Dear Dr Roeggla,

We were delighted to hear The BMJ has provisionally accepted our manuscript. We would like to thank all the reviewers and editorial committee for their constructive comments. They have helped improve the quality of the paper. Please see below for our responses.

Committee comments

1. The committee thought heterogeneity of the included studies was rather high.
    a. **Author Response:**
        i. We agree that the I^2 was high among most meta-analyses and we have acknowledged this as a limitation in the *Strengths and weaknesses in relation to other studies* section. We also note in this section that the high I^2 values within meta-analyses were largely driven by several large studies. The large sample size of these studies led to their estimates being very precise and thus even modest absolute differences in prevalence or proportion between included studies within a meta-analysis led to a high I^2. For 18 of the 20 meta-analyses, the tau-squared was 0.05 or less reflecting the relatively modest differences between absolute estimates from included studies within the respective meta-analyses.
        ii. Furthermore, we have investigated heterogeneity both quantitatively and qualitatively. Our meta-regression explored the effect of sample size on prevalence and we qualitatively described the differences between primary studies that may have contributed to heterogeneity. In our qualitative analysis (*Strengths and weaknesses in relation to other studies* section: page 10 lines 26-43) we describe the variation in imaging techniques that were likely drivers of heterogeneity (such as slice thickness and number of slices for CT scans and resolution for MRI scans). Highlighting these drivers will be useful for future primary research quantifying incidentalomas. Ideally, a consensus should be reached on standardising the appropriate imaging characteristics to be used in primary research quantifying incidentalomas. Our paper highlights the most common approaches previous used, and thus provides a first step in this process.
2. How clinically useful it is to have this focus on the overall quantification when we're lumping together incidentalomas of variable clinical importance and there's no distinction between them.
    a. **Response:**
        i. Our paper has two aims: 1. To determine the prevalence of incidental findings on different types of imaging scans and 2. To determine the outcomes of these incidental findings. Regarding the first aim, we set out to provide clinicians with the data to have a conversation with a patient about the chance of an incidental finding before they considered ordering an imaging test. For instance, if a clinician and patient were considering ordering a CT scan of the chest, we envision our results can be used to adequately inform both the patient and clinician of the probability of an incidentaloma being diagnosed. For this reason, we believe it is appropriate to group incidentalomas by the imaging scan that uncovered them, even if this meant grouping lesions from various organs. We wanted to provide patients and clinicians with the probability of at least one incidentaloma being uncovered per image. Regarding the second aim (the outcomes of incidental findings), we stratified incidentalomas by organ, and we believe

grouping incidentalomas by organ is most beneficial for patients and clinicians. If a patient is diagnosed with an adrenal incidentaloma, we think it is important for both patients and clinicians to understand the probability that the lesion is malignant. Furthermore, where the primary literature allowed us, we stratified malignancies into type. For instance, we stratified the 477 thyroid malignancies into histological type (Table 2: papillary, follicular, hurthle cell, medullary, anaplastic)

3. Some of the discrepancies between organ systems are not plausible.
    a. **Response:**
        i. It is not entirely clear which part of the results this comment refers to, but we presume it refers to the variation in the prevalence of malignancy between the various organs (Table 4). We agree that the difference between the lowest rate of malignancy (Adrenal: 0.0007% and Brain: 0%) and the highest (Breast: 42%, thyroid: 28% and ovarian: 28%) is probably greater than expected, but we kindly disagree that it is not plausible. The low rate of malignancy in adrenal incidentalomas is in keeping with the very low incidence of adrenal malignancy (0.5-2.0 cases per million individuals/year [1,2]) and the high prevalence of benign adrenal lesions (autopsy studies reveal the prevalence is between 2-9% [3,4]). Our results are also in keeping with the most recent guidelines (and the research underpinning their recommendations); the 2016 European Society of Endocrinology acknowledges that most adrenal incidentalomas are benign and recommend no further imaging if the mass is "lipid-rich and smaller than 4cm"[5].
        ii. The low malignancy rate of brain incidentalomas is in keeping with the low incidence of malignant brain cancer (18 per 100,000 in England [6]) and the high rate of brain incidentalomas (2% for non-neoplastic incidental brain findings [7]).
        iii. Furthermore, two of the three organs with a high rate of incidentaloma malignancy are well-known to be overdiagnosed cancers (breast and thyroid) [8,9]. It is plausible and in keeping with previous overdiagnosis research [10] that many cancers diagnosed incidentally are overdiagnosed – incidentally diagnosed cancer presents a similar mechanism for overdiagnosis as screening (where overdiagnosis was originally described [11]). Thus, although the rate of malignancy in incidental breast and thyroid lesions is high, some of this is likely to be overdiagnosis. Although clearly beyond the scope of this current project, long-term follow up of cancers diagnosed incidentally would be advantageous to quantify how likely incidentally-diagnosed cancer is non-progressive or never grows to cause a patient harm. To make this clearer in the paper we have added the following to the *Future research and next steps* section:
            1. "Lastly, incidentalomas of the breast and thyroid had the highest rates of malignancy. Cancers of both these organs are known to be commonly overdiagnosed [8,9] and it is plausible that incidentally diagnosed breast and thyroid cancers represent (in part) overdiagnosis. Long-term follow up of breast and thyroid cancers diagnosed incidentally would be advantageous to quantify how likely incidentally-diagnosed cancers are non-progressive or never grow to cause a patient harm."
        iv. Furthermore, the third organ that showed a high rate of malignancy – ovarian – is renowned to be difficult to make a diagnosis, often leading to

late diagnosis [12], and thus it is not surprising the a high proportion of incidental ovarian lesions are malignant.

4. Can there be an epidemic of incidentalomas?
    a. **Response:** We agree that the wording "epidemic of incidentalomas" is sub-optimal and have changed this to "are fast becoming a modern medical crisis".
5. This study (a review of reviews) has a very ambitious goal: identify all possible incidentaloma types with all possible imaging studies to help clinicians and patients weigh the pros and cons of imaging. I guess this means: How likely is it that my imaging study will identify a potential aetiology and should I worry? Unfortunately, the paper does not address the impact of having an incidentaloma
    a. **Response:**
        i. We agree with the editorial committee's summary of our study goals: to quantify, for each type of imaging test, how likely a scan will reveal an incidental finding and how likely this incidentaloma will be malignant (or another sinister diagnosis). In regard to the final comment from the editorial commitment – "the paper does not address the impact of having an incidentaloma" it is unclear what the committee means by "impact". We agree that our paper does not address the personal or emotional consequences of having an incidental diagnosis, we also acknowledge that our paper doesn't address the impact of incidental findings on a healthcare system – for instance, the number of follow-up scans and treatments and how necessary these management steps are. However, we believe our paper does address some part of the impact of an incidentaloma. We quantified the prevalence of malignancy for incidentalomas stratified by organ (Table 4). Furthermore, we also describe the number and type of non-malignant diagnoses of incidentalomas – for instance 8 of the 1040 adrenal incidentalomas were non-malignant, but functional lesions (Cushing Syndrome). Thus, we feel our paper does present, at least partially, the impact of having an incidentaloma. Nevertheless, to address the comment made, we have added in the Discussion that: "Furthermore, we should caution that our umbrella review does not capture data on some of the downstream aspects of the impact of having an incidentaloma, e.g. the number of follow-up scans and treatments used, how necessary these management steps are, and whether patients gain or lose eventually in terms of survival or other major outcomes. Hard clinical endpoints would require randomised trials to assess reliably and utilisation of services may be also context-dependent and vary across healthcare systems."
6. The authors focus on malignant incidentalomas. What about other types? (Aneurysms, atherosclerosis, silent brain infarcts, AVMS, etc)
    a. **Response:**
        i. The second aim of our paper is to quantify the outcomes of incidental findings. We agree that the paper is largely focused on the prevalence of malignancy in incidentalomas. However, we do report all the non-malignant outcomes in Table 2. We report, for instance, the prevalence of functional adrenal lesions (Cushing's syndrome), aortic aneurysms (from CT colonoscopy), aneurysms, cavernous malformations, AV malformations and demyelination from Brain MRI scans and also disc generation, herniation, spondylolisthesis and other abnormalities from MRI spine scans. We have described these non-malignant outcomes in the paragraph *Other outcomes from incidentalomas.*

7. Why relegate studies of patients undergone imaging studies for the evaluation of malignancy to sensitivity analyses?
    a. **Response:**
        i. We decided to include patients that underwent imaging studies for the evaluation of malignancy only in sensitivity analyses because, in these patients, incidental lesions may represent metastasis from their primary cancer, so the prior probability of expecting to see something upon imaging is very different. Metastasis from primary cancers do not met the conventional definition of incidentalomas. To make this clearer, we have added the following sentence to the *Search Strategy and Eligibility criteria* section and the *Data analysis* section:
            1. "– as incidentalomas in these patients could often represent metastasis –"
        ii. Furthermore, table 2 outlines, for the applicable included studies, how many incidental findings were metastases.
8. The committee had no major concerns regarding methods. Single author data extraction. Extraction 'verified' by a 2nd author. What does this mean? Did you verify all extraction form all systematic reviews and all primary studies? If so, why not double data-extract? Quality assessment was done by two reviewers.
    a. **Response:**
        i. Thank you, we followed the established methods for umbrella reviews to ensure our methods were robust. Specifically, we followed the methodology outlined in a recent umbrella review published in the BMJ [13]. In this umbrella review, one investigator extracted the data, which were checked by a second investigator. Given the objective and rather rudimentary nature of the data, we did not deem that entirely independent data extraction in duplicate was necessary. In our umbrella review, we performed the same data extraction method. This means that one author (JOS) extracted all the data and then the second author (SG) compared the data extracted by the first author against the systematic reviews and primary studies. Data from primary studies within all systematic reviews were checked/verified. To make this clearer, we have amended the last sentence of the *Data extraction* paragraph to mirror the wording that has previously been published in the BMJ [13]. It now read as follows: "One author (JOS) extracted data, which was checked by a second author (SG)."
9. Some dates in the Abstract would be useful.
    a. **Response:**
        i. We agree and have added the search dates to the abstract.
10. Please discuss the clinical implications in more detail.
    a. **Response:**
        i. We have completely re-written the Clinician Implications section (Discussion). It now reads as follows:
            1. "Our results provide essential information for two common and important clinical tasks: ordering an imaging test and further management for a patient with an incidental finding. Before clinicians order an imaging test, they should weigh up the benefits and risks. Imaging tests have many risks; there is the risk of radiation exposure from CTs and x-rays [14] and the risk of allergic reactions and nephropathy from the contrast dye used in some CT and MRI scans [15,16]. With the increasing sensitivity and use of imaging technology, there is also the risk of incidental findings.

Incidentalomas can cause patient anxiety [17] and can lead to further investigation and treatment, some of which may cause more harm than good. Incidentalomas also have financial consequences; there are costs associated with further patient management, but also the potential change to a patient's insurance status and premiums [18]. Concern surrounding these potential consequences has led to guidance encouraging clinicians to discuss the risk of incidental findings with their patients before they order an imaging test [19]. Our results – the quantification of the prevalence of incidental findings from different imaging tests – equips clinicians to appropriately inform patients about the risks of incidentalomas before the ordering of a scan. Our study provides the data for clinicians to quantify the risk of incidentalomas for numerous different imaging tests and thus allow clinicians and patient to weigh up the risks and benefits of undergoing an imaging test.

2. Our results also equip clinicians to make evidence-based decisions regarding the management of patients with incidentalomas. Image-requesting clinicians have expressed uncertainty regarding further investigations and/or treatment of incidentalomas [20]. Clinicians, particularly primary care physicians, are unsure which incidentalomas require urgent further investigation, nor are they sure which incidentalomas are likely to be benign [20]. As such, there have been calls for "more research to investigate potential outcomes (of incidentalomas)" [19]. Our study helps meet these calls; we provide, for 12 different organs, the prevalence of malignancy from incidentalomas, and list the other, non-malignancy outcomes of incidentalomas. These data will reduce uncertainty surrounding clinical management of incidentalomas and thus help clinicians make evidence-based management decisions. Our results will also help clinicians adequately inform patients about the likely outcomes from incidental findings. For instance, our results provide clinicians with the data to confidently reassure patients that an adrenal incidentaloma is likely to be benign. Our results similarly equip clinicians to urgently investigate a patient with an incidental finding of the breast.
3. Lastly, our results can be used to support evidence-based guidelines concerning the management of incidental findings. New and updated guidelines can reduce uncertainty in the management of incidental findings internationally. We elaborate on the guideline implications from our results in the "Policy makers" section.

We would be thankful if you could do a quick revision: We would like to publish your paper together with a related other paper which is the editorial process for a little longer than your paper.

First, please revise your paper to respond to all of the comments by the reviewers. Their reports are available at the end of this letter, below. Please also respond to the additional comments by the committee.

In your response please provide, point by point, your replies to the comments made by the reviewers and the editors, explaining how you have dealt with them in the paper.

** Comments from the external peer reviewers**

REFEREE COMMENTS

Reviewer: 1

Recommendation:

Comments:
Nice Meta-analysis of incidental imaging findings. Publishable.

- **Response:**
  - We thank the reviewer for their comment. No response required.

Additional Questions:
Please enter your name: Chirag Acharya

Reviewer: 2

Recommendation:

Comments:
This is a clearly written manuscript describing an umbrella review of incidentalomas. The methods are appropriate and well described. Comments and concerns are listed below:

- **Response:**
  - We thank the reviewer for their comment. No response required.

1. While there is a clear justification for the importance of studying incidentalomas, the authors do not make a clear case for why an umbrella review is needed beyond the systematic reviews already available. On page 3, line 28, the authors state, "To assist clinicians and patients adequately weigh up pros and cons of imaging and to assist in management decisions after incidentaloma diagnosis…" (note: this sentence seems to contain several typos). However, it is not clear why it would be more helpful for clinicians and patients to have an umbrella review which looks at all types of imaging, rather than a specific systematic review which focuses on the type of imaging being considered for the particular patient. More justification for the need for this review is required in the introduction.

- **Response:**
  - We agree and have reworded the last paragraph of the introduction to now read as follows: We have fixed the typos throughout the manuscript.
    - "Several systematic reviews have been published exploring the prevalence and outcomes of incidentalomas. These studies use inconsistent and, often, inappropriate synthesis methods, and only focus on one imaging scan or organ. We set out to conduct an umbrella review of all existing systematic reviews, pooling data with appropriate methods and including data for all imaging scans and organs. We aimed to quantify the prevalence with which incidentalomas emerge on any type of imaging test and quantify the outcomes of incidentalomas stratified by organ. We thus hoped to provide both clinicians and policy makers with robust data in an easy-to-access and inclusive format to inform clinical practice and guidelines. Moreover, given that imaging decisions often need to be made for use of different imaging tests and for different areas to be covered by imaging, the availability of

data from diverse imaging modalities and diverse imaging areas and organs in the umbrella review should allow having a more comprehensive picture of the available evidence."

2. On page 4, line 34 the authors state, "All data extraction was performed by one author (JOS) and verified by a second (SG)." It is not clear from this statement whether the two listed authors independently reviewed the data and came to consensus or whether the second author only looked at and confirmed the first author's extraction decisions.

- **Response:**
  - We agree this was unclear and have addressed this. Our response to this concern can be seen under comment 8 from the editorial committee (above).

3. In the Prima Flow Diagram (Figure 1), it is not clear why the 7002 records were excluded after initial screening, prior to full text assessment. Some general reasons should be given in the diagram and/or text.

- **Response:**
  - At the title and abstract stage, studies were excluded generally excluded for two main reasons: not incidentalomas or not a systematic review. Given we have stated the reasons studies were excluded at the full text stage (figure 1), we don't feel the addition of the reasons for exclusion at the title and abstract stage would be beneficial to the reader. The reporting of reasons that led to exclusion at the title and abstract stage is also not recommended by the PRISMA reporting guidelines [21].

Additional Questions:
Please enter your name: L. Aubree Shay

Reviewer: 3

Recommendation:

Comments:
Needs an accompanying editorial - though the methods are solid, people can run away with conclusions

- **Response:**
  - Thank you for the comment. We leave the commission of an accompanying editorial to the discretion of the BMJ editors.

Additional Questions:
Please enter your name: SAURABH JHA

Reviewer: 4

Recommendation:

Comments:
The research question is clearly defined and appropriately answered.

- **Response:**
  - Thank you for the comment, no response required.

The overall design of study is much elaborated an adequate for answering the research question.

- **Response:**
    - Thank you for the comment, no response required.

The study consists of observational studies and systematic reviews which have been carefully selected and analysed. However, I miss a previous study by a Spanish group (Incidental findings in imaging diagnostic test: a systematic review, B Lumbreras et al., BJR 83 (2010),276-289). Although this study was carried out with different statistical methods and less extensive data acquisition, the objective was quite similar.

- **Response:**
    - Our search identified the paper in question (B Lumbreras et al., BJR 83 (2010),276-289), however we excluded it from our paper for numerous reasons. Unlike the systematic reviews we did include in our umbrella review, Lumbreras did not determine the prevalence of incidentalomas for each different type of imaging scan (e.g. CT Chest), nor did they determine the outcomes of incidentalomas stratified by organ. They synthesised and presented their results combining imaging modalities without having the specificity that we required – e.g. they calculated the "frequency of incidental findings" from *any* (x-ray, CT, MRI etc) imaging scan or by imaging modality (e.g. for *any* CT scan). This did not allow us to extract data to address our aim: the prevalence of incidentalomas for each different type of imaging scan and the outcomes of these incidentalomas per organ.
    - Nevertheless, we assessed, in detail, the Lumbreras paper for eligibility, including assessment of the 44 primary studies they included. We determined that the large majority of included primary studies (85%, 37 out of 44) would not add to/be eligible for our study. These primary studies were either
        - 1) Already included in our umbrella review via systematic reviews that looked at specific imaging tests. For instance, Lumbreras included the primary studies by Ritchie et al [22] and Sebastian et al [23] that quantified the prevalence of pulmonary embolism on CTs. Both of these primary studies are included within our umbrella review via the inclusion of the systematic review by Dentali et al [24]. The Dentali systematic review specifically studied the prevalence of pulmonary embolism from CT scans of the chest and includes a further four primary studies quantifying the prevalence of PE from CT scans, none of which were picked up by Lumbreras (all of which were eligible).
        - 2) The signs, symptoms and characteristics of the patients that underwent imaging scans were not adequately described to determine if the imaging findings was truly incidental, e.g. the primary study didn't state the patients were asymptomatic, or didn't state the reasons why they underwent the imaging scan so that we could confidently determine that their symptoms were unrelated to the incidental finding.
    - Regardless, we agree that this paper needs to be incorporated into the paper, we have added the following section to the Discussion (*Strengths and weaknesses in relation to other studies):*
        - "Lumbreras et al [25] conducted a systematic review and meta-analysis quantifying the "frequency of incidental findings" from imaging tests. They combined data from all imaging modalities (x-ray, CT, MRI etc) and presented their results collectively – they estimated that around 25% of imaging tests return an incidentaloma. We choose to present our results stratified by the specific imaging test (e.g. CT scan of the chest) rather than for all imaging tests and modalities together. We did this because we felt it

will be more useful for clinicians and patients when they are considering ordering a specific test. Lumbreras did not quantify the outcomes of incidentalomas. A further strength of our study includes a sensitivity and detailed search strategy: we screened >7000 title and abstracts and included 240 primary studies, compared with Lumbreras who screened 250 and included 44 primary studies. We also performed, as recommended for percentage data, double arcsine transformation to stabilize the variance [26], using the inverse variance method [27], and used a random-effects model for our meta-analyses. The review by Lumbreras calculated the mean frequency of incidental findings without meta-analysis models or double arcsine transformation."

The material and methods used are adequately described. However, the PRISMA flow diagram (Fig. 1) has not been mentioned in the Methods section.

- **Response:**
  - We have added "(figure 1)" to the third sentence of the *Search Strategy and Eligibility criteria* section.

The results are well presented and answer the research question.

- **Response:**
  - Thank you for the comment, no response required.

The interpretation and conclusions drawn are sufficiently derived from the data. However, the implications for clinicians and policy maker should be very cautious. The evidence based approach derived from this systematic review does not reflect the need of clinicians and radiologist for caring of individual patients. Nevertheless, being aware of unexpected findings and knowledge of their nature are substantially helpful in daily routine.

- **Response:**
  - We agree and have added the following to the Clinical Implications section:
    - "Lastly, although our results can equip clinicians and patients to make evidence-based decisions regarding the management of incidental findings, clinicians should interpret the available evidence in the context of the individual patient."

References: BJR 83 (2010), 276-289 should be incorporated.

- **Response:**
  - Please see the above response to this point.

The abstract/summary/key messages are consistent with the manuscript.

- **Response:**
  - Thank you for the comment, no response required.

Additional Questions:
Please enter your name: Martin Uffmann

Job Title: Radiologist

Institution: Department of Radiology, Landesklinikum Neunkirchen

[1] Aspenall SR, ImiSairp AH, Bliss RD, Scott-Coombes D, Harklsov BJ, Lenmard TWJ. How is

adrenocortical cancer being managed in the UK? Ann R Coll Surg Engl 2009;91:489–93. doi:10.1308/003588409X432284.
[2] Bilimoria KY, Shen WT, Elaraj D, Bentrem DJ, Winchester DJ, Kebebew E, et al. Adrenocortical carcinoma in the United States: Treatment utilization and prognostic factors. Cancer 2008;113:3130–6. doi:10.1002/cncr.23886.
[3] Hedeland H, Ostberg G, Hokfelt B. On the prevalence of Adrenocortical adenomas in autopsy material in relation to hypertesion and diabetes. J Intern Med 1968. doi:10.1111/j.0954-6820.1968.tb02445.x.
[4] Kokko J, Brown T, Berman M. Adrenal Adenoma and Hypertension. Lancet 1967:1960–2.
[5] Fassnacht M, Arlt W, Bancos I, Dralle H, Newell-Price J, Sahdev A, et al. Management of adrenal incidentalomas: European Society of Endocrinology Clinical Practice Guideline in collaboration with the European Network for the Study of Adrenal Tumors. Eur J Endocrinol 2016;175:G1–34. doi:10.1530/EJE-16-0467.
[6] Office for National Statistics. Cancer registration statistics, England. Cancer Res UK 2017. https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/bulletins/cancerregistrationstatisticsengland/previousReleases.
[7] Morris Z, Whiteley WN, Longstreth WT, Weber F, Lee Y-C, Tsushima Y, et al. Incidental findings on brain magnetic resonance imaging: systematic review and meta-analysis. BMJ 2009;339.
[8] Jorgensen KJ, Gotzsche PC. Overdiagnosis in publicly organised mammography screening programmes: systematic review of incidence trends. Bmj 2009;339:b2587–b2587. doi:10.1136/bmj.b2587.
[9] Park S, Oh C-M, Cho H, Lee JY, Jung K-W, Jun JK, et al. Association between screening and the thyroid cancer “epidemic” in South Korea: evidence from a nationwide study. BMJ 2016:i5745. doi:10.1136/bmj.i5745.
[10] Welch HG, Black WC. Overdiagnosis in cancer. J Natl Cancer Inst 2010;102:605–13. doi:10.1093/jnci/djq099.
[11] Bleyer A, Welch HG. Effect of three decades of screening mammography on breast-cancer incidence. N Engl J Med 2012;367:1998–2005. doi:10.1056/NEJMoa1206809.
[12] Hamilton W, Peters TJ, Bankhead C, Sharp D. Risk of ovarian cancer in women with symptoms in primary care: population based case-control study. Bmj 2009;339:b2998–b2998. doi:10.1136/bmj.b2998.
[13] Li X, Meng X, Timofeeva M, Tzoulaki I, Tsilidis KK, Ioannidis PA, et al. Serum uric acid levels and multiple health outcomes: umbrella review of evidence from observational studies, randomised controlled trials, and Mendelian randomisation studies. BMJ 2017;357:j2376. doi:10.1136/bmj.j2376.
[14] Smith-Bindman R, Lipson J, Marcus R, Kim K-P, Mahesh M, Gould R, et al. Radiation dose associated with common computed tomography examinations and the associated lifetime attributable risk of cancer. Arch Intern Med 2009;169:2078–86. doi:10.1001/archinternmed.2009.427.
[15] Katzberg RW, Lamba R. Contrast-induced nephropathy after intravenous administration: fact or fiction? Radiol Clin North Am 2009;47:789–800, v. doi:10.1016/j.rcl.2009.06.002\rS0033-8389(09)00094-3 [pii].
[16] Neptune SM, Hopper KD, Matthews YL. Risks associated with the use of IV contrast material: analysis of patients’ awareness. AJR Am J Roentgenol 1994;162:451–4. doi:https://dx.doi.org/10.2214/ajr.162.2.8310946.
[17] Powell DK. Patient explanation guidelines for incidentalomas: Helping patients not to fear the delayed surveillance. Am J Roentgenol 2014;202:2026. doi:10.2214/AJR.13.12337.
[18] Booth TC, Jackson A, Wardlaw JM, Taylor SA, Waldman AD. Incidental findings found in “healthy” volunteers during imaging performed for research: Current legal and ethical implications. Br J Radiol 2010;83:456–65. doi:10.1259/bjr/15877332.

[19] Weiner C. Anticipate and communicate: Ethical management of incidental and secondary findings in the clinical, research, and direct-to-consumer contexts (December 2013 Report of the Presidential Commission for the Study of Bioethical Issues). Am J Epidemiol 2014;180:562–4. doi:10.1093/aje/kwu217.
[20] Sexton S. How Should We Manage Incidentalomas? Am Fam Physician 2014;90:758–9.
[21] Moher D, Liberati A, Tetzlaff J, Altman DG, PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. BMJ 2009;339:b2535.
[22] Ritchie G, McGurk S, McCreath C, Graham C, Murchison JT. Prospective evaluation of unsuspected pulmonary embolism on contrast enhanced multidetector CT (MDCT) scanning. Thorax 2007;62:536–40. doi:10.1136/thx.2006.062299.
[23] Sebastian AJ, Paddon AJ. Clinically unsuspected pulmonary embolism - An important secondary finding in oncology CT. Clin Radiol 2006;61:81–5. doi:10.1016/j.crad.2005.09.002.
[24] Dentali F, Ageno W, Becattini C, Galli L, Gianni M, Riva N, et al. Prevalence and Clinical History of Incidental, Asymptomatic Pulmonary Embolism: A Meta-Analysis. Thromb Res 2010;125:518–22. doi:10.1016/j.thromres.2010.03.016.
[25] Lumbreras B, Donat L, Hernández-Aguado I. Incidental findings in imaging diagnostic tests: a systematic review. Br J Radiol 2010;83:276–89. doi:10.1259/bjr/98067945.
[26] Barendregt JJ, Doi SA, Lee YY, Norman RE, Vos T. Meta-analysis of prevalence. J Epidemiol Community Heal 2013:974–8. doi:10.1136/jech-2013-203104.
[27] Doi SAR, Barendregt JJ, Khan S, Thalib L, Williams GM. Advances in the meta-analysis of heterogeneous clinical trials I: The inverse variance heterogeneity model. Contemp Clin Trials 2015;45:130–8. doi:10.1016/j.cct.2015.05.009.