

Supplementary materials

Supplementary Table 1 Demographic characteristics of patients

Characteristic	Patients, n (%)
	Total n=10
Gender	
Male	3 (30)
Female	7 (70)
Age, years	
40–50	2 (20)
51–60	3 (30)
61–70	2 (20)
71–80	3 (30)
Ethnicity	
Caucasian/White	8 (80)
Hispanic/Latin American/Latino	1 (10)
Black/African American	1 (10)
Education (highest level achieved)	
Some high school (no diploma or GED)	1 (10)
High school diploma or equivalent	6 (60)
Some years of college	1 (10)
College or university degree (2 or 4 years)	1 (10)
Other: Licensed Practical Nurse	1 (10)
Work status	
Working full time	2 (20)
Working part time	2 (20)
Retired	2 (20)
Not working due to NHL (symptoms and treatment)	4 (40)

Abbreviations: GED, General Educational Development; NHL, non-Hodgkin lymphoma.

Supplementary Table 2 Item tracking matrix

Concept	Sub-concept	Items measuring sub-concept	Number who mentioned concept during CE (n=10)	Example CE quote for concept	Number who reported concept was relevant during CD (n=10)		Final decision for each item
					RASQ-IV	RASQ-SC	
Treatment satisfaction of MabThera IV/SC	Overall preference/satisfaction	(Item 1) Thinking about the MabThera IV infusion/SC injection, how satisfied or dissatisfied are you with the IV infusion/SC injection? (Item 19) Thinking about the MabThera treatment, would you recommend the way you received the treatment (IV infusion/SC injection) to another patient?	10	“Extremely. Extremely satisfied. No side effects and it apparently did the job” “Well, I’ve never had the injection, but, as far as time-consuming and interference with my personal life, the injection. Absolutely. That looks to me like an amazing advance”	10	10	Retain no changes Retain no changes

	(Item 18) Thinking about the MabThera treatment, if given the option, which would you prefer (both options treat your disease in the same way)?		“It’s a lot faster than 5 hours. The shorter time would be great”			Retain no changes
Convenience	(Item 10) Thinking about the MabThera IV infusion/SC injection, how convenient is it for you to get your IV infusion/SC injection?	10	“Well, it certainly could have been more convenient. Any time you have to go and take 4 hours to get medicine, you know?”	10	8	Retain no changes
	(Item 12) Thinking about the MabThera IV infusion/SC injection, do you feel that the length of time to get your IV infusion/SC injection was as you expected?		“Well, it’s inconvenient in that – well, just like coming here, it messes up my day, and I had other plans and I could do more things with it”			Delete

	(Item 11) Thinking about the MabThera IV infusion/SC injection, how do you feel about the amount of time it takes to get your IV infusion/SC injection?		“Of course I'd like to have it shorter. That would be great. Well, you don't have to sit there that long”			Delete
Confidence	(Item 8) Thinking about the MabThera IV infusion/SC injection, how confident are you that the MabThera IV infusion/SC injection is treating your disease?	8	“It's doing the trick. I'm hoping. I'm praying for a negative bone marrow biopsy next time and I have confidence that it'll work”	8	2	Retain no changes
Bothersome	(Item 13) Thinking about the MabThera IV infusion/SC injection, how bothered are you by the amount of time it takes to get the IV infusion/SC injection?	10	“Well, again, just because it is quicker, far less bother, I think and – both people – me and the – the infusion room, get me in and out of there”	10	4	Retain but update ^a

Impact of MabThera IV/SC administration	Physical impacts of treatment	(Item 2) Thinking about the MabThera IV infusion/SC injection, how do you rate the pain, swelling, or redness you experienced at the site of the drug injection?	10	“But I mean, once it was put in, it was kind of like I could feel it, but it never hurt – it never really hurt me”	10	10	Retain but update ^b
		(Item 3) Thinking about the MabThera IV infusion/SC injection, how do you rate the pain you experienced with the IV infusion/SC injection process?		“When they put the needle in and take it out, I mean it’s a good-sized needle – a pinch, a sting and then it’s over”			Retain no change
		(Item 4) Thinking about the MabThera IV infusion/SC injection, are the side effects of the IV infusion/SC injection as you expected?		“Well it doesn't weaken me like chemo does”			Retain no change
		(Item 9) When you receive the MabThera treatment do you feel		“You could get up to go to the ladies’ room and – which was a			Retain but update ^c

	restricted by the IV infusion/SC injection?		good thing, you know, that you were hooked up and you could go get a snack if you wanted”			
Psychological impacts	(Item 5) Before you receive the IV infusion/SC injection do you feel anxious about having the IV infusion/SC injection?	10	“You sit there for 4 hours with other people who are all getting different forms of chemotherapy too. I've got to tell you, it's the most depressing place to be”	10	5	Delete
	(Item 6) When you receive the IV infusion/SC injection do you worry that your condition could get worse?		“I had a good outlook from the beginning, I'm a positive person”			Retain no change
	(Item 7) When you receive the IV infusion/SC injection do you feel anxious thinking about your disease?		“I'm sure you'd be thinking about it right when they were doing			Retain but update ^d

			it. Like – it's a shorter amount of time that you would think about it. So it seems positive"			
Impacts on activities of daily life	(Item 15) Because of the length of time to apply the MabThera IV infusion/SC injection, do you feel that you have lost or gained time for other things?	8	"It affects you for more than even the time that you're sitting in that chair. But the time that you're sitting in that chair you could be doing all kinds of other things. I could have been paying bills. I could have been watching a movie. I could have been working or playing with my kids"	8	8	Retain but update ^e

	(Item 14a) How much does the MabThera IV infusion/SC injection interfere with your usual or daily activities?		“Instead of having to give up a whole morning, you know, say you have to give up an hour because you have to get to the doctor’s office, get the shot and then get home”			Delete
	(Item 14b) How much does the MabThera IV infusion/SC injection limit your daily activities?		“You could just get out and get on with your day. I would just go home and do things around the house”			Delete
Interaction with nurse/doctor	(Item 16) When you receive the MabThera treatment, are you able to talk to your nurse and/or doctor as much as you would like about your	10	“Always because even when I was having the treatments and he was seeing patients, he would pass through	10	0	Retain no change

illness? (please only check ONE answer)

(Item 17) Does the MabThera IV infusion/SC injection impact the amount of time you have to talk to your nurse and/or doctor about your illness and other concerns?

there. He would stop.

He would talk. Ask how we were doing”

“The nurses that are administrating, they explained everything to me”

Retain no change

Notes: ^aAdd bold text to key terms to capture the patient’s focus: “Thinking about the MabThera IV infusion/SC injection, how **bothered** are you by the **amount of time** it takes to get the infusion?”. ^bSeparate into three items each targeting one side effect: “Thinking about the MabThera IV infusion/SC injection, how do you rate the **pain** you experienced at the **site of the drug injection**? Thinking about the MabThera IV infusion/SC injection, how do you rate the **swelling** you experienced at the **site of the drug injection**? Thinking about the MabThera IV infusion/SC injection, how do you rate the **redness** you experienced at the **site of the drug injection**?”. ^cClarify the concept refers to “physical” restriction and bold the text: “When you receive the MabThera treatment do you feel **physically restricted** by the IV infusion/SC injection?”. ^dInclude a follow-up question to understand how the disease impacts patients’ emotional well-being: “Does getting your **infusion** make you **think** about your disease?” (Yes/No). If yes, how does it make you feel? I feel anxious or fearful; I feel nervous; I feel calm; I feel content; I feel positive. ^eMinor wording change to improve clarity of concept and use bold text to capture the patient’s focus: “Thinking about the **length of time** it takes to **apply** the MabThera IV infusion/SC injection, do you feel that you have **lost or gained time for other things**?”

Abbreviations: CD, cognitive debriefing; CE, concept elicitation; IV, intravenous; RASQ-IV, Rituximab Administration Satisfaction Questionnaire - Intravenous; RASQ-SC, Rituximab Administration Satisfaction Questionnaire - Subcutaneous; SC, subcutaneous.

Supplementary Figure 1 RASQ-IV

Instructions: Please complete the following questions based on your MabThera treatment. Your MabThera was given through a thin plastic tube and a needle that was put directly into a vein in your arm, called an intravenous or IV infusion. Your MabThera treatment was given BEFORE your chemotherapy medicine. Please answer the questions **based on your most recent MabThera IV infusion.**

1. Thinking about the MabThera IV infusion, how **satisfied or dissatisfied** are you with the **IV infusion**?

Very satisfied Satisfied Neither satisfied nor dissatisfied Dissatisfied Very dissatisfied

2. Thinking about the MabThera IV infusion, how do you rate the **pain**, you experienced at the **site of the drug injection**?

None Mild Moderate Severe Very Severe

3. Thinking about the MabThera IV infusion, how do you rate the **swelling**, you experienced at **the site of the drug injection**

None Mild Moderate Severe Very Severe

4. Thinking about the MabThera IV infusion, how do you rate the **redness**, you experienced at **the site of the drug injection**

None Mild Moderate Severe Very Severe

5. Thinking about the MabThera IV infusion, how do you rate the **pain** you experience with the **IV infusion process**?

None Mild Moderate Severe Very Severe

6. Thinking about the MabThera IV infusion, are the **side effects** of the **IV infusion** as you expected?

Much better than expected Somewhat better than expected Met my expectations Somewhat worse than my expectations Much worse than my expectations

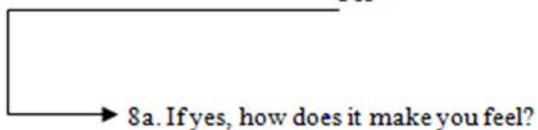
7. When you receive the MabThera IV infusion do you **worry** that your **condition** would **get worse**?

Not at all A little bit Somewhat Quite a bit Very much

8. Does getting your **infusion** make you **think** about your **disease**?

Yes

No (go to question 9)



I feel anxious or fearful



I feel nervous



I feel calm



I feel content



I feel positive

9. Thinking about the MabThera IV infusion, how **confident** are you that the MabThera IV infusion is **treating your disease**?

Not at all

A little bit

Somewhat

Quite a bit

Very much

10. When you receive the MabThera treatment do you feel **physically restricted** by the IV infusion?

Not at all

A little bit

Somewhat

Quite a bit

Very much

11. Thinking about the MabThera IV infusion, how **convenient** is it for you to **get your IV infusion**?

Very convenient

Convenient

Neither convenient
nor inconvenient

Inconvenient

Very inconvenient

12. Thinking about the MabThera IV infusion, overall how **bothered** are you with the **amount of time it takes to get your IV infusion**?

Not at all bothered

A little bothered

Moderately
bothered

Quite bothered

Very bothered

13. Thinking about the **length of time** it takes to apply the MabThera IV infusion, do you feel that you have **lost or gained time for other things**?

Lost a lot of time

Lost some time

Neither lost nor
gained time

Gained some time

Gained a lot of
time

14. When you receive the MabThera treatment, are you able to **talk to your nurse and/or doctor as much as you would like** about your illness? (please only check ONE answer)

Yes, I had more than enough time to talk to my nurse and/or doctor.

Yes, but I would have liked more time to talk to my nurse and/or doctor.

It does not matter to me if I have time to talk to my nurse and/or doctor during my treatment.

No, I did not have enough time to talk to my nurse and/or doctor.

No, I did not talk to my nurse and/or doctor at all.

15. Does the MabThera IV infusion impact the amount of **time** you have to **talk to your nurse and/or doctor** about your illness and other concerns?

Yes

No

16. Thinking about the MabThera treatment, if given the option, which would you **prefer (both options treat your disease in the same way)?** Please check one.

Prefer intravenous (IV) infusion given through a thin plastic tube and a needle into your vein (IV drip). This treatment option usually takes 1.5 to 3 hours.

Prefer subcutaneous (SC) injection, applied with a syringe and needle into the skin of the abdomen (or belly). This treatment option is usually takes 5 to 7 minutes.

No preference for treatment option.

17. Thinking about the MabThera treatment, would you **recommend** the way you received the treatment (**IV infusion**) to another patient?

Definitely yes

Probably yes

I don't know

Probably not

Definitely not

Supplementary Figure 2 RASQ-SC

Instructions: Please complete the following questions based on your MabThera treatment. Your MabThera was given through a needle injected into your abdomen (or belly) area, called a subcutaneous or SC injection. Your MabThera treatment was given BEFORE your chemotherapy medicine. Please answer the questions **based on your most recent MabThera SC injection.**

1. Thinking about the MabThera SC injection, how **satisfied** or **dissatisfied** are you with the **SC injection**?

Very satisfied Satisfied Neither satisfied nor dissatisfied Dissatisfied Very dissatisfied

2. Thinking about the MabThera SC injection, how do you rate the **pain**, you experienced at the **site of the drug injection**?

None Mild Moderate Severe Very Severe

3. Thinking about the MabThera SC injection, how do you rate the **swelling**, you experienced at the **site of the drug injection**

None Mild Moderate Severe Very Severe

4. Thinking about the MabThera SC injection, how do you rate the **redness**, you experienced at the **site of the drug injection**

None Mild Moderate Severe Very Severe

5. Thinking about the MabThera SC injection, how do you rate the **pain** you experience with the **SC injection process**?

None Mild Moderate Severe Very Severe

6. Thinking about the MabThera SC injection, are the **side effects** of the **SC injection** as you expected?

Much better than expected Somewhat better than expected Met my expectations Somewhat worse than my expectations Much worse than my expectations

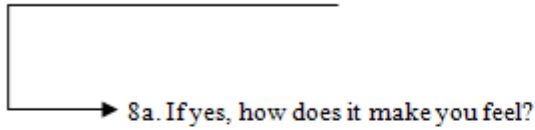
7. When you receive the MabThera SC injection do you **worry** that your **condition** would **get worse**?

Not at all A little bit Somewhat Quite a bit Very much

8. Does getting your **injection** make you **think** about your **disease**?

Yes

No (go to question 9)



I feel anxious or fearful



I feel nervous



I feel calm



I feel content



I feel positive

9. Thinking about the MabThera SC injection, how **confident** are you that the MabThera SC injection is **treating your disease**?

Not at all

A little bit

Somewhat

Quite a bit

Very much

10. When you receive the MabThera treatment do you feel **physically restricted** by the SC injection?

Not at all

A little bit

Somewhat

Quite a bit

Very much

11. Thinking about the MabThera SC injection, how **convenient** is it for you to **get your SC injection**?

Very convenient

Convenient

Neither convenient nor inconvenient

Inconvenient

Very inconvenient

12. Thinking about the MabThera SC injection, overall how **bothered** are you with the **amount of time it takes** to get your **SC injection**?

Not at all bothered

A little bothered

Moderately bothered

Quite bothered

Very bothered

13. Thinking about the **length of time** it takes to apply the MabThera SC injection, do you feel that you have **lost or gained time for other things**?

Lost a lot of time

Lost some time

Neither lost nor gained time

Gained some time

Gained a lot of time

14. When you receive the MabThera treatment, are you able to **talk to your nurse and/or doctor as much as you would like** about your illness? (please only check ONE answer)

Yes, I had more than enough time to talk to my nurse and/or doctor.

Yes, but I would have liked more time to talk to my nurse and/or doctor.

It does not matter to me if I have time to talk to my nurse and/or doctor during my treatment.

No, I did not have enough time to talk to my nurse and/or doctor.

No, I did not talk to my nurse and/or doctor at all.

15. Does the MabThera SC injection impact the amount of **time you have to talk to your nurse and/or doctor** about your illness and other concerns?

Yes

No

16. Thinking about the MabThera treatment, if given the option, which would you **prefer (both options treat your disease in the same way)**? Please check one.

Prefer intravenous (IV) infusion given through a thin plastic tube and a needle into your vein (IV drip). This treatment option usually takes 1.5 to 3 hours.

Prefer subcutaneous (SC) injection, applied with a syringe and needle into the skin of the abdomen (or belly). This treatment option is usually takes 5 to 7 minutes.

No preference for treatment option.

17. Thinking about the MabThera treatment, would you **recommend** the way you received the treatment **SC injection** to another patient?

Definitely yes

Probably yes

I don't know

Probably not

Definitely not