

Supplementary Table. Summary of categories, constructs, and specific measures.

| Category                                | Patient Survey  |  | Rheumatologist Survey  |  |
|---|---|--|--|--|
|   | Construct   | Questions analyzed   | Construct  | Questions analyzed   |
| <b>Demographics</b>                     | Age, gender, race/ethnicity, marital status, employment status, education, health insurance type  | <i>Details not shown</i>   | Age, gender, race/ethnicity  | <i>Details not shown</i>   |
|   | Community type, weight, height, adults in household, children in household, exercise frequency, household income, prescription coverage, copays/coinsurance, RA medication coverage | <i>Not analyzed</i>  |  |  |
| <b>Disease/practice characteristics</b> | Years since start of RA symptoms  | <u>Question:</u> “What year did you start experiencing rheumatoid arthritis symptoms?”<br><u>Response:</u> Year (4 digits) | Years in practice  | <u>Question:</u> “For how many years have you been in practice as a rheumatologist, post-residency?”<br>Years (2 digits)                         |
|   | Joint damage due to RA  | <u>Question</u> “Has your rheumatoid arthritis caused any damage to your joints?”<br><u>Response</u> Yes, No, Don’t know   | Number of patients with RA treated/month   | <u>Question:</u> “Approximately how many patients with rheumatoid arthritis do you personally treat in a typical month?”<br>Total (4 digits)     |
|   |   |  | Infusion suite in office   | <u>Question:</u> “Does your primary practice have an infusion suite where patients can receive infusion treatments?”<br><u>Response:</u> Yes, No |
|   | Employment status change due to RA symptoms   | <i>Not analyzed</i>  | Number of chairs in infusion suite (if there is one) or proximity to trusted infusion center | <i>Not analyzed</i>  |
|   | General attitude about RA’s impact on life  | <i>Not analyzed</i>  | Practice’s approach to administering infusible biologics                                     | <i>Not analyzed</i>  |

|                                  |   |                     |   |                     |
|----------------------------------|---|---------------------|---|---------------------|
|                                  | Awareness of RA assessment measures   | <i>Not analyzed</i> | Infusion administration options presented to patients   | <i>Not analyzed</i> |
|                                  | Anticipated change in RA status over time                                     | <i>Not analyzed</i> | Primary practice setting (e.g., private group, community hospital) and location                 | <i>Not analyzed</i> |
|                                  |   |                     | Direct patient care: percentage of practice   | <i>Not analyzed</i> |
|                                  |   |                     | Number of RA patients treated per month   | <i>Not analyzed</i> |
|                                  |   |                     | Member of pharmacy and therapeutics committee   | <i>Not analyzed</i> |
| <b>Treatment characteristics</b> | Years since doctor was seen for RA  | <i>Not analyzed</i> |   |                     |
|                                  | Years since seeking treatment for RA  | <i>Not analyzed</i> |   |                     |
|                                  | Specialty of doctor who first diagnosed RA                                    | <i>Not analyzed</i> |   |                     |
|                                  | Treatments (DMARDs, biologics, steroids) currently taken or ever taken for RA | <i>Not analyzed</i> | Treatments (DMARDs, biologics, steroids, etc.): percentage of own RA patients treated with each | <i>Not analyzed</i> |
|                                  | Intravenous infusion for condition other than RA: receipt and timing          | <i>Not analyzed</i> |   |                     |
|                                  | Self-injectable for condition other than RA: receipt and timing               | <i>Not analyzed</i> |   |                     |
|                                  | Duration of current treatments for RA   | <i>Not analyzed</i> |   |                     |
|                                  | Adherence to RA medication  | <i>Not analyzed</i> |   |                     |

Skipped doses of RA medication due to alcohol consumption *Not analyzed*

Satisfaction with current RA treatment *Not analyzed*

Perceived friend/family agreement with patient opinion of RA treatment *Not analyzed*

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**Biologics initiation**

Initiator of discussion about biologics  
Question: “Who initiated the conversation about starting on a biologic treatment for your rheumatoid arthritis?”  
Response: General practitioner/family practitioner, internist, orthopedist, rheumatologist, I initiated the conversation with my rheumatologist, pharmacist, nurse, friend/family/member, caregiver, other (specify), don't remember

Aspects of biologic treatment discussed  
Question: “When discussing a biologic treatment with your rheumatologist, to what extent was each of the following discussed?” *categories given in Table 6*  
Response: Not discussed at all, discussed somewhat, discussed in detail

Aspects of biologic treatment discussed

Question: “When discussing a biologic treatment with your patients, to what extent was each of the following discussed?” *categories given in Table 6*  
Response: Not discussed at all, discussed somewhat, discussed in detail

Time since initiating discussion about biologic treatment *Not analyzed*

Awareness of or discussion about specific biologics *Not analyzed*

|   |                     |  |                     |
|---|---------------------|--|---------------------|
| Sources of information about biologic treatment   | <i>Not analyzed</i> |  |                     |
| Number of rheumatologist visits over which biologic treatment was discussed                                 | <i>Not analyzed</i> |  |                     |
| Number of different biologic treatment options discussed  | <i>Not analyzed</i> |  |                     |
| How rheumatologist presented biologic treatment/brands  | <i>Not analyzed</i> |  |                     |
| Strength of rheumatologist's biologics recommendation   | <i>Not analyzed</i> |  |                     |
| Openness to starting biologics treatment after discussion (including open-ended reasons)                    | <i>Not analyzed</i> |  |                     |
| Rheumatologist's reasons for initiating biologics   | <i>Not analyzed</i> |  |                     |
| Timeframe for initiation: rheumatologist's recommendation and patient's intention                           | <i>Not analyzed</i> |  |                     |
| Rheumatologist discussion/recommendation of self-injection and intravenous infusion for biologics treatment | <i>Not analyzed</i> |  |                     |
| Reasons for <i>not</i> considering biologics ( <i>among non-open patients</i> )                             | <i>Not analyzed</i> |  |                     |
| Attitudes about biologic treatment and convenience  | <i>Not analyzed</i> | Patient attitudes about biologic treatment and | <i>Not analyzed</i> |

convenience

|                                       |   |   |  |  |
|---------------------------------------|---|---|--|--|
| <b>Openness to infusion/injection</b> | Openness to route of administration (IV and SQ)       | <u>Question 1:</u> "How open are you to having your rheumatoid arthritis medication administered through intravenous injection by a healthcare professional if your rheumatologist suggested it?"<br><u>Question 2:</u> "How open are you to having your rheumatoid arthritis medication administered at home by self-injection if your rheumatologist suggested it?"<br><u>Response:</u> 1=not at all open, 2 = not very open, 3 = somewhat open, 4 =very open, 5=extremely open     | Perceptions of patients' openness to infusion/injection                        | <u>Question:</u> "Of your rheumatoid arthritis patients who are ready to start biologic treatment, what percentage would be open to or willing to consider each of the following methods for administration?"<br><u>Response:</u> <i>Percentage (3 digits)</i><br>% open to or willing to consider both SQ and IV<br>% not open to or willing to consider SQ and IV<br>% open to or willing to consider SQ only<br>% open to or willing to consider IV only                              |
|                                       | Openness to specific attributes of infusion/injection | <u>Question:</u> "Listed below are treatment aspects patients may consider when starting a biologic treatment for their rheumatoid arthritis. We want to understand how open you are to each way the biologic medication is taken. Please indicate how open you are to each treatment if your rheumatologist suggested it."<br><i>Specific aspects listed in Table 3.</i><br><u>Response:</u> 1=not at all open, 2 = not very open, 3 = somewhat open, 4 =very open, 5=extremely open | Perceptions of patients' openness to specific attributes of infusion/injection | <u>Question:</u> "Listed below are treatment aspects patients may consider when starting a biologic treatment for their rheumatoid arthritis. We want to understand how open or willing you feel your patients are to each administration method and frequency. Please indicate you patients' openness to each treatment aspect." <i>Specific aspects listed in Table 3.</i><br><u>Response:</u> 1=not at all open, 2 = not very open, 3 = somewhat open, 4 =very open, 5=extremely open |
|                                       | Open-ended reasons for openness to infusion/injection | <i>Not analyzed</i>   |  |  |

|  |  |  |  |  |
|--|--|--|--|--|
|  | Openness to administration sources and locations (e.g., home by self, facility by healthcare professional) | <i>Not analyzed</i>  | Patient openness to administration sources and locations (e.g., home by self, facility by healthcare professional) | <i>Not analyzed</i>  |
| <b>Preference for infusion/injection</b> | Preference for infusion versus injection   | <p><u>Question:</u> “Would you prefer to take your biologic medication by self-injection at home or have the medication given to you by a healthcare professional through intravenous infusion?”</p> <p><u>Response:</u> 1=strongly prefer self-injection, 2=somewhat prefer self-injection, 3=no preference between self-injection and intravenous infusion, 4=somewhat prefer intravenous infusion, 5=strongly prefer intravenous infusion</p>   | Perceptions of patients’ preference for infusion versus injection  | <p><u>Question:</u> “Thinking about the patients you have discussed starting biologic therapy in the near term for their rheumatoid arthritis, what percentage do you feel would prefer subcutaneous injection vs. intravenous infusion?”</p> <p><u>Response:</u> <i>Percentage (3 digits)</i></p> <p>% no preference, would use either</p> <p>% strongly prefer SQ</p> <p>% strongly somewhat prefer SQ</p> <p>% strongly prefer IV</p> <p>% somewhat prefer IV</p>   |
|  | Preference for specific attributes of infusion/injection   | <p><u>Question:</u> “Listed below are treatment aspects patients may consider when starting a biologic treatment for their rheumatoid arthritis. We want to understand what aspects you prefer. Assuming the same effectiveness and safety, please take 100 points and allocate them across the 10 biologic options below. Give the items that you would prefer most the most points and items you would prefer least the least points. You can give the same number of points to more than one item. You may also assign an item that you do not prefer</p> | Perceptions of patients’ preference for specific attributes of infusion/injection                                  | <p><u>Question:</u> “Listed below are treatment aspects patients may consider when starting a biologic treatment for their rheumatoid arthritis. We want to understand what aspects you believe your patients prefer. Assuming the same effectiveness and safety, please take 100 points and allocate them across the 10 biologic options below. Give the items that you believe your patients prefer most the most points and the items that your patients would prefer least the least points You can give the same number of points to more than one item. You may also assign an item that you believe your patients do not prefer “0” points. If multiple items have the same</p> |

“0” points. If you have the same preference for multiple items, please assign them the same amount of points.”

Response: *Specific biologic treatments to assign points to listed in Table 4*

preferences please assign them the same amount of points.”

Response: *Specific biologic treatments to assign points to listed in Table 4*

Perceptions of patients’ preference for infusion versus injection among patient subgroups

Question: “Listed below are different patient types. Based on your experience we would like you to indicate your patient’s preference for biologics administered by subcutaneous injection or intravenous infusion.”

Response: 1=strongly prefer self-injection, 2=somewhat prefer self-injection, 3=no preference between self-injection and intravenous infusion, 4=somewhat prefer intravenous infusion, 5=strongly prefer intravenous infusion.

*Subgroups appear partly in Table 5:*

Younger

Older

Female

Male

Have moderate rheumatoid arthritis

Have severe rheumatoid arthritis

Have advanced joint damage

Are employed

Are not employed

Are commercially insured

Are covered by Medicare

Are covered by Medicaid

Preference among administration sources and locations (e.g., home by self,

*Not analyzed*

Patient preference among administration sources and locations (e.g., home by

*Not analyzed*

facility by healthcare professional)

Qualities/attributes perceived to be associated with IV vs. self-injection

*Not analyzed*

self, facility by healthcare professional)

Qualities/attributes patients perceive to be associated with IV vs. SQ

*Not analyzed*

Qualities/attributes perceived to be associated with IV vs. SQ

*Not analyzed*

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**Treatment decision making**

Patient role in treatment decision making

Question: "When deciding on a treatment for rheumatoid arthritis which of the following best applies?"  
Response: 1=I make the final treatment decision, 2=I make the final treatment decision after considering my rheumatologist's recommendations, 3=I share responsibility with my rheumatologist when deciding upon a treatment, 4=my rheumatologist makes the final treatment decision, but seriously considers my opinion, 5=I leave all treatment decisions to my rheumatologist

Temporal impact on treatment decision making

Question: "When you are making choices about treatment for your rheumatoid arthritis, do you?"  
Response: 1=Mostly think about its impact on my present condition or how you are currently feeling/doing, 2=mostly think about its impact on you in the future, 3=both, 4=neither

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|--|---------------------|---|---------------------|
| Influence of different sources (e.g., advice, articles) on RA treatment decisions              | <i>Not analyzed</i> |   |                     |
| Type of caregiver (if any) who helps with RA management, treatment, and/or treatment decisions | <i>Not analyzed</i> |   |                     |
| Temporal impact on treatment decision making   | <i>Not analyzed</i> |   |                     |
| Importance of duration, frequency, and location of IV when considering biologics initiation    | <i>Not analyzed</i> | Importance to patients of duration, frequency, and location of IV when considering biologics initiation | <i>Not analyzed</i> |

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*Note.* Presented are categories and constructs from the rheumatoid arthritis patient and rheumatologist surveys, as well as specific measures utilized in the current study. DMARD = disease-modifying antirheumatic drug; IV = intravenous infusion; RA = rheumatoid arthritis; SQ = subcutaneous injection.