

Mirion Medical Radiopharma



Marianne Miserendino, Director Project Management
mmiserendino@mirion.com



MIRION
TECHNOLOGIES

Theranostics is driving a Nuclear Medicine Renaissance

Continued investment in research and development in RPT has the potential to yield novel applications as single agents or combined with other drugs, ushering in a new era of tailored and effective cancer therapy.

– **ASTRO**

The cancer epidemic continues to take its toll on individuals and societies. Smart radiopharmaceuticals for nuclear medicine techniques offer unprecedented opportunities for better diagnosis and more efficient therapies making such a positive impact across the world is only possible if emerging radiopharmaceuticals can be produced efficiently.

– **IAEA**

Theranostics [...] represents one of the most groundbreaking developments in nuclear medicine. [...] Theranostics is particularly transformative in cancer care, where it significantly enhances precision and treatment effectiveness while reducing the side effects associated with conventional therapies.

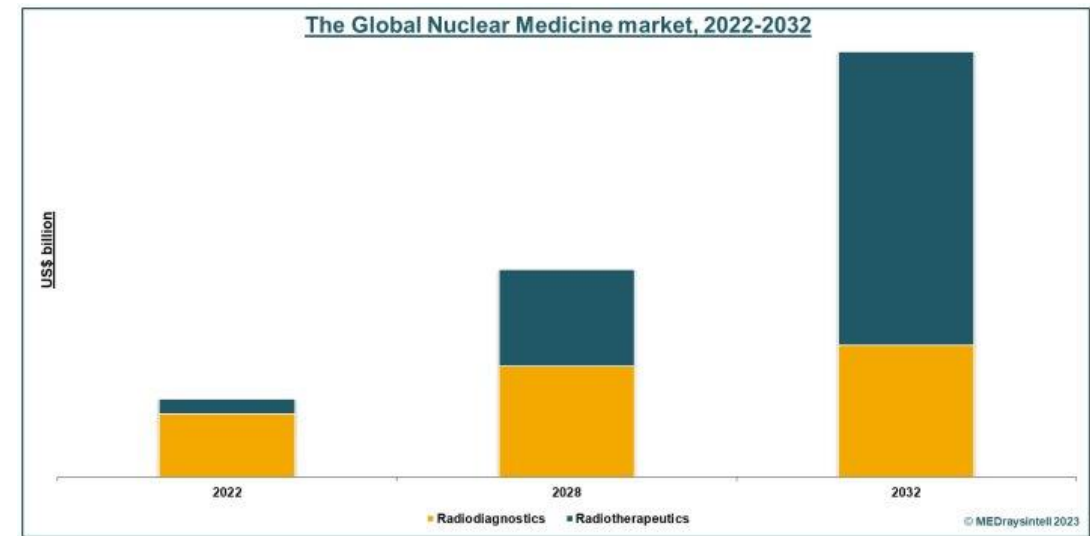
– **SNMMI**

Nuclear medicine is a crucial medical discipline significantly enhancing patient care by offering noninvasive diagnostic and therapeutic solutions. By employing radiopharmaceuticals and advanced imaging technologies, it enables precise visualization of organ function and structure. This field is integral to various medical specialties, including oncology, cardiology, and neurology, and is pivotal in diagnosing, managing, and treating numerous diseases.

– **EANM**

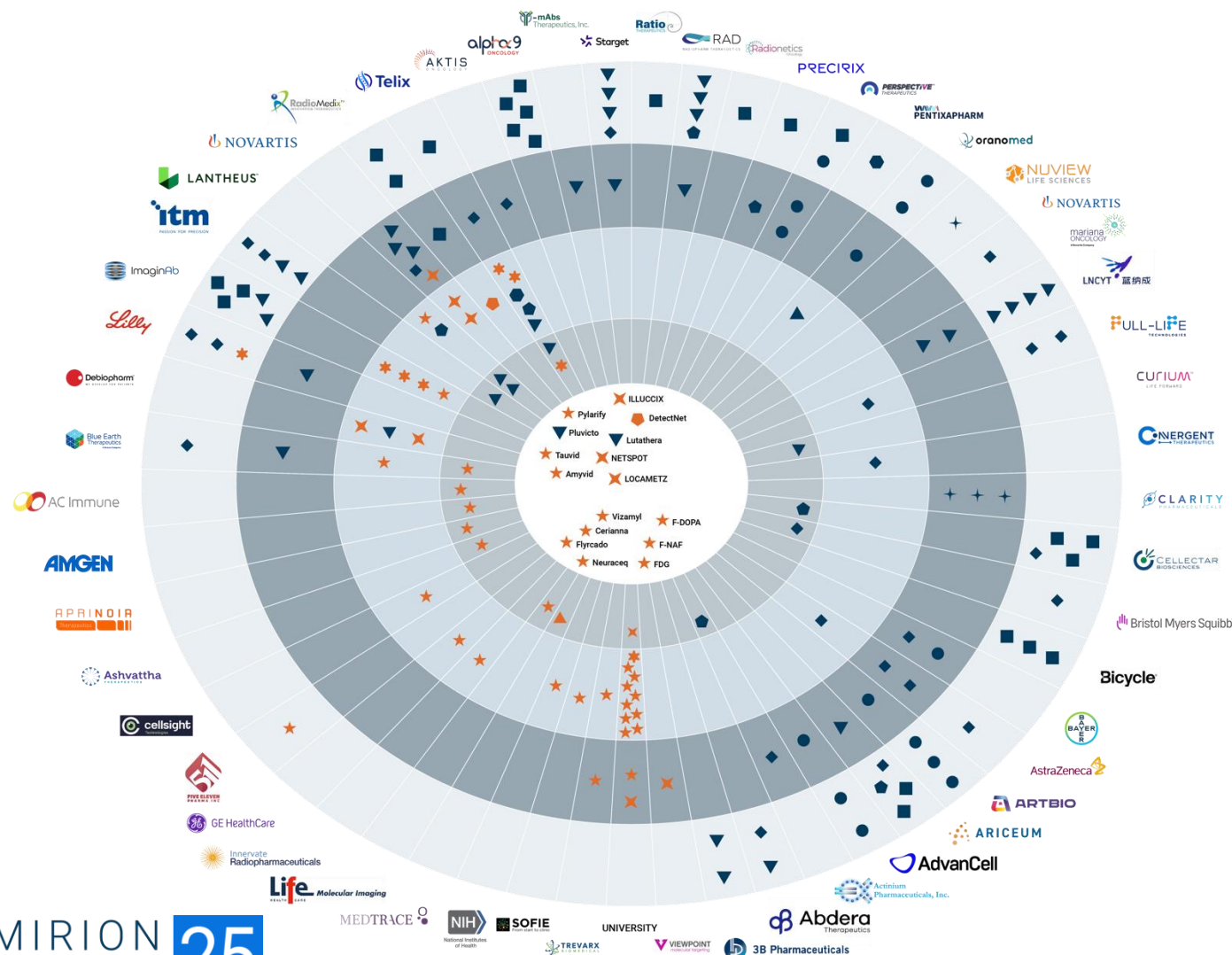
The market looks favorable for all parties

- Shift from Diagnostic to Theranostic
- Evolution of traditional nuclear medicine (cyclotron, pharma, clinic) to emerging theranostic centers
- Growth of drug companies will broaden and scale ligand pipeline and work to solve isotope supply, partner with CDMO, and contract for delivery



The number of global IX and DX trials continues to grow

- Currently, diagnostics represent a larger percent of approved and advanced stage drugs
- Next 5-10 years will see many newly approved drugs



Isotopes

Theranostics

^{177}Lu	^{225}Ac	^{212}Pb	$^{121, 123}\text{I}$
Lutetium-177	Actinium-255	Lead-212	Iodine-121 Iodine-123
^{67}Cu	^{90}Y		
Copper-67	Yttrium-90	UDC/Other	

Diagnostics

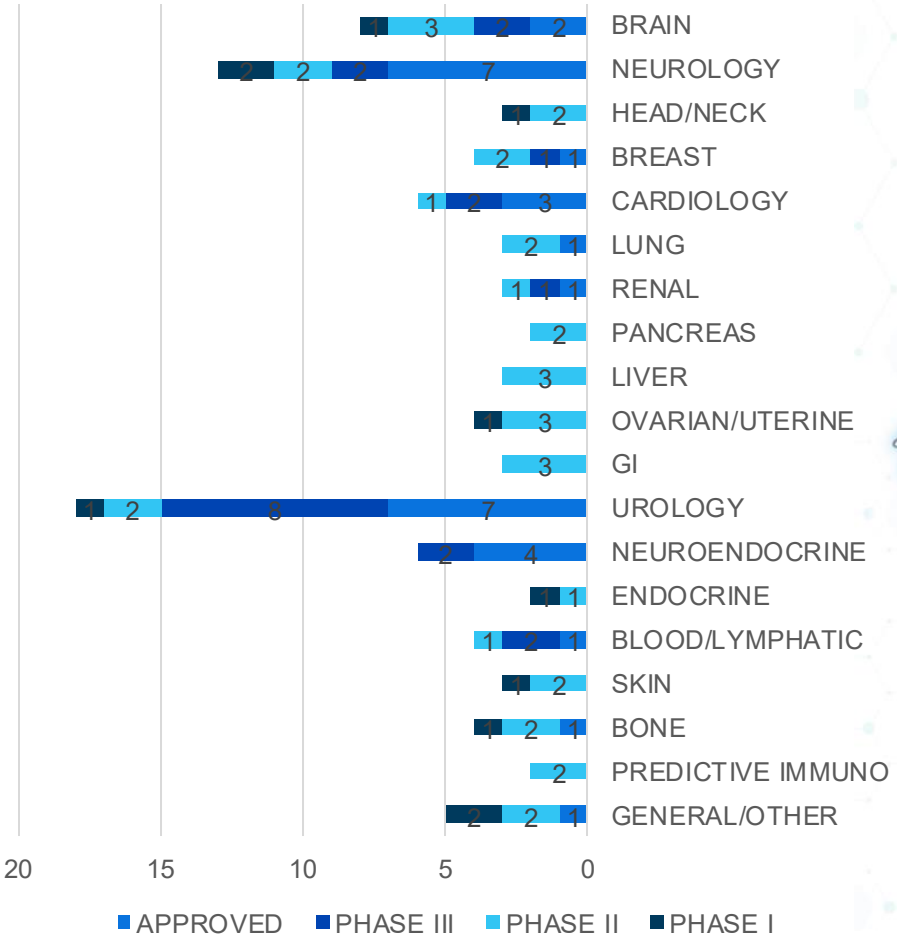
^{18}F	^{15}O	^{68}Ga
Fluorine-18	Oxygen-15	Gallium-68
^{64}Cu	^{89}Zr	
Copper-64	Zirconium-89	

Trial Status

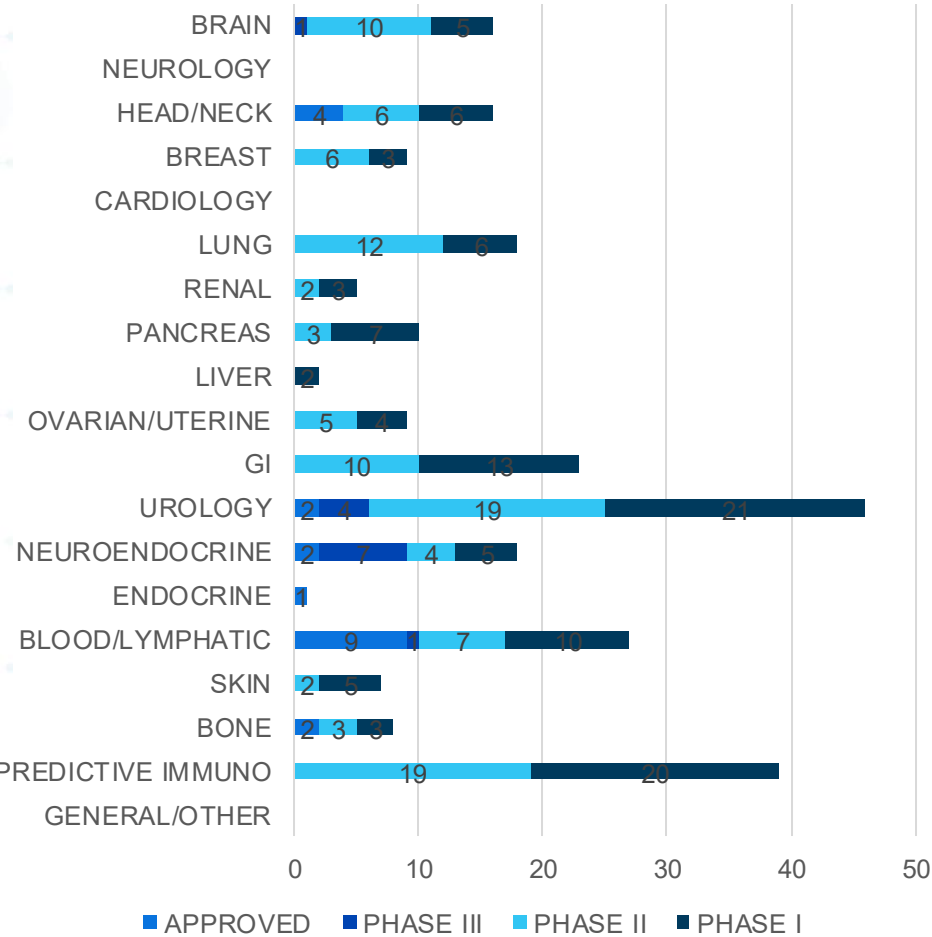
- Preclinical
- Phase 1/2
- Phase 2
- Phase 3 / Reg.
- Approved

Research is being done across a number of indications

Diagnostic



Therapeutic





ec² SOFTWARE
A MIRION MEDICAL COMPANY

Powering Precision Care

From research to production to diagnosis and care, ec² Software Solutions power the workflows behind precision medicine – enhancing safety, efficiency and clarity every step of the way.

MIRION
Connect 25

6 Annual Users' Conference

FOR DRUG OWNERS & CMOs

- Lisbon™ Platform for Customizable Drug & Order Data Visibility

FOR CMOs & RADIOPHARMACIES

- BioTrax™ QMS for Paperless Regulatory Compliance & Quality Management
- BioRx™ Software for Full Pharmacy Operations Oversight
- PharmOLO™ Online Dose Ordering Platform

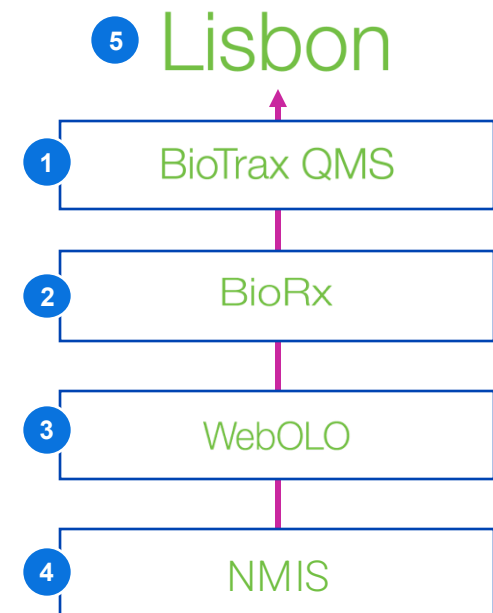
FOR MOLECULAR IMAGING & NUCLEAR MEDICINE TEAMS

- NMIS™ Software for Isotope Tracking & Department Management
- Numa™ DICOM & HL7 Communications
- WebOLO™ Online Dose Ordering Platform

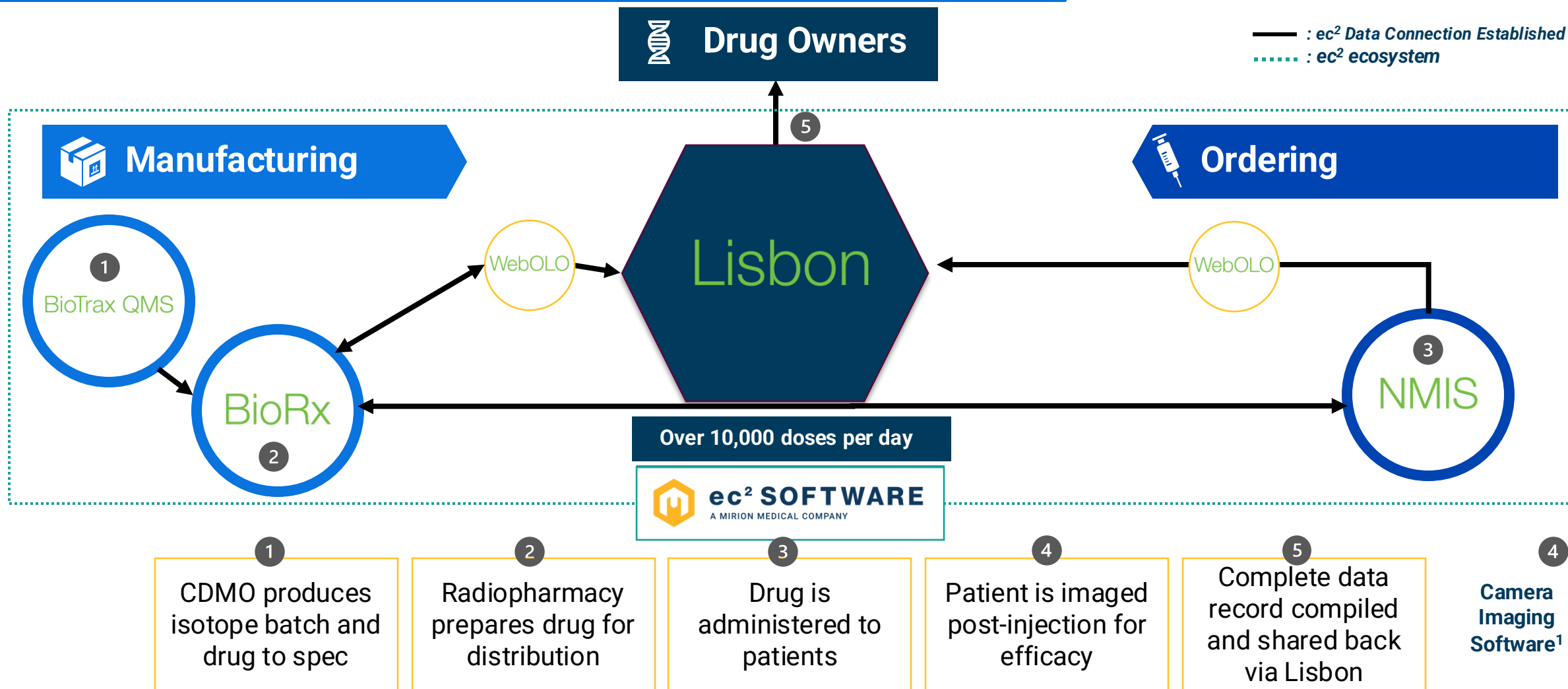
Innovation at Work

© 2025 Mirion Technologies. All rights reserved.

The ec² software ecosystem



The ec² software ecosystem



Facility management software Clinicians

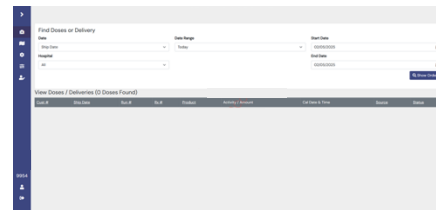


The facility management software is the entry point for clinics into the ec² ecosystem. It is designed to simplify patient scheduling, dosing, inventory control, receiving and waste management. Reporting dashboards and online ordering improve workflows, while connectivity options help remove errors to increase overall accuracy.



Department management

NMIS



Ordering

WEBOLO



Department management



Patient Worklist

- View patient schedule, procedure type, and history
- Integrate with EMR through HL7 and DICOM interfaces
- Review dose delivery details on demand



Health Physics

- Record and store test results in one central location
- Create notification alerts for failed tests
- Provide compliance reporting for RAM inspections



Analytics dashboard

- Track physician referrals
- Monitor department productivity and staffing requirements
- Identify patient volume trends

Online Ordering



Bilateral communication between the Department and most Radiopharmacies

- Send the orders directly to the Radiopharmacy based on patient schedule
- View the real-time order status anytime in NMIS
- Receive doses electronically into NMIS



Software designed to simplify radiopharmaceutical workflows for inventory control, receiving and waste management combined with a comprehensive health physics suite enables sites remain compliant with regulatory requirements



QMS Software

BioTrax QMS



Order Management

Lisbon

an approach to managing manufacturing requirements



Document management

Ability to access and manage quality documents

- Maintain version control
- Directly track approvals
- Convert to a single format



Inventory management

Track and manage flow of inventory for every run

- Manage raw materials
- Access SOPs
- Create audit trail for required processes



Certification management

Ensure training and certifications are up to date

- Assign and track training
- Create task lists
- Ensure equipment certification



Software designed to simplify radiopharmaceutical workflows for inventory control, receiving and processing prescription orders combined with a comprehensive billing module to ensure shipping and invoicing accuracy

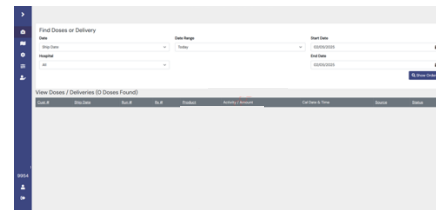


Facility management

Lisbon

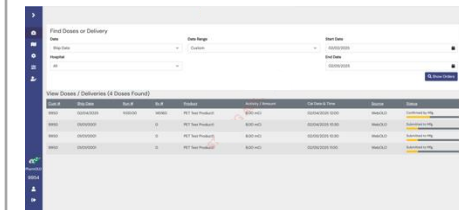


BioRx



Ordering

WebOLO



PharmOLO

Next provides a comprehensive software solution to efficiently operate any nuclear pharmacy

Real-time dispensing

- Centralized location for filling, elution, and mixing documentation
- Bi-directional connection to dose calibrator for precise values
- On-the-fly inventory adjustments

Centralized task list

- Single location for all pharmacy required daily/monthly/annual tasks
- Customizable reminders to ensure completion
- Easy review for verification and compliance

Inventory management

- Central repository for on-hand products available for sale or transfer
- Barcode integration for verification of data inputs
- Web interface for online ordering

Direct invoicing

- Centralized price schedules including credits for all customers
- Invoice generation, printing, distribution from one location
- Export to Quickbooks option



transparency into ordering information for drug owners and CMOs

With Lisbon, drug owners can:

- Improve order efficiency through visibility of the status of all orders and direct order feed
- Maintain high-level of accuracy by leveraging the customizable web-based interface and integrated API engine
- Track clinical studies and patient IDs during the trial period
- Compatible with any ec2 ordering module



Why Mirion

Comprehensive solutions for measurement, detection, monitoring and protection for the full lifecycle of medical isotopes.

Partner with Mirion to:

Your partner for solving radiation safety challenges

- Maintain operational continuity
- Detect and monitor radiation exposure for personnel
- Monitor environments for safety & compliance
- Mitigate exposure risks
- Protect the integrity of medical isotopes & radiopharmaceuticals
- Ensure patient dose measurement accuracy
- Safely transport, store & dispose radioactive