



NOTIFICATION OF INCIDENTAL IMAGINING FINDINGS AND THE VALUE ADDED TO HEALTHECARE

UEMURA, C.T.; MINAIF, K.; PEREIRA, A.C.N.; VITOR, T.; TACHIBANA B. M. T.; PIRES
A.P.C.C.; QUEIROZ, M.R.G.; TACHIBANA, A.

CATEGORY: QUALITY IMPROVEMENT REPORT AWARDS

TYPE OF STUDY: ORIGINAL

DISPLAY FORMAT: ELETRONIC PRESENTATION

Quality Department
HOSPITAL ISRAELITA ALBERT EINSTEIN
SÃO PAULO _ BRAZIL



INTRODUCTION AND AIM

Since 2016, our institution has created and has improved the **"Follow-up Program for Relevant Incidental Findings"**. The program helped many patients, who discovered incidental imaging findings while performing exams mainly during Emergency Room to monitor, diagnose and establish an early treatment of many diseases including malignant tumors. Also, demonstrated focus on continuous improvement on quality of care, patient safety and aggregated healthcare value.

Personalizing care and making the patient aware of the importance of engaging in their own health care can guarantee better outcomes. However, few studies aimed to quantify these benefits.



The main objectives to demonstrate the degree of patient compliance with our recommendations, the final outcomes of the incidental findings, possible impacts on prognosis and a cost analysis of complementary diagnostic procedures in order to perform a cost-effectiveness analysis.

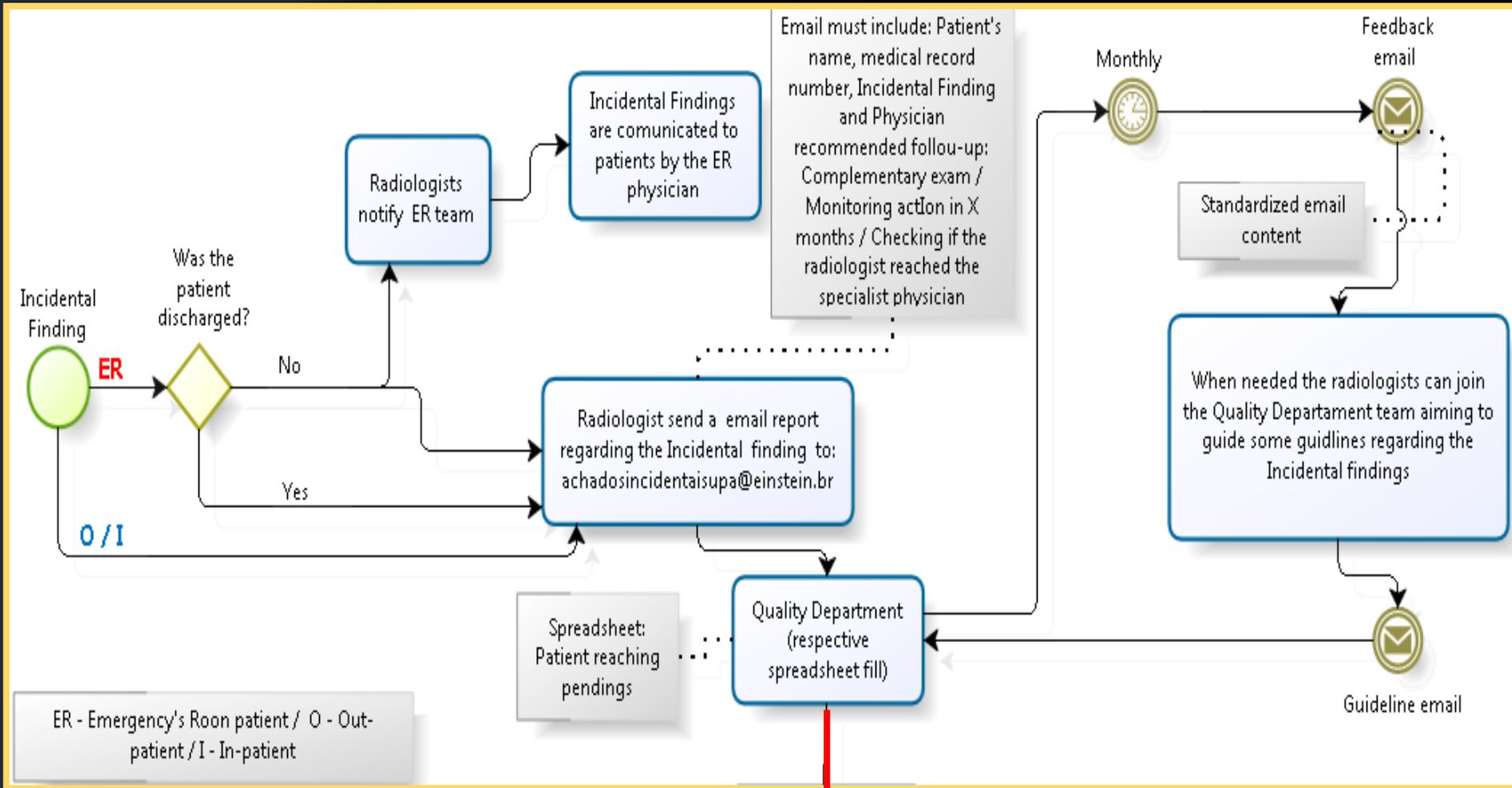


METHODOLOGY

We analyzed data from 2019 and 2020 that included: number of patients in the program, number of patients communicated and informed about the findings, outcomes (benign, malignant, still in follow-up and lost follow up or exams performed in another service) and financial impact based on how much was expended in our institution for diagnostic purposes.

The previous program (before 2019) focused on the follow-up of incidental findings in the Emergency Care Service. However, we found that the vast majority of patients did not check their reports after their discharge. In order to close this gap, we modified the communication algorithm to become more proactive in contacting patients, as presented in the following flowcharts.

METHODOLOGY - FLOWCHART



Flowchart designed to provide more active communication and follow up of incidental findings

Fig. 1 - Physician flowchart

Incidental findings communication steps from Radiologists team to Quality Department.

METHODOLOGY - FLOWCHART

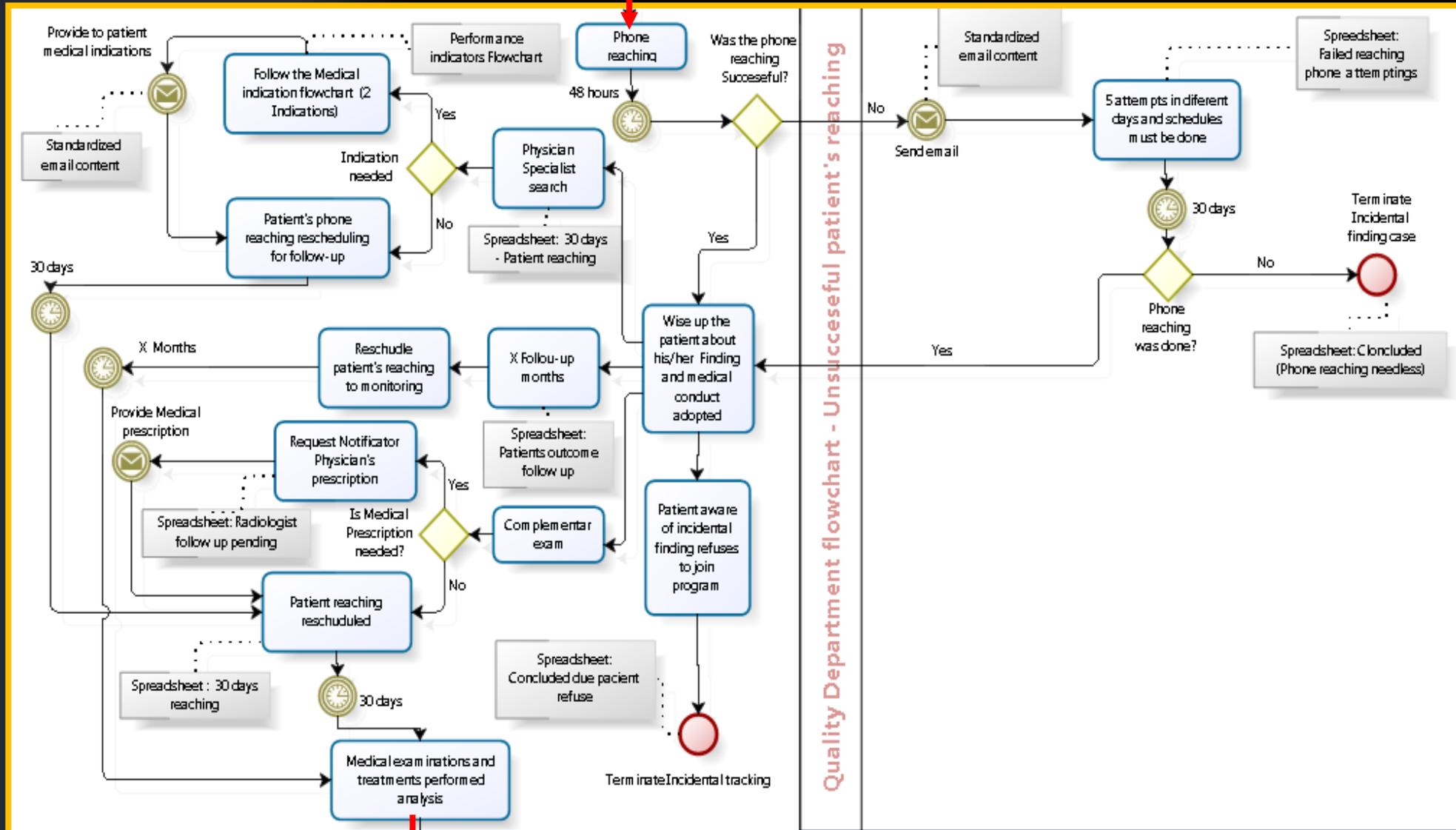


Fig. 2 - Quality Department Flowchart

Successful and unsuccessful patient's reaching attempts flows.

METHODOLOGY - FLOWCHART

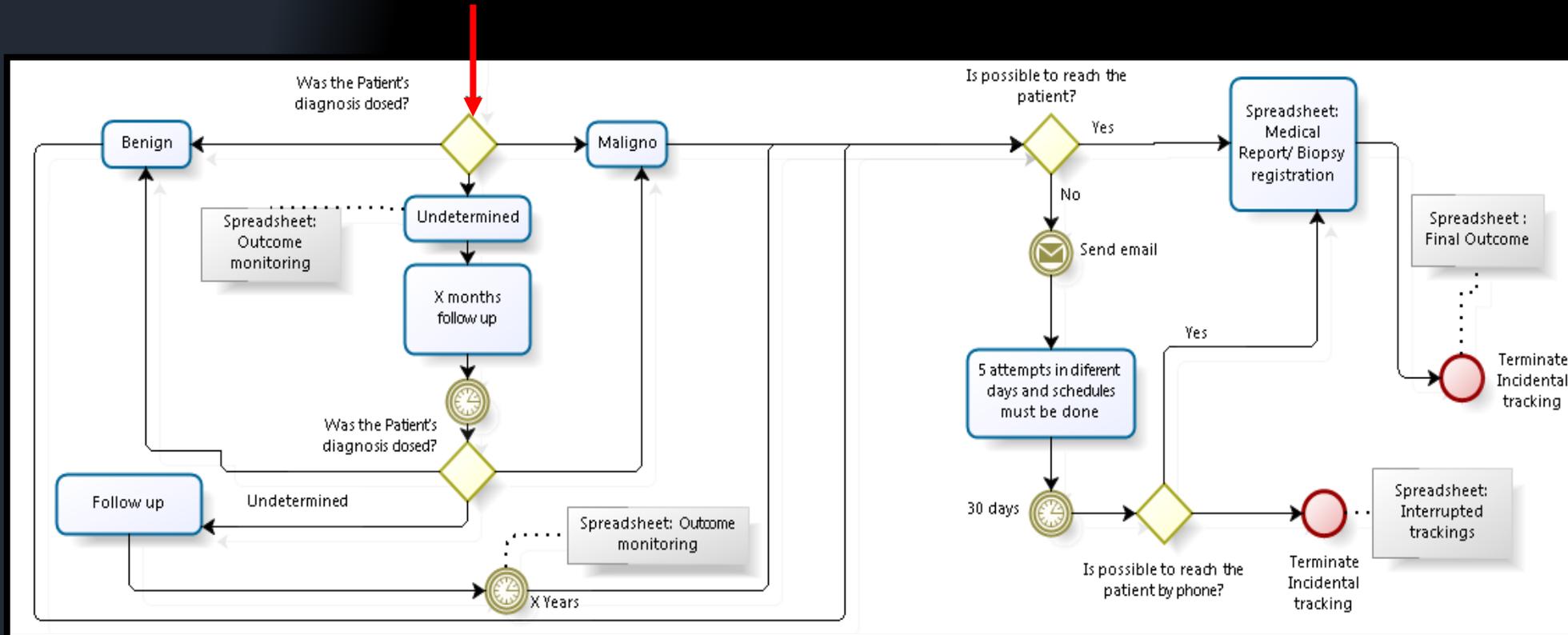


Fig. 3 - Quality Department Flowchart of Patient's Outcome / Follow-up

Incidental findings and their possible outcomes



RESULTS AND DISCUSSION

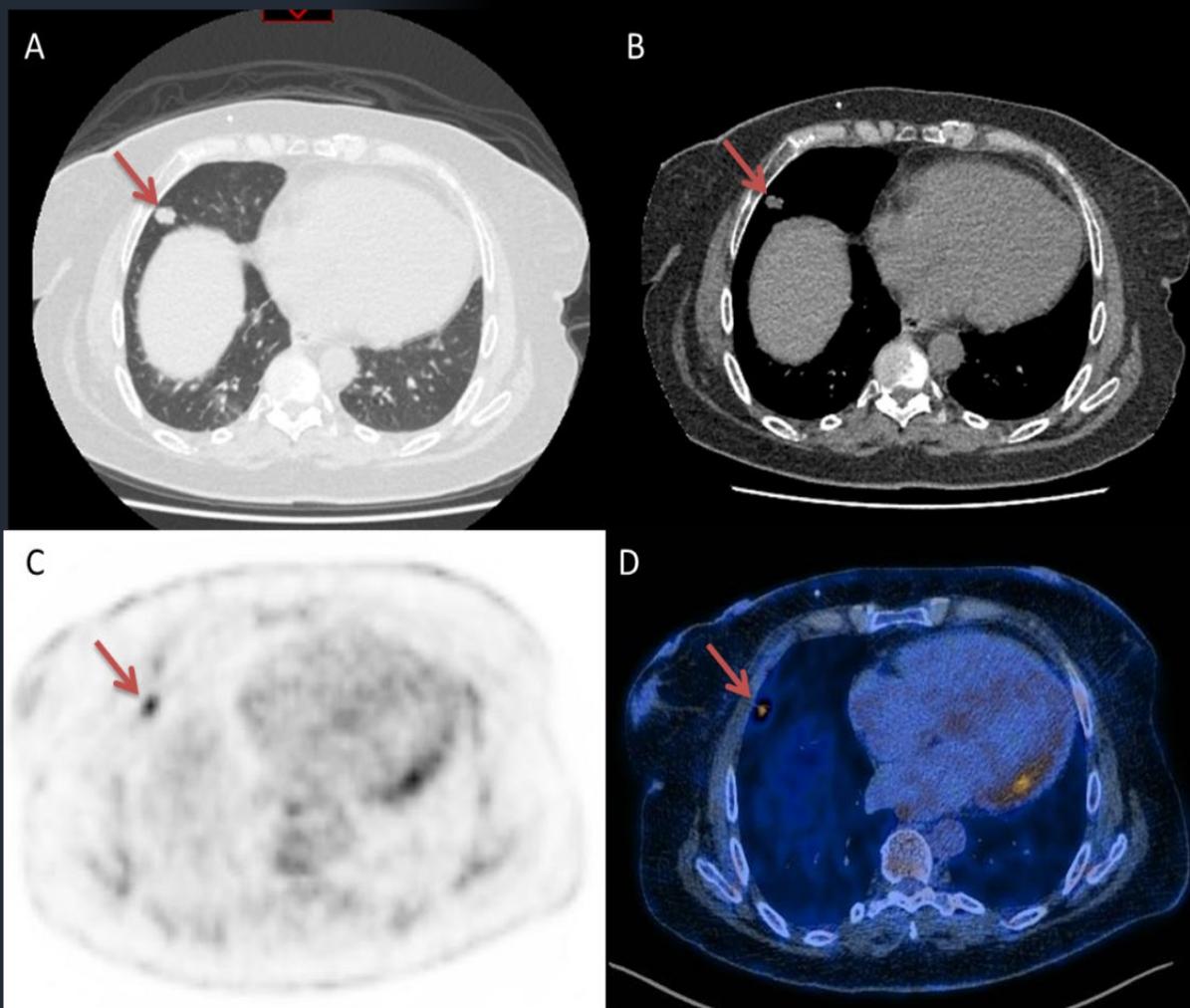


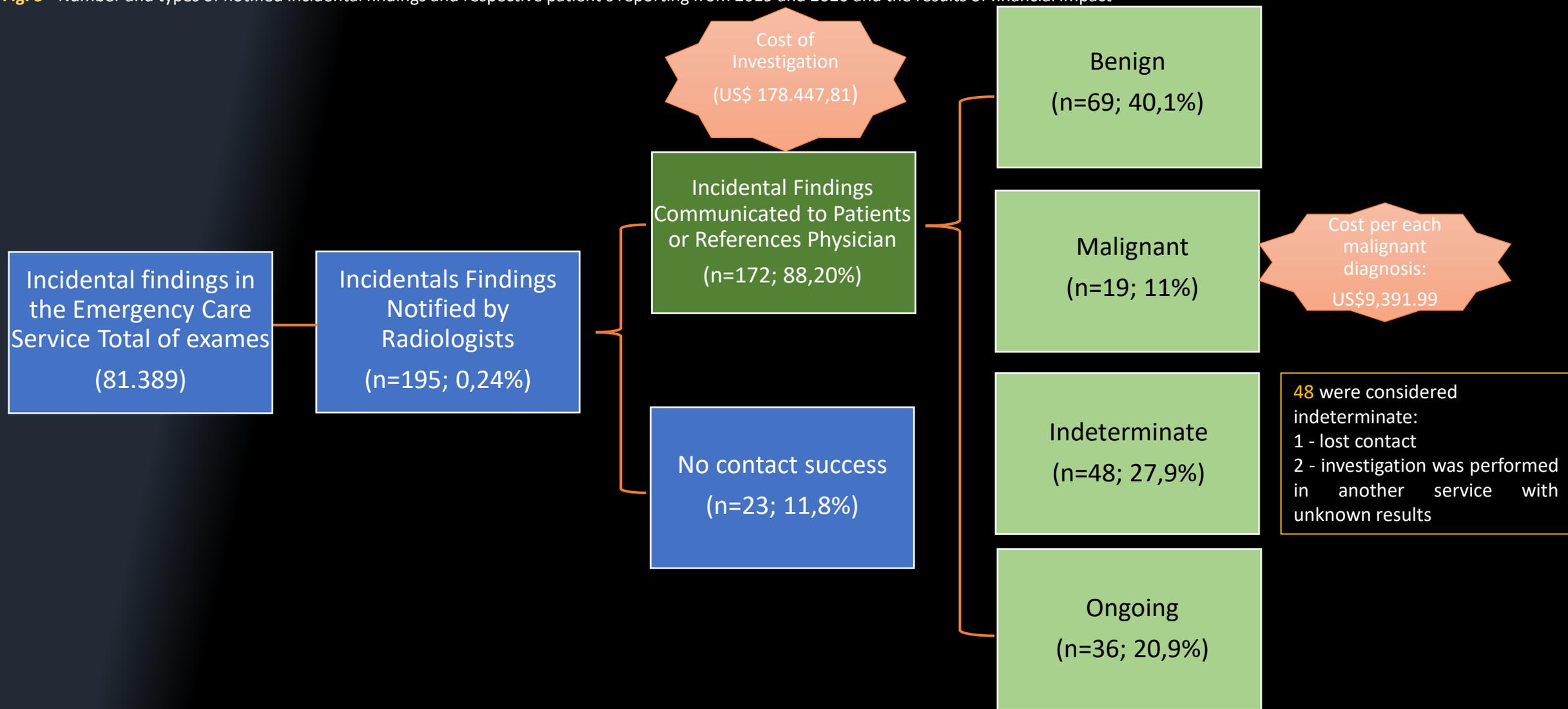
Fig. 4 - A chest CT of a 61-year-old woman with chest pain after minor trauma. CT identified fractures in several ribs and also, a **suspicious lung nodule in the middle lobe**. This patient was included for follow-up of the “Incidental Finding” program, and her family doctor was contacted. In a time-frame of two months, she performed a Positron Emission Computed Tomography / Computed Tomography (PET/CT), a CT-guided lung biopsy, and underwent curative surgical resection of a **papillary adenocarcinoma**.

(A) Nodule (arrow) on a axial view of CT with lung window; **(B)** Axial view with mediastinal window of a CT; **(C)** Axial view of PET showing high uptake of fluorodeoxyglucose by the nodule; **(D)** Axial fusion view of PET/CT.



RESULTS AND DISCUSSION

Fig. 5 - Number and types of notified incidental findings and respective patient's reporting from 2019 and 2020 and the results of financial impact



*The global Sars-CoV-2 pandemic should be considered to decrease the number of exams performed in 2020, consequently reducing the number of incidental findings.

**The higher percentage of patients with ongoing follow up and indeterminate findings also can be related to the pandemic.

RESULTS AND DISCUSSION

During the two-year evaluation period, 94 patients (48%) underwent or are undergoing diagnostic follow-up at our hospital, 19 of these patients had a diagnosis of malignancy. The table below represents all diagnostic procedures performed, as well as their costs.

Procedures	Number of procedures	Costs (R\$)	Costs (US\$)
Laboratory Testes	3117	R\$ 390.834,53	\$ 72.376,76
Computed Tomograph	121	R\$ 146.287,58	\$ 27.090,29
Magnetic Resonance Imaging	43	R\$ 122.933,84	\$ 22.765,53
Ultrasound	76	R\$ 53.351,03	\$ 9.879,82
X-Ray	201	R\$ 39.351,84	\$ 7.287,38
PET-CT / Scintigraphs	38	R\$ 6.392,15	\$ 1.183,73
Biopsies	23	R\$ 149.359,66	\$ 27.659,20
Colonoscopy/ Endoscopy	33	R\$ 36.852,64	\$ 6.824,56
Cardiac Exames	36	R\$ 18.254,90	\$ 3.380,54
TOTAL	3688	R\$ 963.618,17	\$ 178.447,81

***The total cost of diagnostic procedures was R\$ 936.618,17 (US\$ 178,447.81) over the two years.
The mean value invested to diagnose each malignancy was US\$ 9,391.99.***



CONCLUSIONS

The "Follow-up Program for Relevant Incidental Imaging Findings" had significant adherence from patients who were notified, contributing positively to enhance patient care experience, improve quality and health outcomes with a significant rate of malignant diagnosis that could be properly managed. The results obtained with this program have demonstrated a process that is feasible and an example of a **value-based medicine in radiology**.

Patients with benign findings were also benefited by the program. Some of them had the diagnosis of conditions that, although benign, could have an impact on life expectancy when not diagnosed and treated.

US\$ 9,300 was the cost for diagnosing each incidental malignancy and it is likely to be less than the additional expense that would occur for treating the disease in a delayed diagnosis than.

The results obtained with this program have demonstrated a process that is feasible and an example of a value-based medicine in radiology.

Thank you

Bibliography References:

- Lumbreras, Blanca, et al. "Management of patients with incidental findings in imaging tests: a large prospective single-center study." *Clinical imaging* 38.3 (2014): 249-254.
- Hanna, Tarek N., et al. "Incidental findings in emergency imaging: frequency, recommendations, and compliance with consensus guidelines." *Emergency radiology* 23.2 (2016): 169-174.
- Lumbreras, Blanca, et al. "Unexpected findings at imaging: predicting frequency in various types of studies." *European journal of radiology* 74.1 (2010): 269-274.