

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Determinants of the sustained employment of physician assistants in hospitals: a qualitative study
<b>AUTHORS</b>	Timmermans, Marijke; van Vught, Anneke; Maassen, Irma; Draaijer, Lisette; Hoofwijk, Anton; Spanier, Marcel; van Unen, Wijnand; Wensing, Michel; Laurant, Miranda

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Roderick S. Hooker Retired.
<b>REVIEW RETURNED</b>	29-Mar-2016

<b>GENERAL COMMENTS</b>	<p>This is a welcomed paper on the utilization of PAs on hospital wards. Welcomed because the literature is lean on this topic and qualitative research on PA hospitalists is new. In addition the enablers and barriers to PA utilization appears to transcend the US and The Netherlands suggesting some universality of issues (e.g., staffing is a function of physician attitudes more than management rationale).</p> <p>Line number</p> <p>80: Reference #1. I do not believe the Salsberg &amp; Grover citation is relevant or needed. Specialization in medicine is a given, regardless of country of interest.</p> <p>82 Reference #2 is outdated. Suggest deleting. Ref #3 and 4 are adequate.</p> <p>91 Reference #7 is outdated. Suggest National Commission on Certification of Physician Assistants, Inc. (2015, March). 2014 Statistical Profile of Certified Physician Assistants; or Hooker RS, Brock DM, Cook, ML. Characteristics of nurse practitioners and physician assistants in the United States. Journal of the American Association of Nurse Practitioners. 2015; 27(10): 39-45.</p> <p>98 You state "... they are traditionally employed in primary care. That is not quite correct. Since year 2000 there has been a shift and only 1/3 are in the American definition of primary care. I'd drop this sentence – not needed.</p> <p>100 Reference #10. This study has been updated by the first author and will be published in June. If interested I will supply you with the correct citation.</p> <p>102 Reference #12 is not optimal. I suggest # 16 Zwijnenberg, N. C., &amp; Bours, G. J. (2012). Nurse practitioners and physician assistants in Dutch hospitals: their role, extent of substitution and facilitators and barriers experienced in the reallocation of tasks. Journal of advanced nursing, 68(6), 1235-1246.</p> <p>149 The concept of data saturation is not well known or understood by quantitative researchers. A useful reference for data saturation is: Bowen GA. Naturalistic inquiry and the saturation concept: a research note. Qualitative Research. 2008;8(1):137–</p>
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	<p>152.</p> <p>179 Wards = 11 is good to know but please add how many hospitals (or medical centres) and cities were surveyed. Bed number (mean and range) would be useful for comparison to other studies. Please make known if these were all acute hospitals.</p> <p>192 If known please add the average length of rotation on a ward for residents. This was a contentious issue that was overlooked in the study by Iannuzzi, M. C., Iannuzzi, J. C., Holtsbery, A., Wright, S. M., &amp; Knohl, S. J. (2015). Comparing hospitalist-resident to hospitalist-midlevel practitioner team performance on length of stay and direct patient care cost. <i>Journal of Graduate Medical Education</i>, 7(1), 65-69. See letter: Cawley JF, Hooker RS. Letter to the Editor re Iannuzzi et al Comparing hospitalist-resident to hospitalist midlevel practitioner team performance on length of stay and direct patient care cost. <i>Journal of Graduate Medical Education</i>. 2015; 7(6): 689.</p> <p>351 A citation to consider for this sentence is: van den Driesschen, Q., &amp; de Roo, F. (2014). Physician assistants in the Netherlands. <i>Journal of the American Academy of Physician Assistants</i>, 27(9), 10-11.</p> <p>357 Consider report reference from fellow academics: Task Reallocation &amp; Cost Prices A research of obstacles concerning substitution 25-6-2014. Author Drs. A.J. (Arjan) Kouwen Co-author Drs. G.T.W.J (Geert) v.d. Brink. This is the same as reference #22.</p> <p>366 Reference # 20: If there is an English language translation of this report it would be helpful to this reader. Otherwise add the English translation of the title in brackets.</p> <p>404 Reference #444 – this is probably an error.</p> <p>425 “advanced practice providers” – many PAs and NPs (including their professional associations) do not like or condone diminutive terms for their collective professions. Even when referencing other work. Suggestion - just use “PAs and NPs” to avoid negative reader bias.</p>
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<b>REVIEWER</b>	Zachary Hartsell Wake Forest School of Medicine, USA
<b>REVIEW RETURNED</b>	19-Apr-2016

<b>GENERAL COMMENTS</b>	<p>Well performed study. I appreciated the careful qualitative analysis as to what factors lead to PAs being hired by inpatient services. I feel like in reading the results I have a better understanding of the answered research question as opposed to simply reading the study aim. I would recommend rewording the study aim section as I found it difficult to follow. Line 254 was an unexpected way to start the section on innovation. It almost seems to me that that sentence belongs in its own section. The efficiency gained as a result of these individuals having a broad healthcare background and familiarity with the ward is the innovation (over a previously resident run service) the fact that PAs need to know their own limitations seems like a separate discussion point. Sustainability in line 282 is an excellent point and to add to that paragraph the fact that medical curriculum curriculum and provider supply is changing, it is not realistic for hospitals to count on a resident workforce to staff the wards like in the past. PAs can be seen as a sustainable resource compared to the uncertain resident workforce (as a result of curriculum and regulatory changes). Line 295-298 I think needs to</p>
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	be cited. I am uncertain that the background of PAs makes them better communicators than other health professionals, I have not seen data previously to support that. Line 301-308 should fall into the professional interactions section. I think that the authors should rework the individual factors section or remove. Overall well performed study that will add a significantly to the PA literature.
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<b>REVIEWER</b>	Doug Brock University of Washington USA
<b>REVIEW RETURNED</b>	05-May-2016

<b>GENERAL COMMENTS</b>	<p>Overall this is nicely written description of a qualitative analysis of the integration of PAs into Dutch hospital care settings. The analyses are correctly reported and the findings clearly reported. The themes are well described and Tables 2 and 3 present the key information. I enjoyed reading the manuscript.</p> <p>I do have the following concerns.</p> <p>Page 5 line 97-98 doesn't match recent US PA employment trends. PAs are trained in a generalist model, but approximately 2/3 of PAs are in specialty practice and the trend is strong for newly licensed PAs to choose specialty care as their first profession. The PA profession in the US is much more integrated into hospital care than this paragraph suggests. For US readers, I would suggest caution in interpreting these results—perhaps described as a limitation. The references are dated, I'd recommend looking to recent reports published annually by the AAPA and NCCPA.</p> <p>32 interviews were conducted across 11 hospital wards. A breakdown of these interviews is provided in Table 1. Table 1 doesn't give all the necessary information to assess the representativeness of the sample. For example, it is not clear whether all attending physicians came from a small number of hospital wards? Is gender evenly distributed across professions? I suggest either adding a separate table showing breakdown within categories or expand the text to describe key relationships.</p> <p>The argument that interviews were continued to a point of saturation may be sufficient for the aggregated group, but is this also true for the subgroups? For example, was saturation reached separately with nurses and medical residents? Nurses could speak better to continuity of care and residents to their integration into settings with both midlevel and physician colleagues. Please clarify the extent to which saturation can be demonstrated for these specialized individuals.</p> <p>Please add a few sentences explaining a “framework” approach to data analysis. This approach may less familiar to some non-UK readers.</p> <p>I am concerned with the veracity of the first statement under Strengths and Limitations. I agree the purposeful sampling helps ensure a breadth of perspective, but it doesn't ensure that the findings are also representative. The sample is described as purposeful, but was the sample also representative? Clarify.</p>
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	<p>Conclusions discusses added benefits and barriers to PAs entering and remaining in practice. These conclusions should be more carefully framed as resulting from examination of a still maturing PA profession. Some of the identified barriers (e.g., patients not understanding role) have been greatly reduced in US hospital settings. The authors note this on page 18 lines 410-412, the profession is “in a developing phase.” My reading suggests this analysis speaks more to integration and sustainability within a maturing profession, not a fully mature one. This impacts generalizability and utility of the findings constituting both a discussion point and a limitation.</p>
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### VERSION 1 – AUTHOR RESPONSE

Reviewer 1. Dr. R. Hooker

This is a welcomed paper on the utilization of PAs on hospital wards. Welcomed because the literature is lean on this topic and qualitative research on PA hospitalists is new. In addition the enablers and barriers to PA utilization appears to transcend the US and The Netherlands suggesting some universality of issues (e.g., staffing is a function of physician attitudes more than management rationale).

80: Reference #1. I do not believe the Salsberg & Grover citation is relevant or needed. Specialization in medicine is a given, regardless of country of interest.

82 Reference #2 is outdated. Suggest deleting. Ref #3 and 4 are adequate.

91: Reference #7 is outdated. Suggest National Commission on Certification of Physician Assistants, Inc. (2015, March). 2014 Statistical Profile of Certified Physician Assistants; or Hooker RS, Brock DM, Cook, ML.. Journal of the American Association of Nurse Practitioners. 2015; 27(10): 39-45.

Response: Thank you very much for your comments about our references. We've deleted the outdated references and replaced them by the references you suggested.

98 You state "... they are traditionally employed in primary care. That is not quite correct. Since year 2000 there has been a shift and only 1/3 are in the American definition of primary care. I'd drop this sentence – not needed.

Response: Thank you for this comment. Based upon your explanation as well as on available literature, we have rephrased the statement into: ' PAs in the USA have a long history in medicine, especially in primary care. Since the year 2000 there has been a shift from primary care to hospital care, and currently about 2/3 of all PAs are in a surgical or medical subspecialty.'(line 100-102).

100 Reference #10. This study has been updated by the first author and will be published in June. If interested I will supply you with the correct citation.

Response: We replaced this reference (ref 8) by the updated study 'Morgan P, Everett CM, Humeniuk KM, et al. Physician assistant specialty choice: Distribution, salaries, and comparison with physicians. JAAPA : official journal of the American Academy of Physician Assistants 2016;29(7):46-52'.

102 Reference #12 is not optimal. I suggest # 16 Zwijnenberg, N. C., & Bours, G. J. (2012). Nurse practitioners and physician assistants in Dutch hospitals: their role, extent of substitution and facilitators and barriers experienced in the reallocation of tasks. Journal of advanced nursing, 68(6), 1235-1246.

Response: Thank you for this suggestion. We agree that this reference better fits the content of the sentence, so we replaced reference 12 by the study of Zwijnenberg et al.

149 The concept of data saturation is not well known or understood by quantitative researchers. A useful reference for data saturation is: Bowen GA. Naturalistic inquiry and the saturation concept: a research note. *Qualitative Research*. 2008;8(1):137–152.

Response: To clarify the concept of data saturation, we added the reference of Bowen et al.

179 Wards = 11 is good to know but please add how many hospitals (or medical centres) and cities were surveyed. Bed number (mean and range) would be useful for comparison to other studies. Please make known if these were all acute hospitals.

Response: The eleven wards were spread over ten hospitals. To clarify this, we changed the concerning sentence into 'In total 32 interviews were held, spread over eleven wards across ten hospitals' (line 182). The average number of beds of the wards and the standard deviation has been added to table 1. In The Netherlands, we do not have hospitals which are particularly for acute or non-acute care. All hospitals involve both acute and chronic care.

192 If known please add the average length of rotation on a ward for residents. This was a contentious issue that was overlooked in the study by Iannuzzi, M. C., Iannuzzi, J. C., Holtsberg, A., Wright, S. M., & Knohl, S. J. (2015). Comparing hospitalist-resident to hospitalist-midlevel practitioner team performance on length of stay and direct patient care cost. *Journal of Graduate Medical Education*, 7(1), 65-69. See letter: Cawley JF, Hooker RS. Letter to the Editor re Iannuzzi et al Comparing hospitalist-resident to hospitalist midlevel practitioner team performance on length of stay and direct patient care cost. *Journal of Graduate Medical Education*. 2015; 7(6): 689.

Response: The length of rotation for residents varies greatly between wards and hospitals. In our study, the length of rotation of the wards with only residents varied between 1 and 14 weeks. We agree that this is important information for the context of the study and added this to the concerning sentence in line 198.

351 A citation to consider for this sentence is: van den Driesschen, Q., & de Roo, F. (2014). Physician assistants in the Netherlands. *Journal of the American Academy of Physician Assistants*, 27(9), 10-11.

357 Consider report reference from fellow academics: Task Reallocation & Cost Prices A research of obstacles concerning substitution 25-6-2014. Author Drs. A.J. (Arjan) Kouwen Co-author Drs. G.T.W.J (Geert) v.d. Brink. This is the same as reference #22.

Response: In line 345-358 we tried to summarize the findings of our study. As a consequence, we do not think that it is appropriate to place citations in this summary of qualitative findings.

366 Reference # 20: If there is an English language translation of this report it would be helpful to this reader. Otherwise add the English translation of the title in brackets.

Response: Unfortunately there is no English language translation of the report. We added the translation of the title in brackets (line 535-536)

404 Reference #444 – this is probably an error.

Response: This is indeed an error, which we've now recovered.

425 “advanced practice providers” – many PAs and NPs (including their professional associations) do not like or condone diminutive terms for their collective professions. Even when referencing other work. Suggestion – just use “PAs and NPs” to avoid negative reader bias.

Response: Thank you very much for your suggestion to avoid potential negative reader bias. We’ve changed advanced practice providers into ‘PAs and NPs’ (line 423)

Reviewer 2. Z. Hartsell

Well performed study. I appreciated the careful qualitative analysis as to what factors lead to PAs being hired by inpatient services. I feel like in reading the results I have a better understanding of the answered research question as opposed to simply reading the study aim. I would recommend rewording the study aim section as I found it difficult to follow.

Response: We thank you very much for your comments as this really helped us to further improve the manuscript. Based upon your comment, we have rephrased the study aim into: ‘In this study, barriers and facilitators for the implementation of PAs in inpatient care were explored. We identified determinants of the initial employment of PAs, as well as of the sustainability of their employment’ (line 116-118)

Line 254 was a unexpected way to start the section on innovation. It almost seems to me that that sentence belongs in its own section. The efficiency gained as a result of these individuals having a broad healthcare background and familiarity with the ward is the innovation (over a previously resident run service) the fact that PAs need to know their own limitations seems like a separate discussion point.

Response: We agree that the sentence does not fit in this context, and removed it from the innovation paragraph.

Sustainability in line 282 is an excellent point and to add to that paragraph the fact that medical curriculum and provider supply is changing, it is not realistic for hospitals to count on a resident workforce to staff the wards like in the past. PAs can be seen as a sustainable resource compared to the uncertain resident workforce (as a result of curriculum and regulatory changes).

Response: We agree that this is an important point to mention, and highlighted this in the discussion section (line 347-349).

Line 295-298 I think needs to be cited. I am uncertain that the background of PAs makes them better communicators than other health professionals, I have not seen data previously to support that.

Response: This is one of the thoughts of our interviewed professionals. Because this section only described the results of our interviews, we do not think that a citation for this thought is appropriate. To clarify that this is only a thought, and not per se the truth, we added the fragment ‘it is thought that.’ to the concerning sentence in line 296-297.

Line 301-308 should fall into the professional interactions section. I think that the authors should rework the individual factors section or remove. Overall well performed study that will add a significantly to the PA literature.

Response: We agree with your comment and replaced the fragment to the section which describes professional interactions.

Reviewer: 3. D. Brock

Overall this is nicely written description of a qualitative analysis of the integration of PAs into Dutch hospital care settings. The analyses are correctly reported and the findings clearly reported. The themes are well described and Tables 2 and 3 present the key information. I enjoyed reading the manuscript.

Response: We are happy to notice that you enjoyed reading our manuscript. We thank you very much for your comments as this really helped us to further improve the paper.

I do have the following concerns.

Page 5 line 97-98 doesn't match recent US PA employment trends. PAs are trained in a generalist model, but approximately 2/3 of PAs are in specialty practice and the trend is strong for newly licensed PAs to choose specialty care as their first profession. The PA profession in the US is much more integrated into hospital care than this paragraph suggests. For US readers, I would suggest caution in interpreting these results—perhaps described as a limitation. The references are dated, I'd recommend looking to recent reports published annually by the AAPA and NCCPA.

Response: Thank you for this comment. Based upon your explanation and that of the first reviewer, as well as on available literature, we have rephrased the statement to: ' PAs in the USA have a long history in medicine, especially in primary care. Since the year 2000 there has been a shift from primary care to hospital care, and currently about 2/3 of all PAs are in a surgical or medical subspecialty.'(line 100-102). Besides, we added a more up to date reference (Morgan et al, 2016).

32 interviews were conducted across 11 hospital wards. A breakdown of these interviews is provided in Table 1. Table 1 doesn't give all the necessary information to assess the representativeness of the sample. For example, it is not clear whether all attending physicians came from a small number of hospital wards? Is gender evenly distributed across professions? I suggest either adding a separate table showing breakdown within categories or expand the text to describe key relationships.

Response: Per hospital ward, at least one attending physician was interviewed. This was stated in the method section, line 128-130: 'On each ward a sample of relevant providers (PAs, staff physicians, residents and nurses) were interviewed'. To clarify this, we also added the fragment 'On each hospital ward, at least one staff physician was interviewed' to the results section (line 186).

The argument that interviews were continued to a point of saturation may be sufficient for the aggregated group, but is this also true for the subgroups? For example, was saturation reached separately with nurses and medical residents? Nurses could speak better to continuity of care and residents to their integration into settings with both midlevel and physician colleagues. Please clarify the extent to which saturation can be demonstrated for these specialized individuals.

Response: We agree that we did not describe the concept of data saturation very clearly. We reached data saturation per subgroup of profession. To clarify this, we added the fragment 'Interviews continued until data saturation was achieved per subgroup of profession' in line 152-153.

Please add a few sentences explaining a "framework" approach to data analysis. This approach may less familiar to some non-UK readers.

Response: We added the sentence 'A framework approach was used for data analysis, which implies that we worked with structured topic guides in order to identify patterns within the data, but also allowed new themes to emerge from the data' to line 158-159 to clarify the concept of framework

analysis. Besides, we added two references (ref 16 and 17) with further information.

I am concerned with the veracity of the first statement under Strengths and Limitations. I agree the purposeful sampling helps ensure a breadth of perspective, but it doesn't ensure that the findings are also representative. The sample is described as purposeful, but was the sample also representative? Clarify.

Response: We believe that, because of the purposive sampling method, we managed to include a breadth of perspectives. We captured a diversity of hospital wards with variation in medical specialty, hospital type, and the used inpatient care model. Both wards with a relatively long experience with PAs and wards with relatively little experience with PAs were included. We agree that this does not per se incorporate perfect representativeness of all hospital care in the Netherlands, so we now removed that fragment.

Conclusions discusses added benefits and barriers to PAs entering and remaining in practice. These conclusions should be more carefully framed as resulting from examination of a still maturing PA profession. Some of the identified barriers (e.g., patients not understanding role) have been greatly reduced in US hospital settings. The authors note this on page 18 lines 410-412, the profession is "in a developing phase." My reading suggests this analysis speaks more to integration and sustainability within a maturing profession, not a fully mature one. This impacts generalizability and utility of the findings constituting both a discussion point and a limitation.

Response: We indeed concluded that the PA profession is still maturing, and agree that we did not point this out well enough in our conclusion in line 445-455. We now added the sentence 'Fifteen years after the introduction of PAs in the Netherlands, the profession is maturing' in line 446 to point this out.

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	R. S. Hooker Northern Arizona University
<b>REVIEW RETURNED</b>	08-Aug-2016

<b>GENERAL COMMENTS</b>	All concerns by this reviewer have been addressed by the authors.
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<b>REVIEWER</b>	Zachary Hartsell Wake Forest University, United States
<b>REVIEW RETURNED</b>	11-Aug-2016

<b>GENERAL COMMENTS</b>	<p>I feel that the authors addressed all of my main concerns and the concerns of the other reviewers.</p> <p>On a secondary look my only questions would be:            Page 5 line 17. Citation needed?            Line 88-89 , Where is it an alternative?            Page 6 line 107, studies on what?</p> <p>Other then these minor corrections, I would recommend accept for publication.</p>
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<b>REVIEWER</b>	Doug Brock School of Medicine
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	University of Washington Seattle, 98195 USA
<b>REVIEW RETURNED</b>	14-Aug-2016

<b>GENERAL COMMENTS</b>	This is my second review of "Determinants of the sustained employment of physician assistants in hospitals. I stated my reservations in my first review. The authors have either fully addressed my concerns, or modified or justified the text to an extent that is acceptable. This paper is a good contribution to the physician assistant literature. Nice work.
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### VERSION 2 – AUTHOR RESPONSE

Reviewer 2. Z. Hartsell

I feel that the authors addressed all of my main concerns and the concerns of the other reviewers. On a secondary look my only questions would be:

Page 5 line 17. Citation needed?

Line 17 describes the affiliation of one of the coauthors. We don't think that the reviewer means that this sentence needs a citation. Probably this comment concerns a typing error. Please let us know if another sentence needs a citation.

Line 88-89, Where is it an alternative?

Response: We now see that this sentence was not correct, because physician assistants (PAs) are in the USA not an alternative for hospitalists, but are added to the hospitalist model as hospitalist-PA. In the Netherlands, PAs are substitutes for residents. We've changed the sentence into 'Alternative to resident model, inpatient care has increasingly been reallocated to physician assistants (PAs)'

Page 6 line 107, studies on what?

Response: With this sentence, we aimed to refer to studies on barriers and facilitators of the implementation process of PAs in inpatient care. Based upon your comment, we changed the concerning sentence into: 'Although previous studies on barriers and facilitators of the implementation process have been conducted, these studies were not focused on inpatient care or focused only on the experiences of physicians'.