PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Intermittent Preventive Treatment of Pregnant Women in Kintampo area of Ghana with Sulphadoxine Pyrimethamine (SP): Trends spanning 2011 and 2015
AUTHORS	Oppong, Felix; Gyaase, Stephaney; Zandoh, Charles; Nettey, Obed Ernest; Amenga-Etego, Seeba; Anane, Edward; Adda, Robert; Dosoo, David; Owusu-Agyei, Seth; Asante, Kwaku

VERSION 1 - REVIEW

REVIEWER	Julie Gutman Centers for Disease Control and Prevention Atlanta, GA USA
REVIEW RETURNED	03-Jan-2019

GENERAL COMMENTS	while this is an important topic that deserves additional attention, and these results are relevant to the Ghanaian NMCP, that this paper is somewhat lacking in terms of general interest to a wider audience. One of the potentially most interesting findings, a decrease in IPTp3 coverage in the last 2 years of the study, gets only a brief mention in the discussion, while the discussion of some of the SES / demographic factors gets a much greater discussion. More attention should be given to the fact that coverage in this area dropped, even while the DHS showed improved coverage across Ghana as a whole in 2014-2016. Additionally, the results section is largely a retelling of what is in the tables and could be dramatically shortened, with only the most important results being called out in the text. Methodologically speaking, the authors state that "pregnant women" were interviewed, however, they have not provided any information on the average gestational age of the women. If the women interviewed were relatively early in pregnancy, they may not yet have gotten to the point where they were eligible for IPTp3. Either, this information needs to be included, to allow the reader to understand how the gestational age of the interviewed women affected the coverage, or, perhaps this is misstated, and in fact it was recently pregnant women who had already delivered who were asked these questions, in which case the paper needs to be updated to correct this. There are some discrepancies between the abstract and the results. Also, the abstract discusses the "recommended" number of doses, but as this changed over the period under study, it would be clearer for the reader if they were explicit that this was for 3 doses. The authors highlight a number of SES and religious characteristics associated with poorer uptake of IPTp, and suggest

	that "important to consider these factors in the design and implementation of policies and strategies" however, they make no suggestion for ways in which these factors could be mitigated. You are not likely to change anyone's religion, so how could the NMCP effectively address this as a cause of decreased uptake? It would be ideal to focus in the text presentation of results and discussion those factors which might have a plausible solution- i.e. - calling attention to the increased risks faced by pregnant adolescents and the importance of initiating early ANC, etc. The reviewer provided a marked copy with additional comments. Please contact the publisher for full details.

REVIEWER	Stephen Rogerson The University of Melbourne Australia
REVIEW RETURNED	27-Jan-2019

GENERAL COMMENTS	This article reviews the use of IPTp for prevention of malaria in pregnancy in a region of Ghana over 5 years, using demographic surveillance data. Increasing the coverage of IPTp is a priority of the WHO, because relatively few pregnant women receive the recommended three or more doses of preventive drugs against malaria over the course of pregnancy. A strength of the study is the very substantial number of pregnancies documented. However although the authors identify a number of demographic factors associated with poor SP uptake, this article does little to increase our understanding of how to address these, or why SP coverage for IPTp is relatively low in the area. Factors such as stock outs or ANC staff attitudes, timing or frequency of ANC attendance (all of which might be targets of intervention) are not recorded. Instead, we have data on generally immutable risk factors such as tribe religion and poverty. In broad agreement with other studies of demographic factors associated with uptake of malaria preventives, the best coverage was seen in better educated, more well off and non-teenage mothers, who are probably at the lowest risk of exposure to malaria in pregnancy. The authors are not really able to help us understand how to address these important equity issues. Major comments: 1. Over the 5 years of the study there was a marked decline in coverage (from over 40 to around 20% in 2014, and 32% in 2015), but no information is available to explain this change. 2. P7 para 2: could the change in visit frequency have any link to the fall in IPTp coverage or is it purely coincidental? 3. There is a tendency (e.g. P 8, characteristics of study population) to include long strings of numbers in the text. Many of these data are also in the tables and unless there are important time based changes should not be reproduced in the text. For factors such as urban location, ANC attendance, it would be best to report aggregate data if there is no meaningful change over time. Similarly for tables of associations with 1 or 3 SP doses, too many of the table data are reproduced in the text. 4. In general the authors report, rather than interpreting or analysing their findings in detail. Fr example, in the discussion re the marked fall in coverage late in the study they state “the reason for this lower coverage in 2014 and 2015 remains unclear.”

	5. One factor which is not discussed well is that apparently almost half the women were not married. This makes it less likely that there is stigma associated with unmarried pregnancy (given it is so widespread). The evidence that husbands increase women's knowledge of or use of IPTp (as suggested) seems quite unsupported by data and to my mind is quite unlikely. 6. Overall, while the impressive data set provides a useful tool for identifying women at risk for not receiving IPTp with SP in this region, it is less helpful in providing the basis for an action plan to improve coverage, such as the "TIPTOP" initiative coordinated by JHPIEGO, which would be an important next step. Minor comments 1. There are minor typos and grammatical issues throughout the paper which would benefit from professional editing. 2. P 6 line 10 What is meant by 100% of women should be "on" IPTp? Receiving 3 doses? 3. Line 15,17 same page: why does Kintapo region apparently have significantly lower coverage than the country overall at 60%?

VERSION 1 – AUTHOR RESPONSE

Reviewer 1

Comment 1:

While this is an important topic that deserves additional attention, and these results are relevant to the Ghanaian NMCP, that this paper is somewhat lacking in terms of general interest to a wider audience. One of the potentially most interesting findings, a decrease in IPTp3 coverage in the last 2 years of the study, gets only a brief mention in the discussion, while the discussion of some of the SES / demographic factors gets a much greater discussion. More attention should be given to the fact that coverage in this area dropped, even while the DHS showed improved coverage across Ghana as a whole in 2014-2016.

Response

Possible reasons for the low coverage in the recommended three or more doses of IPTp-SP have been discussed in the context of the fact that there were reported variations in uptake with low coverage in rural parts of Ghana. We have also discussed the low coverage of IPTp-SP in the study area in relation to possible contextual factors which may have influenced the implementation of the new policy. In this regard, we have suggested the need for context specific intervention to improve uptake in rural settings. Also, we intend to conduct a qualitative follow-up study to explore the contextual factors that influence the uptake of IPTp-SP in our study area.

Comment 2:

The results section is largely a retelling of what is in the tables and could be dramatically shortened, with only the most important results being called out in the text.

Response

The results section has been summarized. Generality of the results are provided in text while the reader is referred to the Tables for more details.

Comment 3:

Methodologically speaking, the authors state that "pregnant women" were interviewed, however, they have not provided any information on the average gestational age of the women. If the women interviewed were relatively early in pregnancy, they may not yet have gotten to the point where they were eligible for IPTp3. Either, this information needs to be included, to allow the reader to understand how the gestational age of the interviewed women affected the coverage, or, perhaps this is misstated, and in fact it was recently pregnant women who had already delivered who were asked these questions, in which case the paper needs to be updated to correct this.

Response

This has been updated to reflect the fact that data on IPTp-SP use were transcribed from the ANC cards of pregnant women who had already delivered.

Comment 4:

There are some discrepancies between the abstract and the results. Also, the abstract discusses the "recommended" number of doses, but as this changed over the period under study, it would be clearer for the reader if they were explicit that this was for 3 doses.

Response

The discrepancies between the abstract and the results have been resolved. Also, it has been made clearer that the results as presented in the abstract is for three or more dose of IPTp-SP.

Comment 5:

The authors highlight a number of SES and religious characteristics associated with poorer uptake of IPTp, and suggest that "important to consider these factors in the design and implementation of policies and strategies" however, they make no suggestion for ways in which these factors could be mitigated. You are not likely to change anyone's religion, so how could the NMCP effectively address this as a cause of decreased uptake? It would be ideal to focus in the text presentation of results and discussion those factors which might have a plausible solution- i.e. - calling attention to the increased risks faced by pregnant adolescents and the importance of initiating early ANC, etc.

Response

We have restricted the discussion to factors for which possible solution could be provided. We have included data on ANC attendance in the results and have discussed how the initiation of early ANC and attending all scheduled ANC visit can lead to an increase in the coverage of IPTp-SP. Also, we have proposed the adoption of community-based distribution of IPTp-SP to help increase coverage by reaching out to all pregnant women irrespective of their religion, race, wealth, age, etc. Furthermore, we have proposed that, to help lessen the level of stigma associated with adolescent pregnancy, ANC clinics should be made adolescent friendly.

Reviewer 2

General comments

Comment 1

This article reviews the use of IPTp for prevention of malaria in pregnancy in a region of Ghana over 5 years, using demographic surveillance data. Increasing the coverage of IPTp is a priority of the WHO, because relatively few pregnant women receive the recommended three or more doses of preventive drugs against malaria over the course of pregnancy. A strength of the study is the very substantial number of pregnancies documented. However although the authors identify a number of demographic factors associated with poor SP uptake, this article does little to increase our understanding of how to address these, or why SP coverage for IPTp is relatively low in the area. Factors such as stock outs or ANC staff attitudes, timing or frequency of ANC attendance (all of which might be targets of intervention) are not recorded. Instead, we have data on generally immutable risk factors such as tribe religion and poverty.

Response

We have proposed several measures to help address the low coverage of IPTp-SP in the study area. This include the adoption of community-based distribution of IPTp-SP to help increase coverage by reaching out to all pregnant women irrespective of their socio-demographic characteristics. Likewise, we have proposed the provision of some kind of incentives to motivate pregnant women in the study area to attend all scheduled ANC visit.

Also, possible reasons for the low coverage of IPTp-SP have been discussed with regards to the fact that there were reported variations in uptake with SP shortages in most periphery facilities in Ghana. We have also discussed the low coverage of IPTp-SP in the study area in relation to possible contextual factors which may have influenced the implementation of the new policy. In this regard, we have suggested the need for context specific intervention to improve uptake in rural settings. Also, we intend to conduct a qualitative follow-up study to explore the contextual factors that influence the uptake of IPTp-SP in our study area.

Likewise, data on the number of times a pregnant woman attended ANC have been included in the results. On this, we have discussed how the initiation of early ANC and attending all scheduled ANC visit is likely to lead to an increase in the coverage of IPTp-SP.

Comment 2:

In broad agreement with other studies of demographic factors associated with uptake of malaria preventives, the best coverage was seen in better educated, more well off and non-teenage mothers, who are probably at the lowest risk of exposure to malaria in pregnancy. The authors are not really able to help us understand how to address these important equity issues.

Response

Given that very little can be done about these equity issues, we have proposed the adoption of a community-based intervention that seeks to distribute IPTp-SP to all pregnant women regardless of the socio-demographic characteristics of the individual. Also, we recommend that pregnant women should be educated on the importance of IPTp-SP and the need to take the approved number of doses. Other recommendations which can help increase coverage among all the socio-demographic groupings have also been provided.

Major comments

Comment 1

Over the 5 years of the study there was a marked decline in coverage (from over 40 to around 20% in 2014, and 32% in 2015), but no information is available to explain this change.

Response

Possible reasons for the low coverage of IPTp-SP in 2014 and 2015 have been discussed in relation to possible contextual factors which may have influenced the implementation of the new policy. In this regard, we have suggested the need for context specific intervention to improve uptake in rural settings. Also, we intend to conduct a qualitative follow-up study to explore the contextual factors that influence the uptake of IPTp-SP in our study area.

Comment 2

P7 para 2: could the change in visit frequency have any link to the fall in IPTp coverage or is it purely coincidental?

Response

Given that coverage was based on identified women who had completed their course of pregnancy, this could not be affected by the change in visit frequency.

Comment 3

There is a tendency (e.g. P 8, characteristics of study population) to include long strings of numbers in the text. Many of these data are also in the tables and unless there are important time based changes should not be reproduced in the text. For factors such as urban location, ANC attendance, it would be best to report aggregate data if there is no meaningful change over time. Similarly for tables of associations with 1 or 3 SP doses, too many of the table data are reproduced in the text.

Response

The results section has been summarized while the reader is referred to the tables for more details.

Comment 4

In general the authors report, rather than interpreting or analysing their findings in detail. For example, in the discussion of the marked fall in coverage late in the study they state “the reason for this lower coverage in 2014 and 2015 remains unclear.”

Response:

In the discussion we have interpreted our findings in detail. The possible reasons for the low coverage of IPTp-SP in 2014 and 2015 have been discussed. Likewise, we have suggested various strategies to help increase the coverage of IPTp-SP in the study area.

Comment 5

One factor which is not discussed well is that apparently almost half the women were not married. This makes it less likely that there is stigma associated with unmarried pregnancy (given it is so widespread). The evidence that husbands increase women's knowledge of or use of IPTp (as suggested) seems quite unsupported by data and to my mind is quite unlikely.

Response:

We have discussed appropriately the results on the relationship between marital status and IPTp-SP uptake. This is in relation to the fact that, in most rural settings in Ghana such as our study area, women largely depend on their husbands for financial support in seeking healthcare. As such, married women may have received the necessary financial support to travel to attend ANC for the recommended three or more doses of IPTp-SP considering that frequency of ANC attendance was associated with uptake of the recommended doses of IPTp-SP.

Comment 6

Overall, while the impressive data set provides a useful tool for identifying women at risk for not receiving IPTp with SP in this region, it is less helpful in providing the basis for an action plan to improve coverage, such as the "TIPTOP" initiative coordinated by JHPIEGO, which would be an important next step.

Response:

We have proposed several strategies including the adoption of the TIPTOP initiative to help increase the coverage of IPTp-SP.

Minor comments

1.There are minor typos and grammatical issues throughout the paper which would benefit from professional editing.

Response: We have addressed all minor typos and corrected all the grammatical issues.

2. P 6 line 10 What is meant by 100% of women should be "on" IPTp? Receiving 3 doses?

Response: Per the Ghana NMCP's strategic plan for 2005-2015, we have clarified this.

3. Line 15,17 same page: why does Kintampo region apparently have significantly lower coverage than the country overall at 60%?

Response: We have provided possible reasons for the low coverage in IPTp in Kintampo compared to the national coverage.