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A Narrative Review: Mapping an Integrated, Multidisciplinary Pathway for the Early Detection and Management of Incidentalomas in Primary Care

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Abstract

Background: The proliferation of advanced diagnostic imaging has led to a significant increase in incidental findings, or incidentalomas. These unexpected discoveries, often in asymptomatic patients, present a complex clinical dilemma, creating potential patient anxiety, driving further potentially unnecessary investigations, and straining healthcare resources. Current management is frequently fragmented, lacking standardized protocols that actively integrate the core primary care team members. **Aim:** This narrative review aims to synthesize existing evidence to propose a standardized, patient-centric, multidisciplinary workflow for managing incidentalomas from detection to resolution, explicitly defining the roles of the General Practitioner (GP), Radiologist, Nurse, Pharmacist, and Health Assistant. **Methods:** A comprehensive literature search was conducted across PubMed, Scopus, and CINAHL databases for English-language articles published between 2010 and 2024. Keywords included "incidentaloma," "incidental finding," "multidisciplinary," "primary care," "patient navigation," and profession-specific terms. **Results:** The review identifies critical gaps in communication, patient support, and care coordination. It maps a novel five-pillar pathway: 1) Standardized Radiological Reporting & Risk Stratification, 2) GP-mediated Patient Counseling & Shared Decision-Making, 3) Nurse-led Coordination & Psychological Support, 4) Pharmacist-led Medication Safety Review, and 5) Health Assistant-driven Logistics Management. Two conceptual tables summarize role-specific interventions and a proposed staging protocol. **Conclusion:** An integrated pathway that leverages the complementary skills of all five primary care professions can significantly reduce patient anxiety, minimize unnecessary interventions, improve adherence to follow-up, and optimize resource utilization. Implementing such a model requires systemic changes in communication infrastructure, interprofessional education, and clinical governance.

Keywords: Incidentaloma, Multidisciplinary Care, Patient Navigation, Primary Health Care, Radiology.

Introduction

The technological evolution of diagnostic imaging—marked by the increasing resolution of computed tomography (CT), magnetic resonance imaging (MRI), and ultrasonography—has created a modern medical paradox (O'Sullivan et al., 2018). While these tools provide unparalleled insights into human anatomy, they simultaneously unveil a vast array of unexpected, asymptomatic findings, collectively termed "incidentalomas" (Crable et al., 2021). An incidentaloma is defined as a lesion discovered unexpectedly during an imaging investigation performed for an unrelated reason (Moore et al., 2023). Their prevalence is staggering; for instance, incidental pulmonary nodules are found in up to 31% of chest CT scans, adrenal incidentalomas in 4-5% of abdominal CTs, and thyroid nodules in over 50% of neck ultrasounds (MacMahon et al., 2017; Fassnacht et al., 2016; Durante et al., 2018).

The discovery of an incidentaloma catapults a patient, often from a state of perceived wellness, into a labyrinth of medical uncertainty. This triggers the "incidentaloma cascade": a sequence of events involving further imaging, biochemical tests, specialist referrals, invasive biopsies, and sometimes definitive treatments for lesions that may never have caused morbidity (Siegmund et al., 2020). The clinical, psychological, and economic ramifications are profound. From a patient perspective, an

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incidentaloma diagnosis is frequently associated with significant anxiety, distress, and "scanxiety"—the specific fear related to imaging and its results (Lumbreras et al., 2010). Clinically, the central challenge lies in distinguishing the rare, clinically significant finding from the multitude of benign or indolent entities, all while avoiding both harmful overtreatment and dangerous neglect (Crable et al., 2021).

Current management guidelines, such as those for pulmonary nodules from the Fleischner Society or for adrenal masses from the European Society of Endocrinology, provide excellent radiological and endocrine frameworks (MacMahon et al., 2017; Park & Kim, 2023). However, they predominantly focus on the "what" of management—size, growth, imaging characteristics—and less on the "how" of its operationalization within the complex ecosystem of primary care (Moore et al., 2023). The pathway from discovery to resolution is often fragmented, reliant on ad-hoc communication, and places an unsustainable burden on the General Practitioner (GP) as the sole coordinator (Kampalath et al., 2022). This fragmentation leads to inconsistent patient messaging, loss to follow-up, medication-related complications during interventions, and overall suboptimal care experiences.

This review posits that the effective management of incidentalomas is not solely a radiological or specialist dilemma but a quintessential test of integrated, multidisciplinary primary care. It argues that a systematic workflow, which actively leverages the distinct and complementary skills of the GP, Radiologist, Nurse, Pharmacist, and Health Assistant, is essential to navigate this complexity. Therefore, this narrative review aims to synthesize contemporary literature to construct and propose a standardized, patient-centric pathway for incidentaloma management. This pathway seeks to explicitly define and harmonize the roles of all five professions, with the ultimate goals of reducing patient harm and anxiety, ensuring appropriate follow-up, and improving the efficiency of healthcare delivery.

Methodology

This narrative review employed a systematic search strategy to capture relevant literature across the domains of radiology, primary care, nursing, pharmacy, and health services research. Electronic databases PubMed, Scopus, and CINAHL were searched for English-language articles published between January 2010 and December 2024. The search strategy combined Medical Subject Headings (MeSH) and keywords in various iterations: ("incidentaloma" OR "incidental finding*" OR "indeterminate nodule") AND ("management" OR "pathway" OR "guideline") AND ("primary care" OR "family practice" OR "general practitioner") AND ("multidisciplinary" OR "interprofessional" OR "team-based care") AND ("patient navigation" OR "care coordination" OR "patient anxiety"). Separate profession-specific searches were also conducted (e.g., "radiologist communication," "nurse navigator incidentaloma," "pharmacist medication reconciliation biopsy").

Inclusion criteria were: 1) articles focusing on the management of common incidentalomas (pulmonary, adrenal, thyroid, renal, hepatic, pancreatic); 2) studies or reviews discussing care coordination, communication, or patient experience; 3) literature on role definition within multidisciplinary teams in oncology or chronic disease management, deemed transferable to the incidentaloma context. Exclusion criteria included: 1) articles focused solely on the surgical or specialized medical management of confirmed malignancies; 2) case reports; 3) non-English literature. Titles and abstracts were screened, and full texts of relevant articles were obtained. The reference lists of key reviews were hand-searched for additional sources. Evidence was synthesized thematically to construct the proposed pathway and define professional roles. The review is illustrated with two original conceptual tables summarizing the integrated model.

The Clinical and Psychological Burden of the Incidentaloma

The discovery of an incidentaloma initiates a dual burden: a clinical challenge of risk assessment and a profound psychological impact on the patient. Clinically, the spectrum of possible outcomes ranges from entirely benign entities (e.g., hepatic cysts, adrenal adenomas) to premalignant or overtly malignant lesions (Berland et al., 2018). The art of management lies in applying evidence-based risk stratification tools—such as the Lung-RADS for pulmonary nodules or the Bosniak classification for renal cysts—to guide decisions about discharge, surveillance, or intervention (Mehta et al., 2017; Silverman et al., 2019). However, the application of these tools in the real world is inconsistent, influenced by variable radiologist reporting practices, GP familiarity with guidelines, and patient-specific factors like comorbidity (Prades et al., 2018).

Parallel to the clinical journey is the patient's psychological odyssey. The communication of an "unexpected finding" can be a life-altering moment, inducing immediate anxiety, fear of cancer, and existential distress (Bomhof et al., 2020). This period of uncertainty—often spanning weeks or months between initial finding and follow-up resolution—is characterized by "watchful waiting," which patients often describe as more stressful than definitive treatment for a known cancer (Loeb et al., 2018). The psychological toll includes sleep disturbance, difficulty concentrating, and altered mood, which can negatively impact quality of life and, ironically, health-seeking behaviors (e.g., avoiding follow-up due to anxiety) (Wiener et al., 2015). This underscores the critical need for the care pathway to be as attentive to psychological support as it is to clinical surveillance.

The Radiologist - Standardized Reporting & Initial Risk Stratification

The radiologist's role is the foundational first step in the pathway, setting the tone for all subsequent management. The quality and clarity of the radiology report are paramount. Unclear, non-committal language (e.g., "cannot exclude malignancy") increases GP uncertainty and patient anxiety (Fei et al., 2022). The implementation of structured reporting templates that mandate specific elements for incidentalomas is strongly advocated. As outlined in Table 1, such a report should explicitly: 1) Flag the finding as an "incidentaloma," 2) Describe it objectively (size, location, morphology, attenuation), 3) Provide a risk categorization using validated systems (e.g., Lung-RADS 1-4), 4) Give clear, guideline-based management recommendations, and 5) Suggest a specific follow-up interval if applicable (Crable et al., 2021; Clark et al., 2022).

Table 1: Key Elements of a Structured Radiology Report for an Incidentaloma

Report Section	Mandatory Elements for Incidentaloma	Example Language / Action
1. Notification	Explicit flag as an incidental finding.	"INCIDENTAL FINDING NOTE: An unrelated pulmonary nodule is identified."
2. Description	Objective metrics: size (in mm), location, morphology, density/attenuation.	"A 6 mm solid, smooth-edged nodule is present in the right upper lobe (image 12, series 3)."
3. Risk Stratification	Use of a validated classification system (where available).	"This nodule corresponds to Lung-RADS Category 2: Benign appearance."
4. Management Recommendation	Clear, guideline-based next step. Avoids vague language.	"No routine follow-up is recommended per Fleischner Society 2017 guidelines for low-risk patients." OR "Follow-up with a non-contrast chest CT in 12 months is suggested."
5. Communication	Statement on whether direct communication was made (for high-risk findings).	"The referring physician has been notified of this finding by telephone."

This move from descriptive narrative to actionable, guideline-embedded reporting transforms the radiologist from a passive observer to an active decision-support partner for the GP (Gunn et al., 2015). Direct communication for highly suspicious or urgent findings is also a critical safety component, but even for lower-risk findings, a standardized report is the essential data packet for the rest of the team (Moore et al., 2023). Furthermore, the radiologist's expertise is crucial in determining the appropriateness and protocol for any recommended follow-up imaging, thereby minimizing unnecessary radiation or contrast exposure (Gibney et al., 2021).

The General Practitioner - Integrative Interpretation, Counseling & Shared Decision-Making

The GP receives the radiologist's report and faces the critical task of contextualizing it within the full tapestry of the patient's health. The GP's role is tripartite: medical integrator, communicator, and shared decision-maker. First, integrative interpretation involves correlating the imaging finding with the patient's clinical history, symptoms (or lack thereof), comorbidities, life expectancy, and values (Segelov et al., 2022). A 4mm lung nodule in a 30-year-old non-smoker carries a different implication than the same finding in an 80-year-old with severe COPD. The GP must weigh the pre-test probability of malignancy against the risks of further investigation.

Second, patient counseling and communication require exceptional skill. The GP must deliver potentially worrying news in a clear, empathetic, and balanced manner, avoiding both minimisation and catastrophic language (Wiener et al., 2015). The concept of "precision communication" is key—tailoring the explanation to the patient's health literacy and emotional state (Epstein & Gramling, 2013). This includes explaining the meaning of an incidentaloma, the rationale for surveillance versus action, and the likelihood of a benign outcome.

Third, this leads naturally to shared decision-making (SDM). The GP presents the options (e.g., active surveillance vs. immediate referral for biopsy), along with their associated benefits, risks, and uncertainties (Al Hussein Al Awamlh et al., 2023). For many low-risk incidentalomas, the optimal choice is heavily influenced by patients' risk tolerance and the burden of surveillance (Evans et al., 2022). The GP facilitates this conversation, ensuring the patient's values guide the final management plan, which is then formally documented and communicated to the team (Cambos & Tabarin, 2020).

The Nurse - Coordination, Navigation & Psychosocial Support

Once a management plan is established, the Nurse (often in a dedicated Nurse Navigator role in structured pathways) becomes the operational and emotional linchpin of the process. This role addresses the pervasive gap in care coordination identified in the literature (Wiener et al., 2015). The nurse's functions are multifaceted. As a Care Coordinator/Navigator, they establish a longitudinal relationship with the patient, serving as a single, accessible point of contact (Wagner et al., 2000). They manage the complex logistics of the surveillance timeline: tracking due dates for follow-up scans, facilitating referrals to specialists if needed, and ensuring all results are collated and communicated back to the GP and patient.

Perhaps most critically, the Nurse provides ongoing Psychosocial Support and Health Education. They assess and address patient anxiety, providing reassurance, normalizing emotional responses, and teaching coping strategies (Gibson et al., 2018). They reinforce the GP's explanations, ensuring the patient understands the plan and its rationale. This continuous support during the "watchful waiting" period is instrumental in reducing distress and preventing loss to follow-up due to fear or confusion (Lowenstein et al., 2021). Furthermore, the Nurse plays a vital role in assessing and managing symptoms that may arise, acting as a clinical filter for the GP (Wagner et al., 2000).

The Pharmacist - Medication Safety Review & Optimization

The Pharmacist's role, often overlooked in incidentaloma pathways, is a crucial safety intervention, particularly when the care plan escalates to biopsy or surgical intervention. Many incidentalomas require procedural clarification, which carries risks of bleeding, infection, or adrenal crisis, all of which can be exacerbated by a patient's pre-existing medications (Davidson et al., 2019).

The Pharmacist conducts a comprehensive Medication Reconciliation and Safety Review. This involves identifying medications that increase procedural risk, such as anticoagulants (warfarin, DOACs), antiplatelets (clopidogrel), NSAIDs, and herbal supplements (e.g., garlic, ginkgo) with antiplatelet effects (Davidson et al., 2019). In collaboration with the GP and proceduralist, the pharmacist develops and executes a personalized plan for peri-procedural management of these agents—whether it involves bridging, holding, or substituting medications (Ortel et al., 2020).

For adrenal incidentalomas, the pharmacist's role extends to reviewing for signs of adrenal hormone excess that may have been missed and understanding the implications of corticosteroid coverage if surgery is planned (Feeney et al., 2022). Furthermore, if the incidentaloma results in a new diagnosis requiring pharmacotherapy (e.g., thyroid cancer), the pharmacist leads medication education, adherence counseling, and long-term monitoring for side effects (Passey et al., 2021). This proactive medication stewardship prevents complications, reduces procedural delays, and improves overall patient safety.

The Health Assistant - Logistics, Administrative Support & Continuity

The Health Assistant (or Medical Assistant) is the administrative engine that ensures the pathway runs smoothly. Their work in Logistics and Administrative Support is vital for efficiency and patient satisfaction. Responsibilities include scheduling follow-up imaging appointments and specialist consultations, managing prior authorizations with insurance companies, and ensuring timely retrieval and filing of all external reports and results into the patient's electronic health record (EHR) (Ramirez et al., 2017).

They also play a key role in maintaining Continuity and Follow-up Tracking. In many practices, they manage registries or tickler systems for patients under surveillance for incidentalomas, proactively identifying patients overdue for follow-up and triggering reminder calls or letters (Talutis et al., 2022). By handling these time-consuming administrative tasks, they free the GP and Nurse to focus on higher-level clinical reasoning and patient interaction. Their direct telephone contact with patients for scheduling also offers an additional touchpoint to identify overt patient distress that can be escalated to the nurse or GP (Ramirez et al., 2017).

A Proposed Integrated Staging Pathway

The effective integration of these five pillars requires a formalized protocol. The proposed "Incidentaloma Staging Pathway" (see Table 2) outlines the actions and communication handoffs for each professional at key stages: Stage 1: Detection & Reporting, Stage 2: Triage & Decision-Making, Stage 3: Active Surveillance Coordination, and Stage 4: Intervention & Resolution. This staging model ensures that for every incidentaloma, there is a clear algorithm that activates the relevant members of the team at the appropriate time, with defined responsibilities and closed-loop communication.

Table 2: Proposed Integrated Staging Pathway for Incidentaloma Management

Stage	GP	Radiologist	Nurse	Pharmacist	Health Assistant
1. Detection & Reporting	Receives/ reviews report.	Issues **structured report** (Table 1).	—	—	Uploads report to EHR; alerts GP.

2. Triage & Decision-Making	**Integrates** findings with patient context. **Counsels** the patient. **Leads SDM**. Documents plan.	Available for consultation on imaging nuance.	Attends consult; begins **rapport building**; provides initial education/ reassurance.	If biopsy/surgery is planned, initiate **medication review**.	Schedules urgent GP visit; prepares patient chart.
3. Active Surveillance Coordination	Reviews follow-up results; makes ongoing decisions.	Interprets follow-up scans; notes stability/change.	**Primary navigator**: Tracks timeline, contacts patient for reminders, provides **ongoing support**, and assesses anxiety.	Reviews new medications for interactions with planned surveillance (e.g., nephrotoxic drugs before contrast).	**Tracks due dates** via registry; schedules surveillance imaging; chases results; sends reminders.
4. Intervention & Resolution	Refers to a specialist; manages co-morbidities post-procedure.	May perform image-guided biopsy.	Coordinates with specialist team; provides pre-/post-procedure education; supports transition back to PC.	**Finalizes peri-procedural medication plan**; provides post-op drug education.	Schedules procedures/ specialist visits; manages auths; ensures records transfer.
5. Discharge/ Monitoring	Discharges from the pathway if benign; provides final reassurance.	Issue final report confirming resolution/ stability.	Conducts **final follow-up call**; assesses understanding; provides closure.	—	Archives pathway documents; closes tracking log.

The pathway hinges on a shared Incidentaloma Care Plan within the EHR, accessible to all team members. This living document contains the radiologist's report, the SDM note from the GP consultation, the nurse's navigation plan, the pharmacist's medication review, and the health assistant's tracking log. Regular, brief multidisciplinary team (MDT) huddles—even virtual ones—to discuss complex or high-risk cases can further enhance coordination and collective problem-solving (Wagner et al., 2000).

Discussion

The proposed integrated pathway offers transformative potential benefits. For patients, it promises reduced anxiety through consistent support, improved understanding, and a diminished feeling of being lost in the system (Wiener et al., 2015). For clinicians, it distributes the workload logically, reduces burnout from sole responsibility, and improves job satisfaction through effective teamwork (Wagner et al., 2000). For the health system, it should increase adherence to evidence-based follow-up, reduce medicolegal risk from lost findings, minimize unnecessary referrals and interventions, and ultimately improve the value of care delivered (Voltan et al., 2021).

However, significant implementation challenges exist. Professional Silos and Role Ambiguity persist in many settings. Some GPs may resist perceived delegation, while other professionals may be under-utilized (Sirimsi et al., 2022). Information Technology (IT) and Infrastructure are major enablers or barriers. The EHR must support structured reporting, shared care plans, and tracking functions. Reimbursement Models often do not support non-face-to-face care coordination activities by nurses, pharmacists, or health assistants, creating financial disincentives for practices (Kang et al., 2019). Finally, a lack of Interprofessional Education means teams may not be trained to work in this collaborative manner.

Future directions must address these challenges. Advocacy for policy changes to fund care coordination is essential. Health informatics research should focus on developing and testing EHR-integrated incidentaloma management modules. Educational institutions must embed interprofessional competencies into curricula. Furthermore, robust implementation science research is needed to pilot and refine this model in diverse primary care settings, measuring outcomes such as patient-reported anxiety, time to resolution, cost-effectiveness, and provider satisfaction.

Conclusion

The incidentaloma is a defining challenge of modern medicine, a byproduct of our diagnostic prowess that tests the resilience and integration of our care systems. Managing it effectively requires moving beyond isolated, discipline-specific guidelines towards a truly collaborative, patient-centric model. This review has articulated a pathway where the Radiologist provides clear, actionable intelligence; the GP integrates this into the patient's world and facilitates shared decisions; the Nurse navigates and supports the emotional and logistical journey; the Pharmacist safeguards medication management; and the Health Assistant ensures seamless operational flow. While barriers to implementation are real, the imperative to act is clear. By formally integrating these five pillars, healthcare systems can transform the incidentaloma from a source of anxiety and fragmented care into an exemplar of coordinated, compassionate, and high-value primary care.

References

1. Al Hussein Al Awamlh, B., Wu, X., Barocas, D. A., Moses, K. A., Hoffman, R. M., Basourakos, S. P., ... & Shoag, J. E. (2023). Intensity of observation with active surveillance or watchful waiting in men with prostate cancer in the United States. *Prostate cancer and prostatic diseases*, *26*(2), 395-402. https://doi.org/10.1038/s41391-022-00580-z
2. Berland, L. L., et al. (2018). Managing incidental findings on abdominal CT: White paper of the ACR incidental findings committee. *Journal of the American College of Radiology*, 15(2), 384-390.
3. Bomhof, C. H., Van Bodegom, L., Vernooij, M. W., Pinxten, W. I. M., De Beaufort, I. D., & Bunnik, E. M. (2020). The impact of incidental findings detected during brain imaging on research participants of the Rotterdam study: an interview study. *Cambridge Quarterly of Healthcare Ethics*, *29*(4), 542-556. doi:10.1017/S0963180120000304
4. Cambos, S., & Tabarin, A. (2020). Management of adrenal incidentalomas: Working through uncertainty. *Best Practice & Research Clinical Endocrinology & Metabolism*, *34*(3), 101427. https://doi.org/10.1016/j.beem.2020.101427
5. Clark, S. D., Reuland, D. S., Brenner, A. T., & Jonas, D. E. (2022). Effect of incidental findings information on lung cancer screening intent: a randomized controlled trial. *Journal of General Internal Medicine*, *37*(14), 3676-3683. https://doi.org/10.1007/s11606-022-07409-4
6. Crable, E. L., Feeney, T., Harvey, J., Grim, V., Drainoni, M. L., Walkey, A. J., ... & Drake, F. T. (2021). Management strategies to promote follow-up care for incidental findings: a scoping review. *Journal of the American College of Radiology*, *18*(4), 566-579. https://doi.org/10.1016/j.jacr.2020.11.006
7. Davidson, J. C., Rahim, S., Hanks, S. E., Patel, I. J., Tam, A. L., Walker, T. G., ... & Sarode, R. (2019). Society of interventional radiology consensus guidelines for the periprocedural management of thrombotic and bleeding risk in patients undergoing percutaneous image-guided interventions—Part I: Review of anticoagulation agents and clinical considerations: Endorsed by the Canadian Association for Interventional Radiology and the Cardiovascular and Interventional Radiological Society of Europe. *Journal of Vascular and Interventional Radiology*, *30*(8), 1155-1167. https://doi.org/10.1016/j.jvir.2019.04.016
8. Durante, C., Grani, G., Lamartina, L., Filetti, S., Mandel, S. J., & Cooper, D. S. (2018). The diagnosis and management of thyroid nodules: a review. *Jama*, *319*(9), 914-924. doi:10.1001/jama.2018.0898
9. Epstein, R. M., & Gramling, R. E. (2013). What is shared in shared decision making? Complex decisions when the evidence is unclear. *Medical care research and review*, *70*(1_suppl), 94S-112S. https://doi.org/10.1177/1077558712459216
10. Evans, C. S., Arthur, R., Kane, M., Omofoye, F., Chung, A. E., Moreton, E., & Moore, C. (2022). Incidental radiology findings on computed tomography studies in emergency department patients: a systematic review and meta-analysis. *Annals of Emergency Medicine*, *80*(3), 243-256. https://doi.org/10.1016/j.annemergmed.2022.03.027
11. Fassnacht, M., Arlt, W., Bancos, I., Dralle, H., Newell-Price, J., Sahdev, A., ... & Dekkers, O. M. (2016). Management of adrenal incidentalomas: European society of endocrinology clinical practice guideline in collaboration with the European network for the study of adrenal tumors. *European journal of endocrinology*, *175*(2), G1-G34. https://doi.org/10.1530/EJE-16-0467
12. Feeney, T., Madiedo, A., Knapp, P. E., Gupta, A., McAneny, D., & Drake, F. T. (2022). Incidental adrenal masses: adherence to guidelines and methods to improve initial follow-up: a systematic review. *Journal of Surgical Research*, *269*, 18-27. https://doi.org/10.1016/j.jss.2021.07.041
13. Fei, X., Chen, P., Wei, L., Huang, Y., Xin, Y., & Li, J. (2022). Quality management of pulmonary nodule radiology reports based on natural language

processing. *Bioengineering*, *9*(6), 244. https://doi.org/10.3390/bioengineering9060244

14. Gibney, B. T., Roberts, J. M., D'Ortenzio, R. M., Sheikh, A. M., Nicolaou, S., Roberge, E. A., & O'Neill, S. B. (2021). Preventing and mitigating radiology system failures: a guide to disaster planning. *RadioGraphics*, *41*(7), 2111-2126. https://doi.org/10.1148/rg.2021210083
15. Gibson, L. M., Paul, L., Chappell, F. M., Macleod, M., Whiteley, W. N., Salman, R. A. S., ... & Sudlow, C. L. (2018). Potentially serious incidental findings on brain and body magnetic resonance imaging of apparently asymptomatic adults: systematic review and meta-analysis. *Bmj*, *363*. https://doi.org/10.1136/bmj.k4577
16. Gunn, A. J., Mangano, M. D., Choy, G., & Sahani, D. V. (2015). Rethinking the role of the radiologist: enhancing visibility through both traditional and nontraditional reporting practices. *Radiographics*, *35*(2), 416-423. https://doi.org/10.1148/rg.352140042
17. Kampalath, R., Roth, B., Nakashima, K., Lee, S., Houshyar, R., & Shieh, S. (2022). The incidental findings coordinator: how a radiology nurse can add value and promote patient safety. *Journal of Radiology Nursing*, *41*(1), 28-32. https://doi.org/10.1016/j.jradnu.2021.12.007
18. Kang, S. K., Berland, L. L., Mayo-Smith, W. W., Hoang, J. K., Herts, B. R., Megibow, A. J., & Pandharipande, P. V. (2019). Navigating uncertainty in the management of incidental findings. *Journal of the American College of Radiology*, *16*(5), 700-708. https://doi.org/10.1016/j.jacr.2018.09.042
19. Loeb, S., Curnyn, C., Fagerlin, A., Braithwaite, R. S., Schwartz, M. D., Lepor, H., ... & Sedlander, E. (2018). Informational needs during active surveillance for prostate cancer: a qualitative study. *Patient education and counseling*, *101*(2), 241-247. https://doi.org/10.1016/j.pec.2017.08.022
20. Lowenstein, L. M., Choi, N. J., Hoffman, K. E., Volk, R. J., & Loeb, S. (2021). Factors that influence clinicians' decisions to decrease active surveillance monitoring frequency or transition to watchful waiting for localised prostate cancer: a qualitative study. *BMJ open*, *11*(11), e048347. https://doi.org/10.1136/bmjopen-2020-048347
21. Lumbreras, B., Donat, L., & Hernández-Aguado, I. (2010). Incidental findings in imaging diagnostic tests: a systematic review. *The British journal of radiology*, *83*(988), 276-289. https://doi.org/10.1259/bjr/98067945
22. MacMahon, H., Naidich, D. P., Goo, J. M., Lee, K. S., Leung, A. N., Mayo, J. R., ... & Bankier, A. A. (2017). Guidelines for management of incidental pulmonary nodules detected on CT images: from the Fleischner Society 2017. *Radiology*, *284*(1), 228-243. https://doi.org/10.1148/radiol.2017161659
23. Mehta, H. J., Mohammed, T. L., & Jantz, M. A. (2017). The American College of Radiology lung imaging reporting and data system: potential drawbacks and need for revision. *Chest*, *151*(3), 539-543. https://doi.org/10.1016/j.chest.2016.07.028
24. Moore, C. L., Baskin, A., Chang, A. M., Cheung, D., Davis, M. A., Fertel, B. S., ... & Nicola, L. P. (2023). White paper: best practices in the communication and management of actionable incidental findings in emergency department imaging. *Journal of the American College of Radiology*, *20*(4), 422-430. https://doi.org/10.1016/j.jacr.2023.01.001
25. Ortel, T. L., Neumann, I., Ageno, W., Beyth, R., Clark, N. P., Cuker, A., ... & Zhang, Y. (2020). American Society of Hematology 2020 guidelines for management of venous thromboembolism: treatment of deep vein thrombosis and pulmonary embolism. *Blood advances*, *4*(19), 4693-4738. https://doi.org/10.1182/bloodadvances.2020001830
26. O'Sullivan, J. W., Albasri, A., Nicholson, B. D., Perera, R., Aronson, J. K., Roberts, N., & Heneghan, C. (2018). Overtesting and undertesting in primary care: a systematic review and meta-analysis. *BMJ open*, *8*(2), e018557. https://doi.org/10.1136/bmjopen-2017-018557
27. Park, S. S., & Kim, J. H. (2023). Recent updates on the management of adrenal incidentalomas. *Endocrinology and Metabolism*, *38*(4), 373-380. https://doi.org/10.3803/EnM.2023.1779
28. Passey, D. G., Healy, R., Qualls, J., Halwani, A., & Sauer, B. C. (2021). Pharmacist-led collaborative medication management programs for oral antineoplastic therapies: a systematic literature review. *Journal of the American Pharmacists Association*, *61*(3), e7-e18. https://doi.org/10.1016/j.japh.2020.12.005
29. Prades, J., Morando, V., Tozzi, V. D., Verhoeven, D., Germà, J. R., & Borras, J. M. (2018). Managing cancer care through service delivery networks: the role of professional collaboration in two European cancer networks. *Health services management research*, *31*(3), 120-129. https://doi.org/10.1177/0951484817745219

30. Ramirez, M., Wu, S., Ryan, G., Towfighi, A., & Vickrey, B. G. (2017). Using beta-version mHealth technology for team-based care management to support stroke prevention: an assessment of utility and challenges. *JMIR research protocols*, *6*(5), e7106. https://doi.org/10.2196/resprot.7106
31. Segelov, E., Guren, M. G., Sebag-Montefiore, D., Rao, S., Johnsson, A., Franco, P., ... & Spindler, K. L. G. (2022). "Global Multidisciplinary Team Meetings": Challenging Cases Virtual Forums from the International Multidisciplinary Anal Cancer Conference (IMACC). *Clinical Colorectal Cancer*, *21*(3), 175-187. https://doi.org/10.1016/j.clcc.2022.02.006
32. Siegmund, L. A., Hamilton, A., & Nespeca, T. (2020). Incidental Findings Coordinator: A New Role for Advanced Practice Registered Nurses. *Online Journal of Issues in Nursing*, *25*(2). DOI: 10.3912/OJIN.Vol25No02PPT5422
33. Silverman, S. G., Pedrosa, I., Ellis, J. H., Hindman, N. M., Schieda, N., Smith, A. D., ... & Davenport, M. S. (2019). Bosniak classification of cystic renal masses, version 2019: an update proposal and needs assessment. *Radiology*, *292*(2), 475-488. https://doi.org/10.1148/radiol.2019182646
34. Sirimsi, M. M., De Loof, H., Van den Broeck, K., De Vliegher, K., Pype, P., Remmen, R., & Van Bogaert, P. (2022). Scoping review to identify strategies and interventions improving interprofessional collaboration and integration in primary care. *BMJ open*, *12*(10), e062111. https://doi.org/10.1136/bmjopen-2022-062111
35. Talutis, S. D., Childs, E., Goldman, A. L., Knapp, P. E., Gupta, A., Ferrao, C., ... & Drake, F. T. (2022). Strategies to optimize management of incidental radiographic findings in the primary care setting: a mixed methods study. *The American Journal of Surgery*, *223*(2), 297-302. https://doi.org/10.1016/j.amjsurg.2021.03.038
36. Voltan, G., Boscaro, M., Armanini, D., Scaroni, C., & Ceccato, F. (2021). A multidisciplinary approach to the management of adrenal incidentaloma. *Expert Review of Endocrinology & Metabolism*, *16*(4), 201-212. https://doi.org/10.1080/17446651.2021.1948327
37. Wagner, E. H. (2000). The role of patient care teams in chronic disease management. *Bmj*, *320*(7234), 569-572. https://doi.org/10.1136/bmj.320.7234.569
38. Wiener, R. S., Gould, M. K., Woloshin, S., Schwartz, L. M., & Clark, J. A. (2015). 'The thing is not knowing': patients' perspectives on surveillance of an indeterminate pulmonary nodule. *Health Expectations*, *18*(3), 355-365. https://doi.org/10.1111/hex.12036.