Factors influencing preferences and responses towards drug safety communications: a conjoint experiment among hospital-based healthcare professionals in the Netherlands

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**Supplementary table 1.** The survey (translated from Dutch)

| Question | Answer categories | Follow up question |
|----------|-------------------|-------------------|
| 1. What is your profession within the hospital | • Hospital pharmacist  
• Hospital pharmacist in training  
• Medical specialist; namely____  
• Medical specialist in training; namely____  
• Nurse specialist/Physician assistant; namely____  
• Policlinic pharmacist | | |
| 2. Are you familiar with the DHPC | • Yes  
• Yes, heard of it but never seen one  
• No | If yes, 2b and 2c |
| 2b. When you receive the DHPC, do you read it? | • Never  
• Rarely  
• Sometimes  
• Often  
• Always | |
| 2c. Do you find the DHPC as a form of risk communication useful? | • Not useful at all  
• Not useful  
• Neutral  
• Useful  
• Very useful | |
| 3. Through which channel would you like to receive the DHPC? (select all that apply) | • DHPC letter  
• DHPC email  
• Newsletter from professional association  
• Integrated in the Pharmacotherapeutic Compass  
• Integrated in the ‘Kennisbank’ (KNMP)  
• Integrated in the CPOE  
• In an app (for example the adverse event app of Lareb)  
• No preference | If multiple options chosen, 3b |
| 3b. Do you like the information through 1 or more channels chosen by you? | • Through 1 of the channels chosen by me  
• Through multiple of the channels chosen by me  
• No preference | |
| 4. Should safety issues, as described in the DHPC, be incorporated automatically in professional guidelines? | • Yes  
• No  
• I don’t know/no opinion | |

**8 Hypothetical DHPCs**

5. How important is it to Likert scale 0-100
| Question                                                                 | Answer categories                                                                 | Follow up question |
|------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------|
| How long have you been working as a healthcare provider in a hospital  | • < 5 years<br>• 5-10 years<br>• >10 years                                       |                    |
| In what type of hospital do you work?                                  | • Academic<br>• Top clinical<br>• General                                         |                    |
| What is your age?                                                      | • <35 years<br>• 35-45 years<br>• 46-55 years<br>• >55 years                     |                    |
| Where do you get general drug information, which sources do you use?  | • Pharmacotherapeutic Compass<br>• ‘Kennisbank’ (KNMP)<br>• Medical magazines/journals<br>• Clinical trials<br>• Conferences<br>• Summary of Product Characteristics (SmPC/previous IB text)<br>• National guidelines<br>• Direct Healthcare Professional Communication (DHPC)<br>• Newsletters (e.g., MEB, Lareb)<br>• Health Base<br>• Colleagues<br>• Lay media (tv programs, newspapers, social media like Facebook/Twitter)<br>• Other; namely___ |                    |

CPOE: computerized physician order entry, DHPC: Direct Healthcare Professional Communications, KNMP: Royal Dutch Pharmacists Association (Koninklijke Nederlandse Maatschappij ter bevordering der Pharmacie), Lareb: the Netherlands Pharmacovigilance Centre Lareb, MEB: Dutch Medicines Evaluation Board.
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Supplementary figure 1. Example of a hypothetical Direct Healthcare Professional Communication.

**Clinical studies** have revealed a new risk for drug Z that is used for a chronic, slowly progressive condition within your patient population/specialty for which multiple drugs are available.

This risk occurs **very rarely (<1/10,000)**. The risk can lead to **irreversible disability** and is **potentially life-threatening**. Users should receive **additional monitoring** (for example, additional lab tests).

It is a product for which there is **more than 10 years** of experience.
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**Supplementary table 2. Importance of the information – all HCPs**

| Determinant                              | Level | 0   | 10  | 20  | 30  | 40  | 50  | 60  | 70  | 80  | 90  | 100 |
|-----------------------------------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Frequency of the safety issue           |       |     |     |     |     |     |     |     |     |     |     |     |
| Very rare                               | 6 (1.1%) | 18 (3.4%) | 16 (3.0%) | 26 (4.9%) | 20 (3.8%) | 51 (9.7%) | 72 (13.7%) | 94 (17.9%) | 114 (21.7%) | 57 (10.8%) | 52 (9.9%) |
| Rare                                    | 1 (0.4%) | 3 (1.2%) | 7 (2.7%) | 9 (3.5%) | 5 (1.9%) | 22 (8.5%) | 21 (8.1%) | 56 (21.5%) | 59 (22.7%) | 43 (16.5%) | 34 (13.1%) |
| Uncommon                                | 1 (0.4%) | 1 (0.4%) | 2 (0.7%) | 9 (3.4%) | 4 (1.5%) | 16 (6.0%) | 26 (9.7%) | 36 (13.5%) | 52 (19.5%) | 54 (20.2%) | 66 (24.7%) |
| Seriousness of the safety issue         |       |     |     |     |     |     |     |     |     |     |     |     |
| Hospitalisation                         | 9 (1.7%) | 14 (2.7%) | 18 (3.4%) | 31 (5.9%) | 20 (3.8%) | 57 (10.8%) | 75 (14.2%) | 99 (18.8%) | 110 (20.8%) | 58 (11.0%) | 38 (7.2%) |
| Life threatening and irreversible       | 0 (0.0%) | 8 (1.5%) | 7 (1.3%) | 13 (2.5%) | 9 (1.7%) | 44 (8.3%) | 44 (8.3%) | 87 (16.6%) | 115 (21.9%) | 96 (18.3%) | 114 (21.7%) |
| Need to take action                     |       |     |     |     |     |     |     |     |     |     |     |     |
| Be alert                                | 4 (0.8%) | 9 (1.7%) | 16 (3.0%) | 23 (4.4%) | 18 (3.4%) | 53 (10.1%) | 73 (13.9%) | 96 (18.2%) | 114 (21.6%) | 61 (11.6%) | 60 (11.4%) |
| Additional monitoring                   | 4 (0.8%) | 13 (2.5%) | 9 (1.7%) | 21 (4.0%) | 11 (2.1%) | 36 (6.8%) | 46 (8.7%) | 90 (17.1%) | 111 (21.1%) | 93 (17.7%) | 92 (17.5%) |
| Life span of the drug                   |       |     |     |     |     |     |     |     |     |     |     |     |
| <10 years                               | 6 (1.1%) | 10 (1.9%) | 13 (2.5%) | 19 (3.6%) | 13 (2.5%) | 45 (8.5%) | 54 (10.2%) | 65 (12.4%) | 95 (18.0%) | 91 (17.4%) | 86 (16.3%) |
| >10 years                               | 2 (0.4%) | 12 (2.3%) | 12 (2.3%) | 25 (4.8%) | 16 (3.1%) | 44 (8.4%) | 65 (12.4%) | 91 (17.4%) | 126 (24.0%) | 65 (12.4%) | 66 (12.6%) |
| Type of evidence                        |       |     |     |     |     |     |     |     |     |     |     |     |
| Epidemiological studies and spontaneous reports | 3 (0.6%) | 11 (2.1%) | 9 (1.7%) | 22 (4.2%) | 11 (2.1%) | 51 (9.7%) | 67 (12.8%) | 79 (15.1%) | 121 (23.1%) | 75 (14.3%) | 75 (14.3%) |
| Clinical research                       | 5 (0.9%) | 11 (2.1%) | 16 (3.0%) | 22 (4.2%) | 18 (3.4%) | 38 (7.2%) | 52 (9.8%) | 107 (20.2%) | 104 (19.7%) | 79 (14.9%) | 77 (14.6%) |
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Supplementary table 3. Preferred moment of communication – All HCPs

| Determinant                  | Level                      | Immediate (e.g. through a DHPC) | Periodically (e.g. through a newsletter of professional association) | When I look for drug information (e.g. integrated in the Pharmacotherapeutic Compass or ‘Kennisbank’) | At the moment of prescribing (e.g. integrated in the CPOE) |
|-----------------------------|----------------------------|---------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------|
| Frequency of the safety issue | Very rare                  | 186 (35.1%)                     | 249 (47.0%)                                                  | 257 (48.5%)                                                      | 236 (44.5%)                                              |
|                             | Rare                       | 118 (45.0%)                     | 113 (43.1%)                                                 | 132 (50.4%)                                                      | 130 (49.6%)                                              |
|                             | Uncommon                   | 149 (55.6%)                     | 103 (38.4%)                                                 | 133 (49.6%)                                                      | 147 (54.9%)                                              |
| Seriousness of the safety issue | Hospitalisation           | 150 (28.1%)                     | 261 (48.9%)                                                 | 260 (48.7%)                                                      | 248 (46.4%)                                              |
|                             | Life threatening and irreversible | 303 (57.6%)             | 204 (38.8%)                                                 | 262 (49.8%)                                                      | 265 (50.4%)                                              |
| Need to take action          | Be alert                   | 199 (37.5%)                     | 254 (47.9%)                                                 | 255 (48.1%)                                                      | 234 (44.2%)                                              |
|                             | Additional monitoring      | 254 (47.9%)                     | 211 (39.8%)                                                 | 267 (50.4%)                                                      | 279 (52.6%)                                              |
| Life span of the drug       | <10 years                  | 235 (44.0%)                     | 231 (43.3%)                                                 | 265 (49.6%)                                                      | 267 (50.0%)                                              |
|                             | >10 years                  | 218 (41.4%)                     | 234 (44.5%)                                                 | 257 (48.9%)                                                      | 246 (46.8%)                                              |
| Type of evidence             | Epidemiological studies and spontaneous reports | 227 (42.8%)                     | 232 (43.8%)                                                 | 264 (49.8%)                                                      | 260 (49.1%)                                              |
|                             | Clinical research          | 226 (42.6%)                     | 233 (44.0%)                                                 | 258 (48.7%)                                                      | 253 (47.7%)                                              |

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**Supplementary table 4.** Intended actions – all HCPs

| Determinant                     | Level                          | Discontinue existing users | Reconsider existing users | Stop prescribing new patients | Reconsider new patients | Additional testing for users | Discuss issue with colleagues |
|--------------------------------|--------------------------------|-----------------------------|---------------------------|--------------------------------|-------------------------|-------------------------------|-------------------------------|
| Frequency of the safety issue  | Very rare                      | 18 (3.4%)                   | 205 (38.3%)               | 52 (9.7%)                      | 222 (41.5%)             | 191 (35.7%)                   | 281 (52.5%)                   |
|                                | Rare                           | 10 (3.8%)                   | 111 (42.2%)               | 33 (12.5%)                     | 110 (41.8%)             | 109 (41.4%)                   | 143 (54.4%)                   |
|                                | Uncommon                       | 31 (11.6%)                  | 139 (51.9%)               | 67 (25.0%)                     | 123 (45.9%)             | 102 (38.1%)                   | 172 (64.2%)                   |
| Seriousness of the safety issue| Hospitalisation                | 5 (0.9%)                    | 178 (33.3%)               | 35 (6.5%)                      | 214 (40.0%)             | 201 (37.6%)                   | 276 (51.6%)                   |
|                                | Life threatening and irreversible| 54 (10.2%)                 | 277 (52.2%)               | 117 (22.0%)                    | 241 (45.4%)             | 201 (37.9%)                   | 320 (60.3%)                   |
| Need to take action            | Be alert                       | 19 (3.6%)                   | 227 (42.4%)               | 60 (11.2%)                     | 240 (44.9%)             | 89 (16.6%)                    | 304 (56.8%)                   |
|                                | Additional monitoring           | 40 (7.5%)                   | 228 (42.9%)               | 92 (17.3%)                     | 215 (40.5%)             | 313 (58.9%)                   | 292 (55.0%)                   |
| Life span of the drug          | <10 years                      | 40 (7.5%)                   | 224 (41.9%)               | 93 (17.4%)                     | 217 (40.6%)             | 194 (36.3%)                   | 293 (54.9%)                   |
|                                | >10 years                      | 19 (3.6%)                   | 231 (43.4%)               | 59 (11.1%)                     | 238 (44.7%)             | 208 (39.1%)                   | 303 (57.0%)                   |
| Type of evidence               | Epidemiological studies and spontaneous reports | 31 (5.8%) | 227 (42.8%) | 73 (13.8%) | 235 (44.3%) | 209 (39.4%) | 299 (56.4%) |
|                                | Clinical research              | 28 (5.2%)                   | 228 (42.5%)               | 79 (14.7%)                     | 220 (41.0%)             | 193 (36.0%)                   | 297 (55.4%)                   |