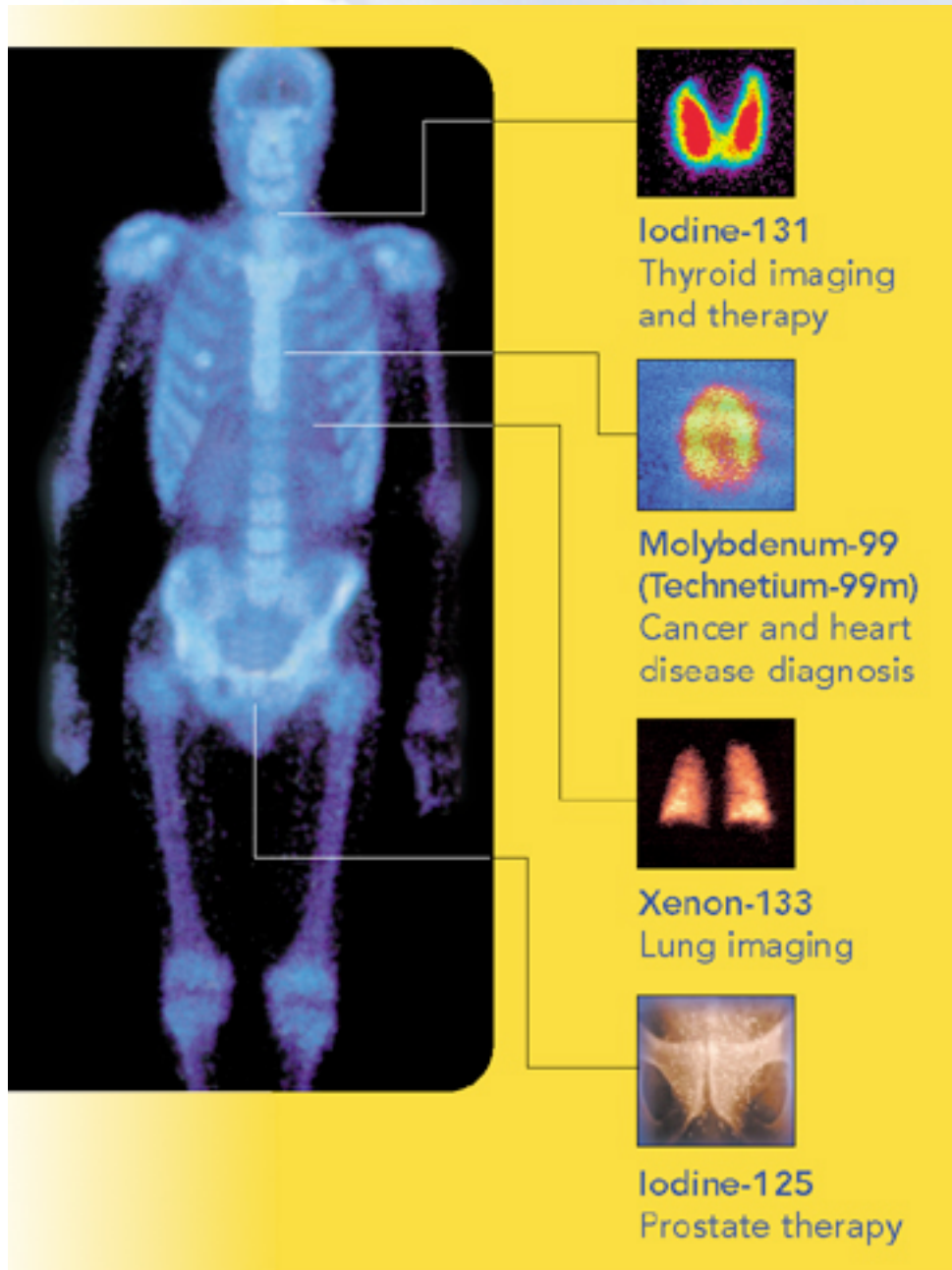
- 40% of disposable medical supplies are sterilized using cobalt-60
- Over 600 million curies of cobalt-60 shipped globally
- 180 gamma processing facilities

Cancer treatments



- Cobalt-60 teletherapy delivers 15 million treatments annually worldwide in 50 countries
- Over 1200 units installed globally
- Canadian innovation in cobalt-60 radiation therapy

MAPLE reactor production: key radioisotopes



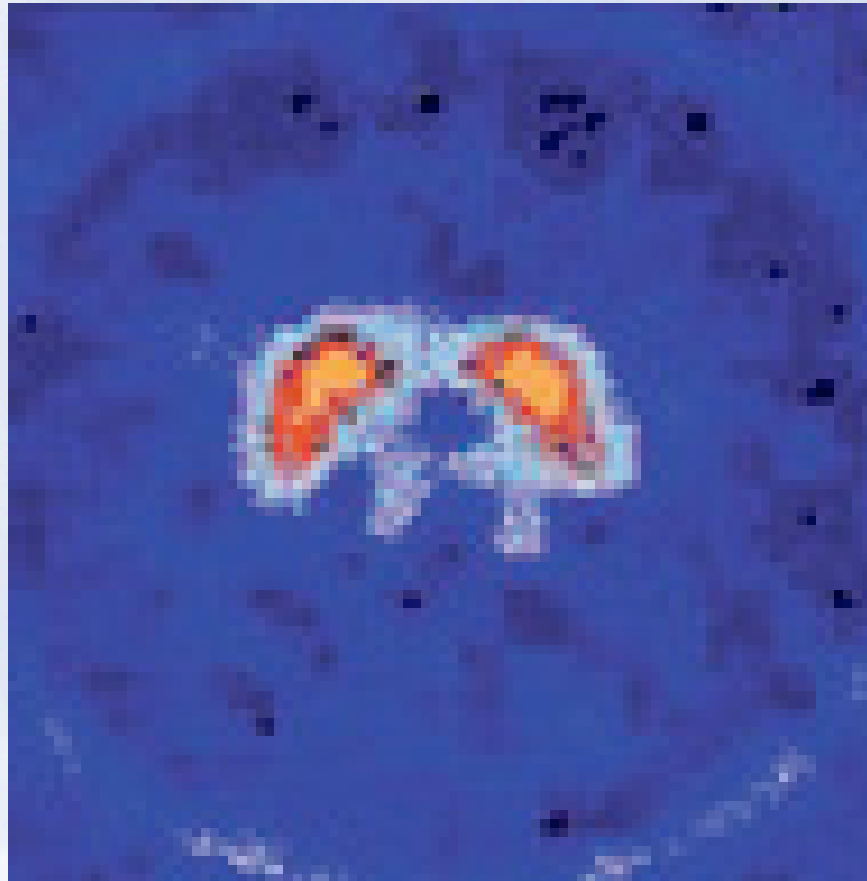
Iodine-131
Thyroid imaging and therapy

Molybdenum-99 (Technetium-99m)
Cancer and heart disease diagnosis

Xenon-133
Lung imaging

Iodine-125
Prostate therapy

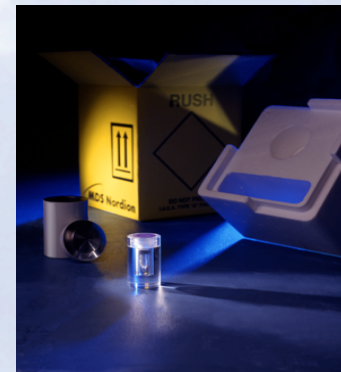
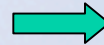
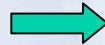
**Every day, more than 45,000 people
undergo a nuclear medicine procedure**



⇒ secure, reliable supply of medical isotopes

MDS Nordion
Science Advancing Health

Medical isotope supply chain



⇒ *logistics are critical*

MAPLE reactor project



- Dedicated exclusively to medical isotope production
- Ensuring reliable global supply
- First Canadian reactors in 10 years

- Molybdenum-99
- Iodine-131
- Xenon-133

} essential products to ensure reliability of patient health care

New therapies



- In 2002, the first-ever radioimmunotherapy approved by FDA to treat non-Hodgkin's lymphoma
- Patient benefits: life extension and quality of life vs. chemotherapy
- Innovation in radiolabelling monoclonal antibodies for targeted radiation therapy

MammoSite



- Breast Cancer post resection
- Uses HDR Brachy devices
- Ir-192 source

GliaSite



- Proxima
- Brain cancer [Glioma]
- I-125 labeled HBS (Iotrex)



The Reality of Food

LIFESTYLE

FOOD

How Safe Is Our Food?

Contamination causes 9,000 deaths a year, and new dangers are emerging

BY GEOFFREY COWLEY
AND JOHN MCCORMICK

A few weeks ago a nation that loves to agonize over fat, cholesterol and food additives got a jarring bit of news. Writing in the *Journal of the American Medical Association*, a team of public-health officials described how 23 people in southeastern Massachusetts had contracted a potentially deadly illness from a product most purists adore. The 23 New Englanders had suffered from bloody diarrhea, and in some cases kidney failure, after drinking apple cider in the fall of 1991.



tally, experts agree that the situation is growing ever dicier. "Are the dangers greater today than 10 years ago?" asks Dr. Robert Tauxe of the CDC's Foodborne and Diarrheal Diseases Branch. "Definitely."

APPLE

Microbes from the farm pose a greater hazard than additives

and old ones are finding new ways to make mischief. Dr. Paul Blake, chief of the foodborne-diseases branch at the CDC, recalls an unusual Dutch event that

One problem is that the microbial landscape is changing. A number of new pathogens have shown up in the food supply in recent years,

After Hudson Foods recall



MDS Nordion
Science Advancing Health

Irradiated chicken: what to look for?



Retailers / Foodservice

SuperValu

Winn Dixie

Kroger

Tops

Nash Finch

Wegmans

Hy-Vee

Publix

Dairy Queen

Embers

Price Chopper

Champps

Jewel-Osco (Albertson's)

Dominick's (Safeway)

Safeway

Pick 'n Save

Hannaford Bros.

Clemens Foods

Lowes Foods

D'Agostino Supermarkets

Pathmark Supermarkets

Farm Fresh Supermarkets

Rainbow Foods

Schnuck's

Giant Eagle

Radiation Technology: Advancing Global Health

- research and development
- diagnosis and treatment of disease
- medical product sterilization
- cancer therapy
- industrial processes
- agriculture
- food irradiation

⇒ *new developments, innovations, applications*
... for a new era