



From: Harris, Shelley  
 To: John Spinelli; Beane-Freeman, Laura (NIH/NCI) [E]  
 Cc: Pahwa, Manisha; Blair, Aaron (NIH/NCI) [V]  
 Subject: RE: Proposal to analyze glyphosate exposure and NHL risk in NAPP  
 Date: Wednesday, October 29, 2014 3:48:47 PM

Hi everyone, thanks all for weighing in on this.

I just had a look at Rosie's draft tables of her MM manuscript to help clarify. I was not sure if she had reported individual results for glyphosate, but she has. Please note the results below are not adjusted for the medical history variables, and the tables/paper are undergoing revision now. I expect we will have a draft to review in the next few weeks and a paper could be submitted early in the new year or before.

Multiple Myeloma Analysis

Table 3—Individual Pesticide Exposure

Pesticide	Cases (%) (n=547)	Controls (%) (n=2700)	Adjusted OR <sup>1</sup> (95% CI)	Adjusted OR <sup>2</sup> (95% CI)	Proxy Respondents Excluded		
					Cases (%) (n=356)	Controls (%) (n=1945)	Adjusted OR <sup>1</sup> (95% CI)
<b>Glyphosate</b>							
No	502 (91.8)	2504 (92.7)	1.00	1.00	327 (91.9)	1771 (91.0)	1.00
Yes	45 (8.2)	196 (7.3)	1.19 (0.83-1.70)	1.23 (0.86-1.76)	29 (8.1)	174 (9.0)	0.97 (0.63-1.48)

<sup>1</sup> adjusted for age, and province/state of residence

<sup>2</sup> adjusted for age, province/state of residence, and use of proxy respondent

Table 4—Years of Exposure to Select Individual Pesticides

Pesticide	Cases (%) (n=547)	Controls (%) (n=2700)	Adjusted OR <sup>1</sup> (95% CI)	Adjusted OR <sup>2</sup> (95% CI)	Proxy respondents excluded		
					Cases (%) (n=356)	Controls (%) (n=1945)	Adjusted OR <sup>1</sup> (95% CI)
<b>Glyphosate</b>							
0 (unexposed)	502 (91.8)	2504 (92.7)	1.00	1.00	327 (91.9)	1771 (91.1)	1.00
>0 and ≤4	31 (5.7)	113 (4.2)	1.32 (0.86-2.02)	1.36 (0.88-2.08)	18 (5.1)	106 (5.5)	0.96 (0.57-1.63)
>4	14 (2.6)	83 (3.1)	0.97 (0.54-1.78)	1.01 (0.56-1.85)	11 (3.1)	68 (3.5)	0.98 (0.50-1.91)
OR per year			1.03 (0.99-1.07)	1.03 (0.99-1.08)			1.01 (0.95-1.06)
			<i>P</i> <sub>trend</sub> = 0.1895	<i>P</i> <sub>trend</sub> = 0.1589			<i>P</i> <sub>trend</sub> = 0.8366

<sup>1</sup> adjusted for age, and province/state of residence

<sup>2</sup> adjusted for age, province/state of residence, and use of proxy respondent

Based in these analyses, we are not seeing elevated risks for MM. I doubt the medical history variables will change these results significantly. So, my suggestion to look at all cancers was premature and overlapping! Manisha, perhaps you could revise the protocol to look at NHL and HL? Also, we should incorporate the references to the previous Canadian CCSPH results as John suggests and any relevant US publications.

John, to be considered in the IARC evaluations, Aaron indicated a publication must be accepted (or possibly in press) at the time of the meeting (Aaron, I'm pulling you into this side conversation – can you please confirm?)? In our call we tried to identify some priority analyses we could conduct with a very short deadline and knowing there was a reasonable prevalence of exposure.

To answer your last question, Manisha will keep track of any approved NAPP projects in a spreadsheet/database (currently, only Rosie's was approved by the EC) and I believe she had plans to keep these posted on the OCRC website so that we don't have overlapping requests.

Thoughts from the group are appreciated.  
 Shelley

-----Original Message-----

From: John Spinelli [mailto:jspinelli@bccrc.ca]  
 Sent: Tuesday, October 28, 2014 7:09 PM  
 To: 'Beane-Freeman, Laura (NIH/NCI) [E]'; Harris, Shelley  
 Cc: Pahwa, Manisha  
 Subject: RE: Proposal to analyze glyphosate exposure and NHL risk in NAPP

Hi all,

Sorry to be late to the discussion. It's been a hectic time.

I'm also a little behind since I couldn't attend the lunch meeting. I'm a bit confused as to the purpose of the analysis and the deadline. From the minutes it seems that the purpose is to have something to submit to the IARC monograph Panel meeting next year, but the discussion seems to be about a manuscript. Does a manuscript have to be submitted or does the Panel also consider unpublished analyses?

The Canadian study found an OR of 1.26 for glyphosate and NHL and 1.22 for MM, both non-significant. Both of these results have been published and will be available to the Panel. They would also have access to any published results from the US studies. (Manisha, do you know whether there any published results from the US studies on glyphosate?)

I was surprised that no results from any of the individual studies were included in Manisha's proposal, regardless. (I'm pretty sure I made the same comment on Rosie's proposal as well.)

All that said, I have no objections to pursuing this topic as it fits within the goal of NAPP. The only issue in my mind is overlap.

Best,

John

PS: Is there a register of approved projects using NAPP?

-----Original Message-----

From: Beane-Freeman, Laura (NIH/NCI) [E] [mailto:freemala@mail.nih.gov]  
Sent: Tuesday, October 28, 2014 10:54 AM  
To: Pahwa, Manisha; Harris, Shelley; John Spinelli  
Subject: RE: Proposal to analyze glyphosate exposure and NHL risk in NAPP

It might be good to have a strategic discussion about whether to include MM in this paper then. Depending on a few factors. 1. How far along is her paper? I thought it was pretty far along so would it make sense to leave it there since it was originally part of her project? We should try to publish on this topic we can, but want to make sure we're considering everything and projects already ongoing. 2. Is there any hint of association? That would have implications for how much space was needed. Depending on the answers to those, and probably other questions, it might affect how we think about that question.

Laura

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From: Pahwa, Manisha [Manisha.Pahwa@occupationalcancer.ca]  
Sent: Tuesday, October 28, 2014 7:11 AM  
To: Beane-Freeman, Laura (NIH/NCI) [E]; Harris, Shelley; jspinelli@bccrc.ca  
Subject: RE: Proposal to analyze glyphosate exposure and NHL risk in NAPP

Hi all,

Thanks for your quick feedback. Rosie did include glyphosate in her analysis of MM. I agree that for the IARC evaluation it would be good to look at multiple cancers. I'll see if I can pull Rosie in as a co-author. For the manuscript it would be tricky to present all the results in the number of allowed tables but we can cross that bridge when we get there!

Manisha

From: Beane-Freeman, Laura (NIH/NCI) [E] [mailto:freemala@mail.nih.gov]  
Sent: Tuesday, October 28, 2014 2:24 AM  
To: Harris, Shelley; Pahwa, Manisha; jspinelli@bccrc.ca  
Subject: RE: Proposal to analyze glyphosate exposure and NHL risk in NAPP

I'm generally in agreement with Shelley. Just wanted to confirm/remind myself that glyphosate was not already included in Rosie's multiple myeloma project?

Laura

From: Harris, Shelley [mailto:Shelley.Harris@cancercare.on.ca]  
Sent: Monday, October 27, 2014 4:15 PM  
To: Pahwa, Manisha; jspinelli@bccrc.ca<mailto:jspinelli@bccrc.ca>; Beane-Freeman, Laura (NIH/NCI) [E]  
Subject: RE: Proposal to analyze glyphosate exposure and NHL risk in NAPP

Hi everyone,

Thanks Manisha for pulling this together so quickly. I will go through it more carefully, but my first thought is that it may be a mistake to limit it to only NHL at this point. My preference would be to be inclusive of all cancers, and then the analysis/manuscript may end up focusing on NHL, depending on initial results. Remember, we are only dealing with one herbicide and much of the code can be repeated for the analysis.

I would appreciate hearing what Laura and John think though.

For the IARC evaluation, it would be most relevant to look at multiple cancers.

Thanks  
Shelley

From: Pahwa, Manisha  
Sent: Monday, October 27, 2014 3:53 PM  
To: jspinelli@bccrc.ca<mailto:jspinelli@bccrc.ca>; Harris, Shelley; freemala@mail.nih.gov<mailto:freemala@mail.nih.gov>  
Subject: Proposal to analyze glyphosate exposure and NHL risk in NAPP

Hi John, Shelley, and Laura,

Happy Monday! I have prepared a research proposal for assessing glyphosate exposure and NHL risk in the NAPP. While we had discussed looking at glyphosate exposure and the risks of NHL, MM, and HL in the NAPP, I thought to start off with NHL since it has been identified as a priority cancer type in general and has the largest sample size compared to the other cancer types. A few other points:

- \* In the interest of time, I have only calculated sample size corresponding to a power level of 0.8 and not for any other power levels. I have also produced a table of power calculations based on the total number of NHL cases (N=1690).
- \* Also in the interest of time, I have attached the proposal without Table 1. I am working on Table 1 and will send it to you tomorrow.
- \* It would be great to hear your feedback on the scope of this project given the limited amount of time to work on it. Do you think it is reasonable, or should any part(s) be trimmed down?

Thanks very much for your thoughts.

Sincerely,  
Manisha

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