

## SUPPLEMENTARY MATERIAL

**Table S1.** List of participating countries, International Society of Nephrology regions, and their World Bank income groups.

| Country                                    | Income              | Country             | Income              | Country                | Income              |
|--|---------------------|---------------------|---------------------|------------------------|---------------------|
| <b>Africa</b>                              |                     |                     |                     |                        |                     |
| Benin                                      | Low income          | Sierra Leone        | Low income          | Nigeria                | Lower-middle income |
| Burkina Faso                               | Low income          | Somalia             | Low income          | Senegal                | Lower-middle income |
| Burundi                                    | Low income          | Tanzania            | Low income          | Sudan                  | Lower-middle income |
| Chad                                       | Low income          | Uganda              | Low income          | Swaziland              | Lower-middle income |
| Congo, Dem. Rep.                           | Low income          | Zimbabwe            | Low income          | Zambia                 | Lower-middle income |
| Eritrea                                    | Low income          | Cabo Verde          | Lower-middle income | Algeria                | Upper-middle income |
| Ethiopia                                   | Low income          | Cameroon            | Lower-middle income | Angola                 | Upper-middle income |
| Gambia, The                                | Low income          | Congo, Rep.         | Lower-middle income | Botswana               | Upper-middle income |
| Guinea                                     | Low income          | Cote d'Ivoire       | Lower-middle income | Gabon                  | Upper-middle income |
| Liberia                                    | Low income          | Egypt, Arab Rep.    | Lower-middle income | Libya                  | Upper-middle income |
| Madagascar                                 | Low income          | Ghana               | Lower-middle income | Namibia                | Upper-middle income |
| Malawi                                     | Low income          | Kenya               | Lower-middle income | South Africa           | Upper-middle income |
| Mozambique                                 | Low income          | Mauritania          | Lower-middle income | Tunisia                | Upper-middle income |
| Niger                                      | Low income          | Morocco             | Lower-middle income |                        |                     |
| <b>Eastern and Central Europe</b>          |                     |                     |                     |                        |                     |
| Kosovo                                     | Lower-middle income | Romania             | Upper-middle income | Estonia                | High income         |
| Moldova                                    | Lower-middle income | Serbia              | Upper-middle income | Hungary                | High income         |
| Albania                                    | Upper-middle income | Turkey              | Upper-middle income | Latvia                 | High income         |
| Bosnia and Herzegovina                     | Upper-middle income | Croatia             | High income         | Lithuania              | High income         |
| Bulgaria                                   | Upper-middle income | Cyprus              | High income         | Poland                 | High income         |
| Macedonia, FYR                             | Upper-middle income | Czech Republic      | High income         | Slovak Republic        | High income         |
| <b>Latin America and the Caribbean</b>     |                     |                     |                     |                        |                     |
| Haiti                                      | Low income          | Cuba                | Upper-middle income | Venezuela, RB          | Upper-middle income |
| Bolivia                                    | Lower-middle income | Dominican Republic  | Upper-middle income | Argentina              | High income         |
| El Salvador                                | Lower-middle income | Mexico              | Upper-middle income | British Virgin Islands | High income         |
| Guatemala                                  | Lower-middle income | Panama              | Upper-middle income | Chile                  | High income         |
| Brazil                                     | Upper-middle income | Paraguay            | Upper-middle income | Puerto Rico            | High income         |
| Colombia                                   | Upper-middle income | Peru                | Upper-middle income | Uruguay                | High income         |
| <b>Middle East</b>                         |                     |                     |                     |                        |                     |
| Syrian Arab Republic                       | Lower-middle income | Jordan              | Upper-middle income | Qatar                  | High income         |
| West Bank and Gaza                         | Lower-middle income | Lebanon             | Upper-middle income | Saudi Arabia           | High income         |
| Iran, Islamic Rep.                         | Upper-middle income | Kuwait              | High income         | United Arab Emirates   | High income         |
| Iraq                                       | Upper-middle income | Oman                | High income         |                        |                     |
| <b>Newly Independent States and Russia</b> |                     |                     |                     |                        |                     |
| Armenia                                    | Lower-middle income | Azerbaijan          | Upper-middle income | Russian Federation     | Upper-middle income |
| Georgia                                    | Lower-middle income | Belarus             | Upper-middle income |                        |                     |
| Tajikistan                                 | Lower-middle income | Kazakhstan          | Upper-middle income |                        |                     |
| <b>North America</b>                       |                     |                     |                     |                        |                     |
| Jamaica                                    | Upper-middle income | Antigua and Barbuda | High income         | St. Kitts and Nevis    | High income         |
| St. Lucia                                  | Upper-middle income | Canada              | High income         | Trinidad and Tobago    | High income         |
| St. Vincent and the Grenadines             | Upper-middle income | Cayman Islands      | High income         | United States          | High income         |
| <b>North and East Asia</b>                 |                     |                     |                     |                        |                     |
| China                                      | Upper-middle income | Japan               | High income         | Taiwan, China          | High income         |
| Mongolia                                   | Upper-middle income | Korea, Rep.         | High income         |                        |                     |
| Hong Kong SAR, China                       | High income         | Macao SAR, China    | High income         |                        |                     |
| <b>Oceania and South East Asia</b>         |                     |                     |                     |                        |                     |
| Cambodia                                   | Lower-middle income | Vietnam             | Lower-middle income | Australia              | High income         |
| Indonesia                                  | Lower-middle income | Fiji                | Upper-middle income | Brunei Darussalam      | High income         |
| Lao PDR                                    | Lower-middle income | Malaysia            | Upper-middle income | New Caledonia          | High income         |
| Myanmar                                    | Lower-middle income | Samoa               | Upper-middle income | New Zealand            | High income         |
| Philippines                                | Lower-middle income | Thailand            | Upper-middle income | Singapore              | High income         |
| <b>South Asia</b>                          |                     |                     |                     |                        |                     |
| Afghanistan                                | Low income          | Bhutan              | Lower-middle income | Sri Lanka              | Lower-middle income |
| Nepal                                      | Low income          | India               | Lower-middle income |                        |                     |
| Bangladesh                                 | Lower-middle income | Pakistan            | Lower-middle income |                        |                     |
| <b>Western Europe</b>                      |                     |                     |                     |                        |                     |
| Austria                                    | High income         | Iceland             | High income         | Netherlands            | High income         |
| Belgium                                    | High income         | Ireland             | High income         | Norway                 | High income         |
| Denmark                                    | High income         | Israel              | High income         | Portugal               | High income         |
| Finland                                    | High income         | Italy               | High income         | Spain                  | High income         |
| France                                     | High income         | Liechtenstein       | High income         | Sweden                 | High income         |
| Germany                                    | High income         | Luxembourg          | High income         | Switzerland            | High income         |
| Greece                                     | High income         | Malta               | High income         | United Kingdom         | High income         |

**Table S2.** List of nonparticipant countries by ISN region.

| <b>ISN region</b>             | <b>Country</b>           | <b>World Bank income group</b> | <b>Population</b> |
|-------------------------------|--------------------------|--------------------------------|-------------------|
| Africa                        | Central African Republic | Low income                     | 5 745 062         |
| Africa                        | Djibouti                 | Lower-middle income            | 884 017           |
| Africa                        | Mali                     | Low income                     | 18 429 893        |
| Africa                        | Rwanda                   | Low income                     | 12 187 400        |
| Africa                        | Togo                     | Low income                     | 8 176 449         |
| Eastern & Central Europe      | Montenegro               | Upper-middle income            | 614 249           |
| Latin America & the Caribbean | Costa Rica               | Upper-middle income            | 4 987 142         |
| Latin America & the Caribbean | Curacao                  | High income                    | 150 241           |
| Latin America & the Caribbean | Dominica                 | Upper-middle income            | 74 027            |
| Latin America & the Caribbean | Ecuador                  | Upper-middle income            | 16 498 502        |
| Latin America & the Caribbean | Grenada                  | Upper-middle income            | 112 207           |
| Latin America & the Caribbean | Guyana                   | Upper-middle income            | 740 685           |
| Latin America & the Caribbean | Honduras                 | Lower-middle income            | 9 182 766         |
| Latin America & the Caribbean | Nicaragua                | Lower-middle income            | 6 085 213         |
| Latin America & the Caribbean | St. Martin (French part) | High income                    | 32 284            |
| Latin America & the Caribbean | Suriname                 | Upper-middle income            | 597 927           |
| Middle East                   | Bahrain                  | High income                    | 1 442 659         |
| Middle East                   | Yemen                    | Lower-middle income            | 28 667 230        |
| NIS & Russia                  | Kyrgyz Republic          | Lower-middle income            | 5 849 296         |
| NIS & Russia                  | Ukraine                  | Lower-middle income            | 43 952 299        |
| NIS & Russia                  | Uzbekistan               | Lower-middle income            | 30 023 709        |
| North American                | Bahamas, The             | High income                    | 332 634           |
| North American                | Barbados                 | High income                    | 293 131           |
| North American                | Bermuda                  | High income                    | 71 176            |
| North American                | Virgin Islands (U.S.)    | High income                    | 106 977           |
| Oceania & South East Asia     | Northern Mariana Islands | High income                    | 51 994            |
| Western Europe                | Monaco                   | High income                    | 30 727            |

ISN, International Society of Nephrology; NIS, newly independent states.

**Table S3.** Survey respondents by ISN region and World Bank Income group.

| Category                 | Number invited to participate | Total no. of respondents | No. of respondents per country |     | Respondent affiliation <i>n</i> (%) |                             |                                    |                           |                    |
|--------------------------|-------------------------------|--------------------------|--------------------------------|-----|-------------------------------------|-----------------------------|------------------------------------|---------------------------|--------------------|
|                          |                               |                          | Median                         | IQR | Nephrologist                        | Nonnephrologist (physician) | Health professional (nonphysician) | Administrator/policymaker | Other <sup>a</sup> |
| Overall                  | 431                           | 317 <sup>b</sup>         | 3                              | 2–4 | 260 (82)                            | 22 (7)                      | 7 (2)                              | 17 (5)                    | 11 (3)             |
| ISN region               |                               |                          |                                |     |                                     |                             |                                    |                           |                    |
| Africa                   | 88                            | 63                       | 2                              | 1–2 | 48 (76)                             | 8 (13)                      | 3 (5)                              | 2 (3)                     | 2 (3)              |
| Eastern & Central Europe | 45                            | 36                       | 2                              | 2–3 | 32 (89)                             | 1 (3)                       | 0 (0)                              | 2 (6)                     | 1 (3)              |
| Latin America            | 61                            | 39                       | 3                              | 2–3 | 33 (85)                             | 3 (8)                       | 0 (0)                              | 2 (5)                     | 1 (3)              |
| Middle East              | 33                            | 29                       | 3                              | 2–3 | 26 (90)                             | 1 (3)                       | 1 (3)                              | 1 (3)                     | 0 (0)              |
| NIS & Russia             | 21                            | 14                       | 1                              | 1–3 | 11 (79)                             | 0 (0)                       | 1 (7)                              | 2 (14)                    | 0 (0)              |
| North America            | 29                            | 17                       | 4                              | 1–5 | 12 (71)                             | 3 (18)                      | 0 (0)                              | 0 (0)                     | 2 (12)             |
| North & East Asia        | 27                            | 21                       | 4                              | 3–4 | 20 (95)                             | 1 (5)                       | 0 (0)                              | 0 (0)                     | 0 (0)              |
| OSEA                     | 43                            | 36                       | 3                              | 2–3 | 29 (81)                             | 1 (3)                       | 1 (3)                              | 2 (6)                     | 3 (8)              |
| South Asia               | 17                            | 16                       | 3                              | 2–5 | 11 (69)                             | 3 (19)                      | 0 (0)                              | 2 (13)                    | 0 (0)              |
| Western Europe           | 67                            | 46                       | 3                              | 2–6 | 38 (83)                             | 1 (2)                       | 1 (2)                              | 4 (9)                     | 2 (4)              |
| World Bank group         |                               |                          |                                |     |                                     |                             |                                    |                           |                    |
| Low-income               | 47                            | 35                       | 2                              | 1–3 | 24 (69)                             | 8 (23)                      | 2 (6)                              | 1 (3)                     | 0 (0)              |
| Lower-middle-income      | 95                            | 75                       | 2                              | 2–3 | 62 (83)                             | 3 (4)                       | 3 (4)                              | 4 (5)                     | 3 (4)              |
| Upper-middle-income      | 115                           | 82                       | 2                              | 2–4 | 70 (85)                             | 5 (6)                       | 0 (0)                              | 5 (6)                     | 2 (2)              |
| High-income              | 174                           | 125                      | 3                              | 2–4 | 104 (83)                            | 6 (5)                       | 2 (2)                              | 7 (6)                     | 6 (5)              |

<sup>a</sup> Other types of stakeholders (eg, nurses and community health officers).

<sup>b</sup> Overall number of individual respondents among 460 contacted (individual response rate of 68.9%).

ISN, International Society of Nephrology; IQR, interquartile range; OSEA, Oceania and Southeast Asia.

**Table S4.** Association between kidney transplant donor type and waiting list.

| Transplant waiting list | Donor type, n (%)      |                    |   | RRR (95% CI)         |                    |
|-------------------------|------------------------|--------------------|---|----------------------|--------------------|
|                         | Deceased donor KT only | Live donor KT only | Combination of deceased and live donor KT |                      |                    |
| National                | 0                      | 8 (25.0)           | 62 (76.5)                                 | 1 [Reference]        | -                  |
| Regional                | 0                      | 7 (21.9)           | 15 (18.5)                                 | 3.62 (1.13, 11.54)   | 1 [Reference]      |
| None                    | 0                      | 17 (53.1)          | 4 (4.9)                                   | 32.94 (8.85, 122.65) | 9.11 (2.22, 37.34) |

95% CI, 95% confidence interval; KT, kidney transplant; RRR, relative risk ratio.

**Table S5.** Availability of services for kidney transplantation. Data are number (%) of countries.

| Category                      | n   | Early provision of culturally appropriate information |                         |        |         |                        | Effective preventive therapy to control infections |                         |        |         |                        | Timely access to operating space |                         |        |         |                        |
|-------------------------------|-----|---|-------------------------|--------|---------|------------------------|--|-------------------------|--------|---------|------------------------|----------------------------------|-------------------------|--------|---------|------------------------|
|                               |     | Generally available                                   | Generally not available | Never  | Unknown | N/A (KT not available) | Generally available                                | Generally not available | Never  | Unknown | N/A (KT not available) | Generally available              | Generally not available | Never  | Unknown | N/A (KT not available) |
| Overall                       | 154 | 92 (60)   | 33 (21)                 | 2 (1)  | 0 (0)   | 27 (18)                | 106 (69)   | 21 (14)                 | 2 (1)  | 0 (0)   | 25 (16)                | 98 (64)                          | 24 (16)                 | 3 (2)  | 0 (0)   | 29 (19)                |
| ISN region                    |     |   |                         |        |         |                        |  |                         |        |         |                        |                                  |                         |        |         |                        |
| Africa                        | 41  | 7 (17)  | 13 (32)                 | 0 (0)  | 0 (0)   | 21 (51)                | 9 (22)   | 11 (27)                 | 0 (0)  | 0 (0)   | 21 (51)                | 6 (15)                           | 12 (29)                 | 1 (2)  | 0 (0)   | 22 (54)                |
| Eastern & Central Europe      | 19  | 19 (100)  | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 19 (100)   | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 17 (89)                          | 2 (11)                  | 0 (0)  | 0 (0)   | 0 (0)                  |
| Latin America & the Caribbean | 18  | 8 (44)  | 10 (56)                 | 0 (0)  | 0 (0)   | 0 (0)                  | 15 (83)  | 3 (17)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 13 (72)                          | 4 (22)                  | 0 (0)  | 0 (0)   | 1 (6)                  |
| Middle East                   | 11  | 10 (91)   | 1 (9)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 11 (100)   | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 11 (100)                         | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  |
| NIS & Russia                  | 7   | 6 (86)  | 1 (14)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 7 (100)  | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 6 (86)                           | 1 (14)                  | 0 (0)  | 0 (0)   | 0 (0)                  |
| North America                 | 9   | 3 (33)  | 1 (11)                  | 2 (22) | 0 (0)   | 3 (33)                 | 5 (56)   | 1 (11)                  | 1 (11) | 0 (0)   | 2 (22)                 | 4 (44)                           | 1 (11)                  | 1 (11) | 0 (0)   | 3 (33)                 |
| North & East Asia             | 7   | 6 (86)  | 1 (14)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 6 (86)   | 1 (14)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 6 (86)                           | 1 (14)                  | 0 (0)  | 0 (0)   | 0 (0)                  |
| Oceania & South East Asia     | 15  | 11 (73)   | 2 (13)                  | 0 (0)  | 0 (0)   | 2 (13)                 | 9 (60)   | 3 (20)                  | 1 (7)  | 0 (0)   | 2 (13)                 | 10 (67)                          | 1 (7)                   | 1 (7)  | 0 (0)   | 3 (20)                 |
| South Asia                    | 7   | 3 (43)  | 4 (57)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 5 (71)   | 2 (29)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 5 (71)                           | 2 (29)                  | 0 (0)  | 0 (0)   | 0 (0)                  |
| Western Europe                | 20  | 19 (95)   | 0 (0)                   | 0 (0)  | 0 (0)   | 1 (5)                  | 20 (100)   | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 20 (100)                         | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  |
| World Bank income group       |     |   |                         |        |         |                        |  |                         |        |         |                        |                                  |                         |        |         |                        |
| Low income                    | 22  | 2 (9)   | 6 (27)                  | 0 (0)  | 0 (0)   | 14 (64)                | 2 (9)  | 6 (27)                  | 0 (0)  | 0 (0)   | 14 (64)                | 1 (5)                            | 5 (23)                  | 1 (5)  | 0 (0)   | 15 (68)                |
| Lower-middle income           | 35  | 14 (40)   | 14 (40)                 | 0 (0)  | 0 (0)   | 7 (20)                 | 18 (51)  | 10 (29)                 | 0 (0)  | 0 (0)   | 7 (20)                 | 18 (51)                          | 10 (29)                 | 0 (0)  | 0 (0)   | 7 (20)                 |
| Upper-middle income           | 41  | 27 (66)   | 9 (22)                  | 1 (2)  | 0 (0)   | 4 (10)                 | 33 (80)  | 3 (7)                   | 1 (2)  | 0 (0)   | 4 (10)                 | 28 (68)                          | 7 (17)                  | 1 (2)  | 0 (0)   | 5 (12)                 |
| High income                   | 56  | 49 (88)   | 4 (7)                   | 1 (2)  | 0 (0)   | 2 (4)                  | 53 (95)  | 2 (4)                   | 1 (2)  | 0 (0)   | 0 (0)                  | 51 (91)                          | 2 (4)                   | 1 (2)  | 0 (0)   | 2 (4)                  |

ISN, International Society of Nephrology; KT, kidney transplantation; N/A, not available; NIS, newly independent states.

**Table S6.** Availability of immunosuppression and antirejection treatment and facilities for immunosuppression drug monitoring. Data are number (%) of countries.

| Category                      | n   | Availability of immunosuppression and antirejection treatment |                         |        |         |                        | Availability of facilities for immunosuppression drug monitoring |                         |        |         |                        |
|-------------------------------|-----|---|-------------------------|--------|---------|------------------------|--|-------------------------|--------|---------|------------------------|
|                               |     | Generally available   | Generally not available | Never  | Unknown | N/A (KT not available) | Generally available  | Generally not available | Never  | Unknown | N/A (KT not available) |
| Overall                       | 154 | 110 (71)  | 14 (9)                  | 3 (2)  | 0 (0)   | 27 (18)                | 95 (62)  | 27 (18)                 | 3 (2)  | 1 (1)   | 28 (18)                |
| ISN region                    |     |   |                         |        |         |                        |  |                         |        |         |                        |
| Africa                        | 41  | 10 (24)   | 8 (20)                  | 0 (0)  | 0 (0)   | 23 (56)                | 10 (24)  | 7 (17)                  | 1 (2)  | 0 (0)   | 23 (56)                |
| Eastern & Central Europe      | 19  | 19 (100)  | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 18 (95)  | 1 (5)                   | 0 (0)  | 0 (0)   | 0 (0)                  |
| Latin America & the Caribbean | 18  | 15 (83)   | 2 (11)                  | 1 (6)  | 0 (0)   | 0 (0)                  | 9 (50)   | 8 (44)                  | 0 (0)  | 0 (0)   | 1 (6)                  |
| Middle East                   | 11  | 11 (100)  | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 11 (100)   | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  |
| NIS & Russia                  | 7   | 7 (100)   | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 4 (57)   | 3 (43)                  | 0 (0)  | 0 (0)   | 0 (0)                  |
| North America                 | 9   | 5 (56)  | 1 (11)                  | 1 (11) | 0 (0)   | 2 (22)                 | 4 (44)   | 2 (22)                  | 1 (11) | 0 (0)   | 2 (22)                 |
| North & East Asia             | 7   | 6 (86)  | 1 (14)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 6 (86)   | 1 (14)                  | 0 (0)  | 0 (0)   | 0 (0)                  |
| Oceania & South East Asia     | 15  | 12 (80)   | 0 (0)                   | 1 (7)  | 0 (0)   | 2 (13)                 | 8 (53)   | 4 (27)                  | 1 (7)  | 0 (0)   | 2 (13)                 |
| South Asia                    | 7   | 5 (71)  | 2 (29)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 5 (71)   | 1 (14)                  | 0 (0)  | 1 (14)  | 0 (0)                  |
| Western Europe                | 20  | 20 (100)  | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 20 (100)   | 0 (0)                   | 0 (0)  | 0 (0)   | 0 (0)                  |
| World Bank income group       |     |   |                         |        |         |                        |  |                         |        |         |                        |
| Low income                    | 22  | 2 (9)   | 4 (18)                  | 1 (5)  | 0 (0)   | 15 (68)                | 3 (14)   | 1 (5)                   | 1 (5)  | 1 (5)   | 16 (73)                |
| Lower-middle income           | 35  | 23 (66)   | 5 (14)                  | 0 (0)  | 0 (0)   | 7 (20)                 | 13 (37)  | 15 (43)                 | 0 (0)  | 0 (0)   | 7 (20)                 |
| Upper-middle income           | 41  | 32 (78)   | 3 (7)                   | 1 (2)  | 0 (0)   | 5 (12)                 | 28 (68)  | 6 (15)                  | 2 (5)  | 0 (0)   | 5 (12)                 |
| High income                   | 56  | 53 (95)   | 2 (4)                   | 1 (2)  | 0 (0)   | 0 (0)                  | 51 (91)  | 5 (9)                   | 0 (0)  | 0 (0)   | 0 (0)                  |

ISN, International Society of Nephrology; KT, kidney transplantation; N/A, not available; NIS, newly independent states.

**Table S7.** Availability of multidisciplinary teams and standard organ procurement frameworks. Data are number (%) of countries.

| Category                      | n   | Multidisciplinary teams |                         |        |         |                        | Availability of standard organ procurement frameworks |                         |        |         |                        |
|-------------------------------|-----|-------------------------|-------------------------|--------|---------|------------------------|---|-------------------------|--------|---------|------------------------|
|                               |     | Generally available     | Generally not available | Never  | Unknown | N/A (KT not available) | Generally available                                   | Generally not available | Never  | Unknown | N/A (KT not available) |
| Overall                       | 154 | 98 (64)                 | 26 (17)                 | 4 (3)  | 1 (1)   | 25 (16)                | 83 (54)   | 23 (15)                 | 10 (6) | 5 (3)   | 33 (21)                |
| ISN region                    |     |                         |                         |        |         |                        |   |                         |        |         |                        |
| Africa                        | 41  | 13 (32)                 | 7 (17)                  | 1 (2)  | 0 (0)   | 20 (49)                | 5 (12)  | 8 (20)                  | 3 (7)  | 3 (7)   | 22 (54)                |
| Eastern & Central Europe      | 19  | 17 (89)                 | 2 (11)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 17 (89)   | 2 (11)                  | 0 (0)  | 0 (0)   | 0 (0)                  |
| Latin America & the Caribbean | 18  | 14 (78)                 | 3 (17)                  | 1 (6)  | 0 (0)   | 0 (0)                  | 15 (83)   | 1 (6)                   | 1 (6)  | 0 (0)   | 1 (6)                  |
| Middle East                   | 11  | 10 (91)                 | 1 (9)                   | 0 (0)  | 0 (0)   | 0 (0)                  | 7 (64)  | 4 (36)                  | 0 (0)  | 0 (0)   | 0 (0)                  |
| NIS & Russia                  | 7   | 4 (57)                  | 2 (29)                  | 0 (0)  | 1 (14)  | 0 (0)                  | 3 (43)  | 0 (0)                   | 1 (14) | 1 (14)  | 2 (29)                 |
| North America                 | 9   | 2 (22)                  | 4 (44)                  | 1 (11) | 0 (0)   | 2 (22)                 | 3 (33)  | 0 (0)                   | 3 (33) | 0 (0)   | 3 (33)                 |
| North & East Asia             | 7   | 6 (86)                  | 1 (14)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 6 (86)  | 1 (14)                  | 0 (0)  | 0 (0)   | 0 (0)                  |
| Oceania & South East Asia     | 15  | 9 (60)                  | 3 (20)                  | 1 (7)  | 0 (0)   | 2 (13)                 | 7 (47)  | 3 (20)                  | 2 (13) | 0 (0)   | 3 (20)                 |
| South Asia                    | 7   | 4 (57)                  | 3 (43)                  | 0 (0)  | 0 (0)   | 0 (0)                  | 2 (29)  | 4 (57)                  | 0 (0)  | 1 (14)  | 0 (0)                  |
| Western Europe                | 20  | 19 (95)                 | 0 (0)                   | 0 (0)  | 0 (0)   | 1 (5)                  | 18 (90)   | 0 (0)                   | 0 (0)  | 0 (0)   | 2 (10)                 |
| World Bank income group       |     |                         |                         |        |         |                        |   |                         |        |         |                        |
| Low income                    | 22  | 2 (9)                   | 2 (9)                   | 2 (9)  | 0 (0)   | 16 (73)                | 0 (0)   | 3 (14)                  | 1 (5)  | 2 (9)   | 16 (73)                |
| Lower-middle income           | 35  | 20 (57)                 | 11 (31)                 | 0 (0)  | 0 (0)   | 4 (11)                 | 8 (23)  | 14 (40)                 | 3 (9)  | 2 (6)   | 8 (23)                 |
| Upper-middle income           | 41  | 29 (71)                 | 6 (15)                  | 1 (2)  | 1 (2)   | 4 (10)                 | 28 (68)   | 4 (10)                  | 2 (5)  | 1 (2)   | 6 (15)                 |
| High income                   | 56  | 47 (84)                 | 7 (13)                  | 1 (2)  | 0 (0)   | 1 (2)                  | 47 (84)   | 2 (4)                   | 4 (7)  | 0 (0)   | 3 (5)                  |

ISN, International Society of Nephrology; KT, kidney transplantation; N/A, not available; NIS, newly independent states.

**Table S8.** Measuring and reporting kidney transplantation patient reported and graft outcomes. Data are number (%) of countries.

| Category                      | n   | Patient reported outcome measures |                |                  |                  |                      | Delayed graft function |                |                  |                  |                      | Rejection rates |                |                  |                  |                      |
|-------------------------------|-----|-----------------------------------|----------------|------------------|------------------|----------------------|------------------------|----------------|------------------|------------------|----------------------|-----------------|----------------|------------------|------------------|----------------------|
|                               |     | 0%<br>(None)                      | 1–10%<br>(Few) | 11–50%<br>(Some) | 51–75%<br>(Most) | >75%<br>(Almost all) | 0%<br>(None)           | 1–10%<br>(Few) | 11–50%<br>(Some) | 51–75%<br>(Most) | >75%<br>(Almost all) | 0%<br>(None)    | 1–10%<br>(Few) | 11–50%<br>(Some) | 51–75%<br>(Most) | >75%<br>(Almost all) |
| Overall                       | 112 | 17 (15)                           | 11 (10)        | 19 (17)          | 15 (13)          | 50 (45)              | 12 (11)                | 11 (10)        | 8 (7)            | 8 (7)            | 73 (65)              | 12 (11)         | 13 (12)        | 7 (6)            | 14 (13)          | 66 (59)              |
| ISN region                    |     |                                   |                |                  |                  |                      |                        |                |                  |                  |                      |                 |                |                  |                  |                      |
| Africa                        | 17  | 3 (18)                            | 2 (12)         | 4 (24)           | 2 (12)           | 6 (35)               | 3 (18)                 | 5 (29)         | 0 (0)            | 1 (6)            | 8 (47)               | 4 (24)          | 5 (29)         | 0 (0)            | 1 (6)            | 7 (41)               |
| Eastern & Central Europe      | 16  | 1 (6)                             | 0 (0)          | 2 (13)           | 3 (19)           | 10 (63)              | 0 (0)                  | 1 (6)          | 0 (0)            | 0 (0)            | 15 (94)              | 0 (0)           | 1 (6)          | 0 (0)            | 1 (6)            | 14 (88)              |
| Latin America & the Caribbean | 16  | 2 (13)                            | 1 (6)          | 3 (19)           | 5 (31)           | 5 (31)               | 2 (13)                 | 2 (13)         | 3 (19)           | 5 (31)           | 4 (25)               | 2 (13)          | 3 (19)         | 2 (13)           | 5 (31)           | 4 (25)               |
| Middle East                   | 11  | 0 (0)                             | 0 (0)          | 3 (27)           | 1 (9)            | 7 (64)               | 0 (0)                  | 1 (9)          | 2 (18)           | 1 (9)            | 7 (64)               | 0 (0)           | 1 (9)          | 1 (9)            | 4 (36)           | 5 (45)               |
| NIS & Russia                  | 6   | 0 (0)                             | 2 (33)         | 1 (17)           | 1 (17)           | 2 (33)               | 0 (0)                  | 1 (17)         | 1 (17)           | 0 (0)            | 4 (67)               | 0 (0)           | 1 (17)         | 1 (17)           | 1 (17)           | 3 (50)               |
| North America                 | 5   | 2 (40)                            | 1 (20)         | 0 (0)            | 1 (20)           | 1 (20)               | 0 (0)                  | 1 (20)         | 0 (0)            | 0 (0)            | 4 (80)               | 0 (0)           | 1 (20)         | 0 (0)            | 1 (20)           | 3 (60)               |
| North & East Asia             | 7   | 0 (0)                             | 1 (14)         | 0 (0)            | 0 (0)            | 6 (86)               | 0 (0)                  | 0 (0)          | 0 (0)            | 0 (0)            | 7 (100)              | 0 (0)           | 0 (0)          | 0 (0)            | 0 (0)            | 7 (100)              |
| Oceania & South East Asia     | 11  | 1 (9)                             | 4 (36)         | 4 (36)           | 0 (0)            | 2 (18)               | 1 (9)                  | 0 (0)          | 2 (18)           | 1 (9)            | 7 (64)               | 0 (0)           | 1 (9)          | 3 (27)           | 0 (0)            | 7 (64)               |
| South Asia                    | 5   | 4 (80)                            | 0 (0)          | 0 (0)            | 1 (20)           | 0 (0)                | 4 (80)                 | 0 (0)          | 0 (0)            | 0 (0)            | 1 (20)               | 4 (80)          | 0 (0)          | 0 (0)            | 1 (20)           | 0 (0)                |
| Western Europe                | 18  | 4 (22)                            | 0 (0)          | 2 (11)           | 1 (6)            | 11 (61)              | 2 (11)                 | 0 (0)          | 0 (0)            | 0 (0)            | 16 (89)              | 2 (11)          | 0 (0)          | 0 (0)            | 0 (0)            | 16 (89)              |
| World Bank income group       |     |                                   |                |                  |                  |                      |                        |                |                  |                  |                      |                 |                |                  |                  |                      |
| Low income                    | 5   | 3 (60)                            | 1 (20)         | 0 (0)            | 1 (20)           | 0 (0)                | 3 (60)                 | 1 (20)         | 0 (0)            | 1 (20)           | 0 (0)                | 3 (60)          | 1 (20)         | 0 (0)            | 1 (20)           | 0 (0)                |
| Lower-middle income           | 25  | 6 (24)                            | 2 (8)          | 7 (28)           | 2 (8)            | 8 (32)               | 6 (24)                 | 5 (20)         | 4 (16)           | 0 (0)            | 10 (40)              | 5 (20)          | 6 (24)         | 4 (16)           | 1 (4)            | 9 (36)               |
| Upper-middle income           | 32  | 1 (3)                             | 5 (16)         | 5 (16)           | 7 (22)           | 14 (44)              | 1 (3)                  | 5 (16)         | 3 (9)            | 5 (16)           | 18 (56)              | 2 (6)           | 6 (19)         | 2 (6)            | 7 (22)           | 15 (47)              |
| High income                   | 50  | 7 (14)                            | 3 (6)          | 7 (14)           | 5 (10)           | 28 (56)              | 2 (4)                  | 0 (0)          | 1 (2)            | 2 (4)            | 45 (90)              | 2 (4)           | 0 (0)          | 1 (2)            | 5 (10)           | 42 (84)              |

ISN, International Society of Nephrology; NIS, newly independent states.



**Table S9.** Measuring and reporting the quality of kidney transplantation. Data are number (%) of countries.

| Category                      | Renal allograft function |           |             |               |               |                   | Graft survival |           |             |               |               |                   | Patient survival |           |             |               |               |                   |
|-------------------------------|--------------------------|-----------|-------------|---------------|---------------|-------------------|----------------|-----------|-------------|---------------|---------------|-------------------|------------------|-----------|-------------|---------------|---------------|-------------------|
|                               | n                        | 0% (None) | 1–10% (Few) | 11–50% (Some) | 51–75% (Most) | >75% (Almost all) | n              | 0% (None) | 1–10% (Few) | 11–50% (Some) | 51–75% (Most) | >75% (Almost all) | n                | 0% (None) | 1–10% (Few) | 11–50% (Some) | 51–75% (Most) | >75% (Almost all) |
| Overall                       | 112                      | 8 (7)     | 3 (3)       | 5 (4)         | 14 (13)       | 82 (73)           | 111            | 8 (7)     | 2 (2)       | 7 (6)         | 14 (13)       | 80 (72)           | 111              | 8 (7)     | 2 (2)       | 4 (4)         | 11 (10)       | 86 (77)           |
| ISN region                    |                          |           |             |               |               |                   |                |           |             |               |               |                   |                  |           |             |               |               |                   |
| Africa                        | 17                       | 3 (18)    | 0 (0)       | 2 (12)        | 3 (18)        | 9 (53)            | 17             | 3 (18)    | 0 (0)       | 1 (6)         | 3 (18)        | 10 (59)           | 17               | 3 (18)    | 0 (0)       | 1 (6)         | 3 (18)        | 10 (59)           |
| Eastern & Central Europe      | 16                       | 0 (0)     | 0 (0)       | 0 (0)         | 0 (0)         | 16 (100)          | 16             | 0 (0)     | 0 (0)       | 0 (0)         | 1 (6)         | 15 (94)           | 16               | 0 (0)     | 0 (0)       | 0 (0)         | 0 (0)         | 16 (100)          |
| Latin America & the Caribbean | 16                       | 1 (6)     | 1 (6)       | 1 (6)         | 6 (38)        | 7 (44)            | 15             | 1 (7)     | 0 (0)       | 2 (13)        | 5 (33)        | 7 (47)            | 15               | 1 (7)     | 0 (0)       | 1 (7)         | 4 (27)        | 9 (60)            |
| Middle East                   | 11                       | 0 (0)     | 0 (0)       | 0 (0)         | 3 (27)        | 8 (73)            | 11             | 0 (0)     | 0 (0)       | 1 (9)         | 3 (27)        | 7 (64)            | 11               | 0 (0)     | 0 (0)       | 1 (9)         | 1 (9)         | 9 (82)            |
| NIS & Russia                  | 6                        | 0 (0)     | 1 (17)      | 1 (17)        | 0 (0)         | 4 (67)            | 6              | 0 (0)     | 1 (17)      | 1 (17)        | 1 (17)        | 3 (50)            | 6                | 0 (0)     | 1 (17)      | 1 (17)        | 0 (0)         | 4 (67)            |
| North America                 | 5                        | 0 (0)     | 1 (20)      | 0 (0)         | 0 (0)         | 4 (80)            | 5              | 0 (0)     | 1 (20)      | 0 (0)         | 0 (0)         | 4 (80)            | 5                | 0 (0)     | 1 (20)      | 0 (0)         | 0 (0)         | 4 (80)            |
| North & East Asia             | 7                        | 0 (0)     | 0 (0)       | 0 (0)         | 0 (0)         | 7 (100)           | 7              | 0 (0)     | 0 (0)       | 0 (0)         | 0 (0)         | 7 (100)           | 7                | 0 (0)     | 0 (0)       | 0 (0)         | 0 (0)         | 7 (100)           |
| Oceania & South East Asia     | 11                       | 0 (0)     | 0 (0)       | 1 (9)         | 2 (18)        | 8 (73)            | 11             | 0 (0)     | 0 (0)       | 2 (18)        | 1 (9)         | 8 (73)            | 11               | 0 (0)     | 0 (0)       | 0 (0)         | 3 (27)        | 8 (73)            |
| South Asia                    | 5                        | 3 (60)    | 0 (0)       | 0 (0)         | 0 (0)         | 2 (40)            | 5              | 3 (60)    | 0 (0)       | 0 (0)         | 0 (0)         | 2 (40)            | 5                | 3 (60)    | 0 (0)       | 0 (0)         | 0 (0)         | 2 (40)            |
| Western Europe                | 18                       | 1 (6)     | 0 (0)       | 0 (0)         | 0 (0)         | 17 (94)           | 18             | 1 (6)     | 0 (0)       | 0 (0)         | 0 (0)         | 17 (94)           | 18               | 1 (6)     | 0 (0)       | 0 (0)         | 0 (0)         | 17 (94)           |
| World Bank income group       |                          |           |             |               |               |                   |                |           |             |               |               |                   |                  |           |             |               |               |                   |
| Low income                    | 5                        | 3 (60)    | 0 (0)       | 0 (0)         | 1 (20)        | 1 (20)            | 5              | 2 (40)    | 0 (0)       | 0 (0)         | 1 (20)        | 2 (40)            | 5                | 2 (40)    | 0 (0)       | 0 (0)         | 1 (20)        | 2 (40)            |
| Lower-middle income           | 25                       | 3 (12)    | 0 (0)       | 4 (16)        | 4 (16)        | 14 (56)           | 25             | 4 (16)    | 0 (0)       | 5 (20)        | 2 (8)         | 14 (56)           | 25               | 4 (16)    | 0 (0)       | 3 (12)        | 4 (16)        | 14 (56)           |
| Upper-middle income           | 32                       | 1 (3)     | 3 (9)       | 1 (3)         | 7 (22)        | 20 (63)           | 31             | 1 (3)     | 2 (6)       | 2 (6)         | 9 (29)        | 17 (55)           | 31               | 1 (3)     | 2 (6)       | 1 (3)         | 4 (13)        | 23 (74)           |
| High income                   | 50                       | 1 (2)     | 0 (0)       | 0 (0)         | 2 (4)         | 47 (94)           | 50             | 1 (2)     | 0 (0)       | 0 (0)         | 2 (4)         | 47 (94)           | 50               | 1 (2)     | 0 (0)       | 0 (0)         | 2 (4)         | 47 (94)           |

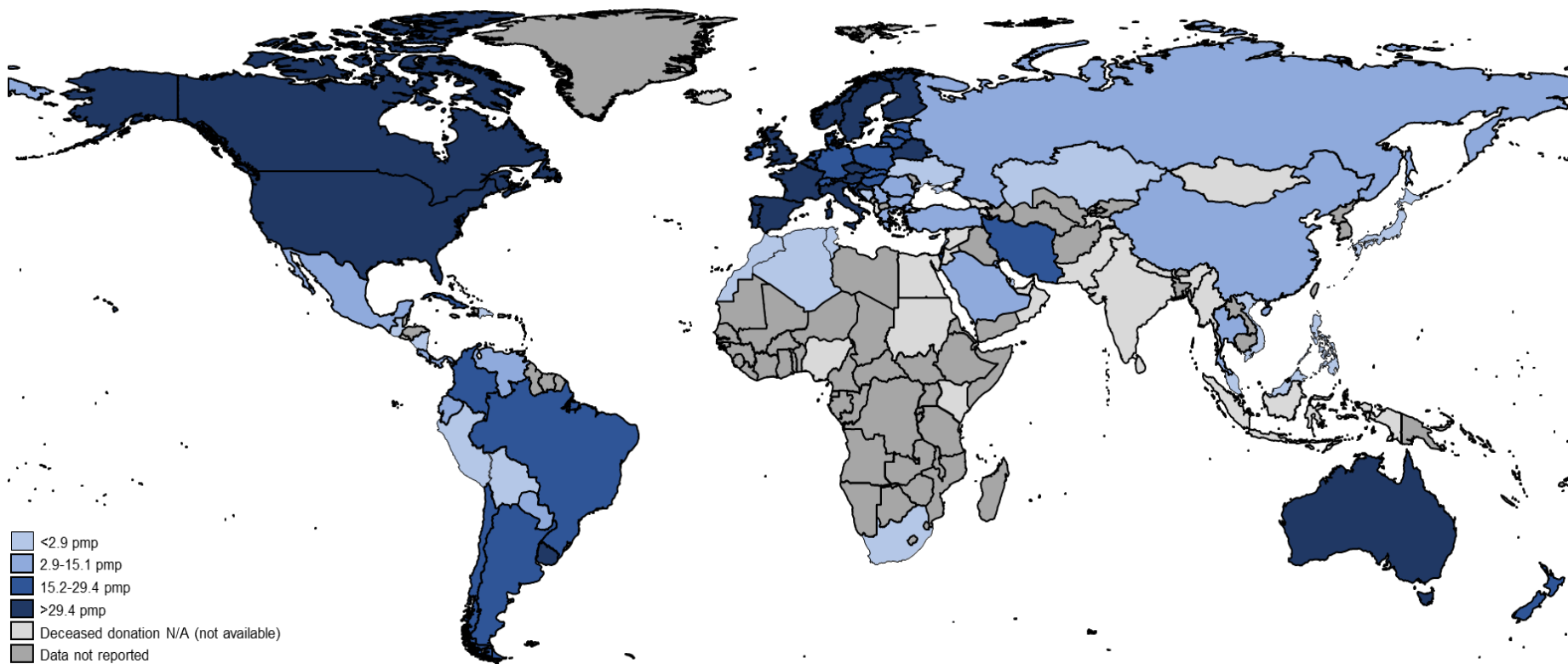
ISN, International Society of Nephrology; NIS, newly independent states.

**Table S10.** Health information systems: availability and geographical coverage of transplant registries and the spectrum of information collected. Data are number (%) of countries.

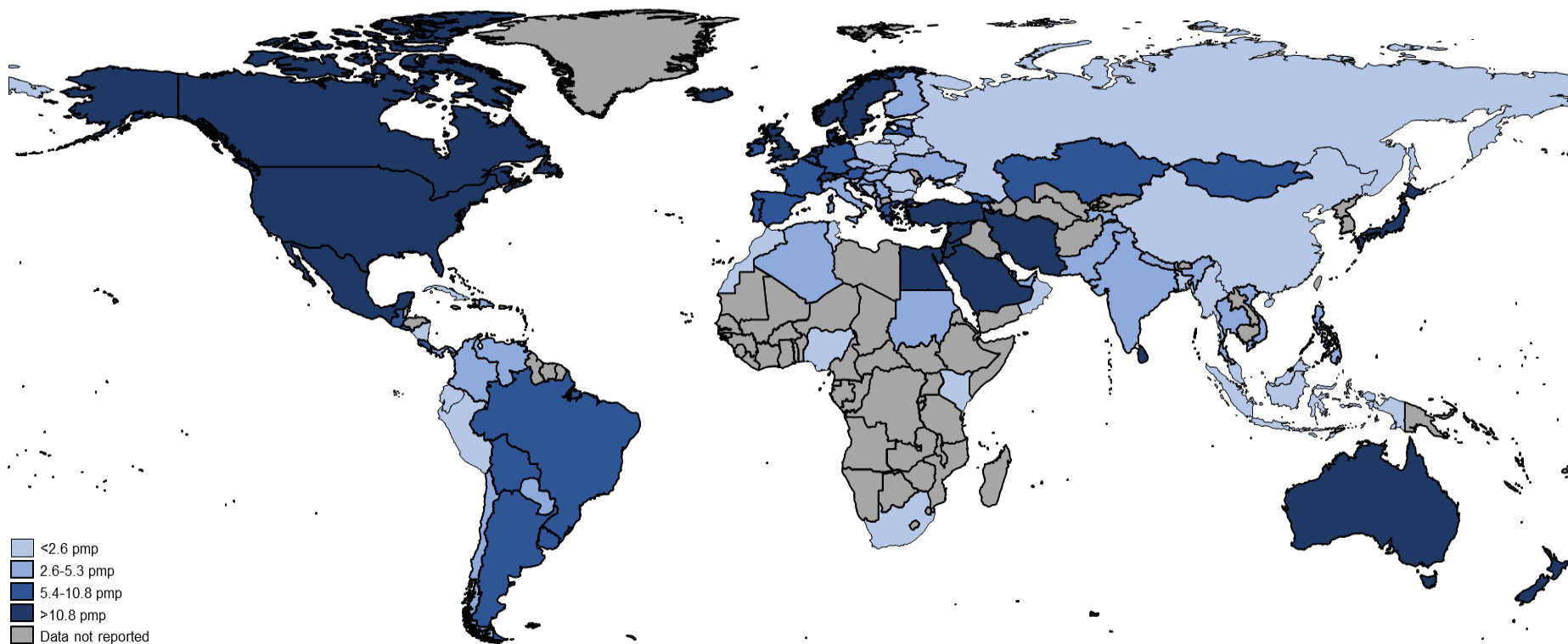
| Category                      | Official registry |          |                 | Geographical coverage |          |                                |                               | Spectrum of registry information collected |                            |                   |                        |                          |         |           |
|-------------------------------|-------------------|----------|-----------------|-----------------------|----------|--------------------------------|-------------------------------|--|----------------------------|-------------------|------------------------|--------------------------|---------|-----------|
|                               | n                 | Dialysis | Transplantation | n                     | National | Regional, state, or provincial | Local, hospital, or community | n  | Etiology of kidney failure | Transplant source | Process-based measures | Patient outcome measures |         |           |
|                               |                   |          |                 |                       |          |                                |                               |  |                            |                   |                        | Hospitalizations         | QoL     | Mortality |
| Overall                       | 154               | 101 (66) | 88 (57)         | 88                    | 75 (85)  | 9 (10)                         | 11 (13)                       | 88   | 75 (85)                    | 85 (97)           | 37 (42)                | 36 (41)                  | 18 (20) | 76 (86)   |
| ISN region                    |                   |          |                 |                       |          |                                |                               |  |                            |                   |                        |                          |         |           |
| Africa                        | 41                | 18 (44)  | 6 (15)          | 6                     | 3 (50)   | 1 (17)                         | 1 (17)                        | 6  | 4 (67)                     | 5 (83)            | 2 (33)                 | 2 (33)                   | 2 (33)  | 3 (50)    |
| Eastern & Central Europe      | 19                | 17 (89)  | 17 (89)         | 17                    | 14 (82)  | 1 (6)                          | 2 (12)                        | 17   | 15 (88)                    | 17 (100)          | 10 (59)                | 7 (41)                   | 4 (24)  | 17 (100)  |
| Latin America & the Caribbean | 18                | 14 (78)  | 13 (72)         | 13                    | 12 (92)  | 1 (8)                          | 1 (8)                         | 13   | 13 (100)                   | 13 (100)          | 7 (54)                 | 4 (31)                   | 3 (23)  | 9 (69)    |
| Middle East                   | 11                | 6 (55)   | 8 (73)          | 8                     | 8 (100)  | 1 (13)                         | 0 (0)                         | 8  | 7 (88)                     | 8 (100)           | 1 (13)                 | 5 (63)                   | 3 (38)  | 7 (88)    |
| NIS & Russia                  | 7                 | 5 (71)   | 6 (86)          | 6                     | 5 (83)   | 1 (17)                         | 2 (33)                        | 6  | 1 (17)                     | 4 (67)            | 2 (33)                 | 4 (67)                   | 1 (17)  | 5 (83)    |
| North America                 | 9                 | 4 (44)   | 3 (33)          | 3                     | 2 (67)   | 1 (33)                         | 1 (33)                        | 3  | 3 (100)                    | 3 (100)           | 0 (0)                  | 1 (33)                   | 0 (0)   | 3 (100)   |
| North & East Asia             | 7                 | 7 (100)  | 7 (100)         | 7                     | 5 (71)   | 2 (29)                         | 2 (29)                        | 7  | 6 (86)                     | 7 (100)           | 5 (71)                 | 5 (71)                   | 1 (14)  | 6 (86)    |
| Oceania & South East Asia     | 15                | 10 (67)  | 8 (53)          | 8                     | 8 (100)  | 0 (0)                          | 0 (0)                         | 8  | 8 (100)                    | 8 (100)           | 6 (75)                 | 0 (0)                    | 1 (13)  | 8 (100)   |
| South Asia                    | 7                 | 2 (29)   | 1 (14)          | 1                     | 0 (0)    | 0 (0)                          | 1 (100)                       | 1  | 1 (100)                    | 1 (100)           | 0 (0)                  | 0 (0)                    | 0 (0)   | 0 (0)     |
| Western Europe                | 20                | 18 (90)  | 19 (95)         | 19                    | 18 (95)  | 1 (5)                          | 1 (5)                         | 19   | 17 (89)                    | 19 (100)          | 4 (21)                 | 8 (42)                   | 3 (16)  | 18 (95)   |
| World Bank income group       |                   |          |                 |                       |          |                                |                               |  |                            |                   |                        |                          |         |           |
| Low income                    | 22                | 4 (18)   | 0 (0)           | 0                     | 0 (0)    | 0 (0)                          | 0 (0)                         | 0  | 0 (0)                      | 0 (0)             | 0 (0)                  | 0 (0)                    | 0 (0)   | 0 (0)     |
| Lower-middle income           | 35                | 18 (51)  | 10 (29)         | 10                    | 6 (60)   | 2 (20)                         | 3 (30)                        | 10   | 7 (70)                     | 8 (80)            | 5 (50)                 | 5 (50)                   | 2 (20)  | 8 (80)    |
| Upper-middle income           | 41                | 31 (76)  | 27 (66)         | 27                    | 26 (96)  | 0 (0)                          | 1 (4)                         | 27   | 21 (78)                    | 26 (96)           | 11 (41)                | 7 (26)                   | 5 (19)  | 18 (67)   |
| High income                   | 56                | 48 (86)  | 51 (91)         | 51                    | 43 (84)  | 7 (14)                         | 7 (14)                        | 51   | 48 (94)                    | 51 (100)          | 21 (41)                | 24 (47)                  | 11 (22) | 50 (98)   |

ISN, International Society of Nephrology; NIS, newly independent states; QoL, quality of life.

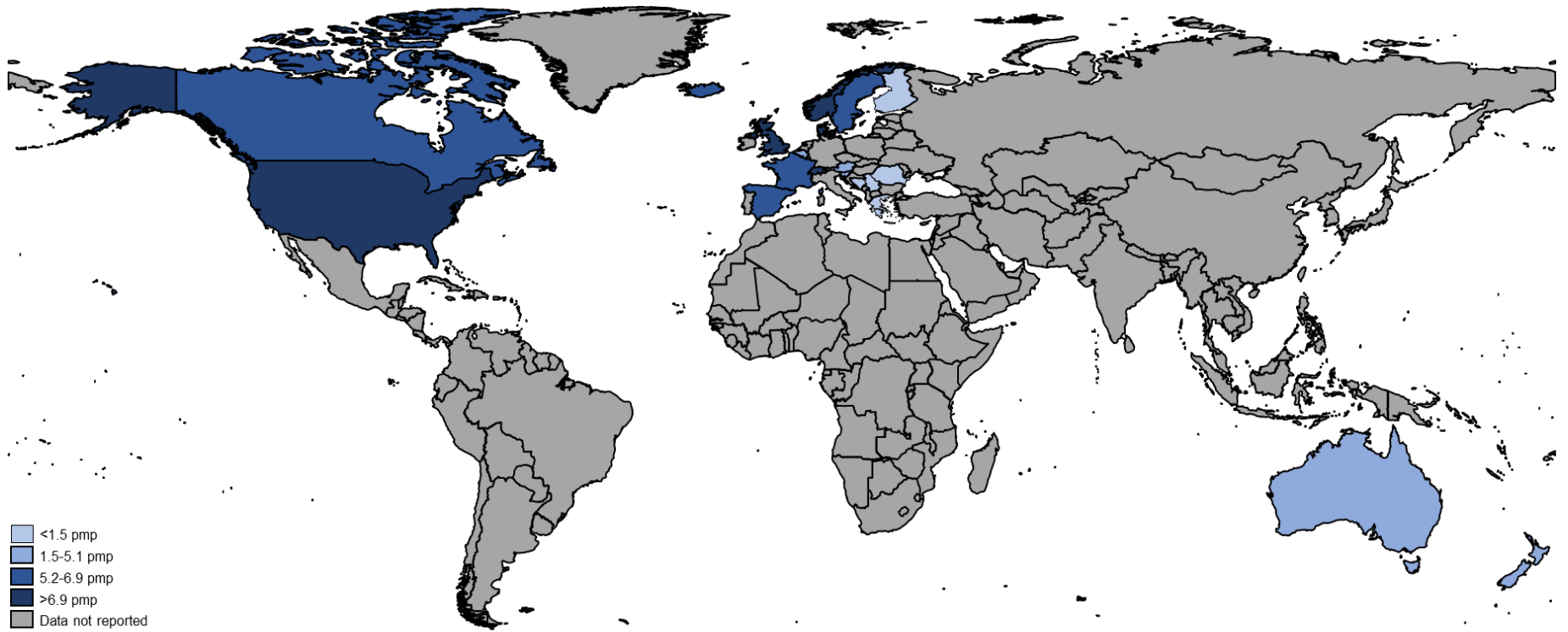
**Figure S1. Global incidence of deceased donor kidney transplantation.**



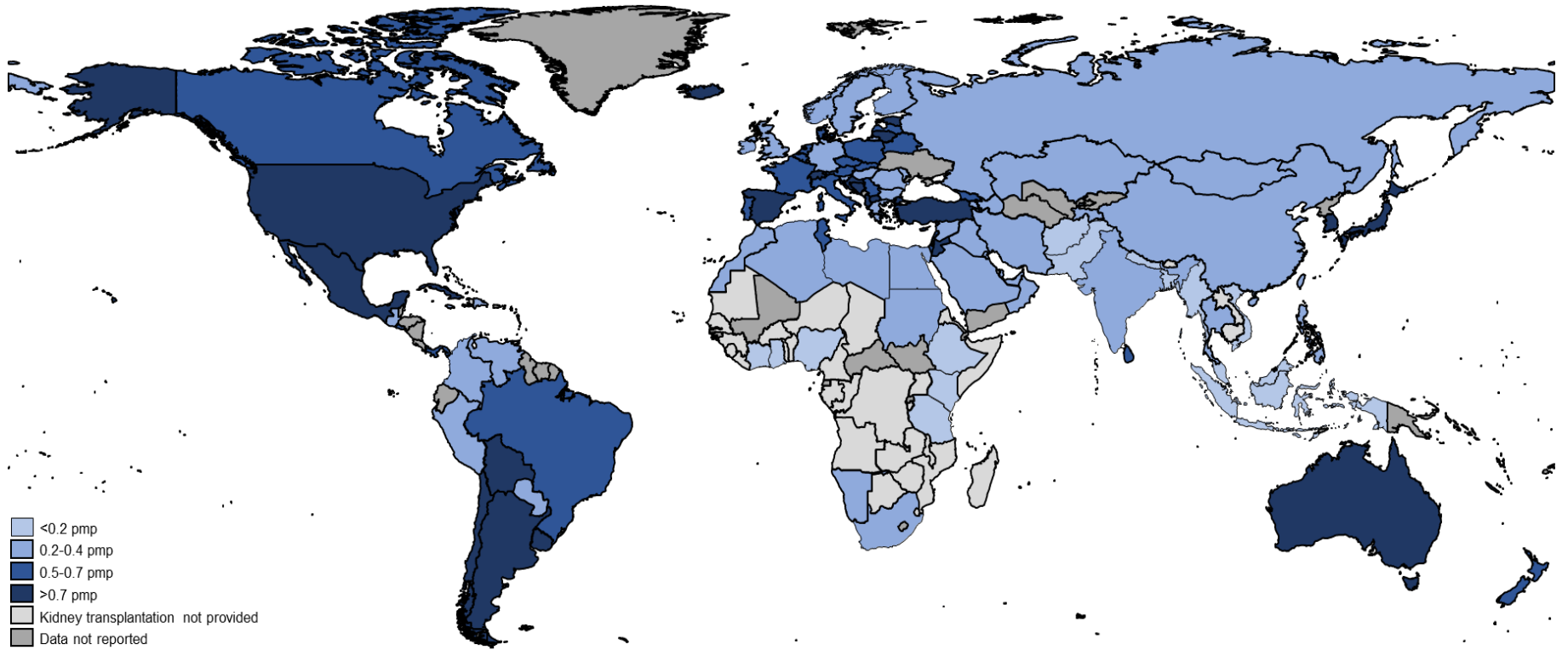
**Figure S2. Global incidence of living donor kidney transplantation.**



**Figure S3. Global incidence of pre-emptive kidney transplantation.**



**Figure S4. Availability of centers that perform kidney transplantation.**



## Appendix S1. Data sources and year of reporting.

| Country                            | Data Source                                | Year | Incidence Pre-emptive KT (PMP) (Registries) | Prevalence KT (PMP) (Registries) | Incidence KT (PMP) (GODT) | Incidence Deceased Donor KT (PMP) (GODT) | Incidence Living Donor KT (PMP) (GODT) |
|------------------------------------|--|------|---|----------------------------------|---------------------------|--|--|
| <b>AFRICA</b>                      |  |      |   |                                  |                           |  |  |
| Algeria                            | GODT                                       | 2015 |   |                                  | 4.28                      | 0.05                                     | 4.23                                   |
| Egypt                              | USRDS                                      | 2015 | 15  |                                  |                           |  |  |
| Egypt                              | GODT                                       | 2015 |   |                                  | 15.49                     |  | 15.49                                  |
| Kenya                              | GODT                                       | 2015 |   |                                  | 0.56                      |  | 0.56                                   |
| Mauritius                          | GODT                                       | 2015 |   |                                  | 10.77                     |  | 10.77                                  |
| Morocco                            | USRDS                                      | 2015 | 1   |                                  |                           |  |  |
| Morocco                            | GODT                                       | 2015 |   |                                  | 1.51                      | 0.58                                     | 0.93                                   |
| Nigeria                            | GODT                                       | 2016 |   |                                  | 0.31                      |  | 0.31                                   |
| South Africa                       | South African Renal Registry Annual Report | 2015 | 4.6   | 25.29                            | 4.6                       | 2.8                                      | 1.758                                  |
| Sudan                              | GODT                                       | 2017 |   |                                  | 5.28                      | NA                                       | 5.28                                   |
| Tunisia                            | GODT                                       | 2015 |   |                                  | 11.06                     | 1.59                                     | 0.88                                   |
| <b>EASTERN AND CENTRAL EUROPE</b>  |  |      |   |                                  |                           |  |  |
| Albania                            | USRDS                                      | 2015 | 9   | 80                               |                           |  |  |
| Albania                            | GODT                                       | 2015 |   |                                  | 3.1                       |  | 3.1                                    |
| Bosnia and Herzegovina             | ERA-EDTA                                   | 2017 | 11.3  | 96.9                             |                           |  |  |
| Bosnia and Herzegovina             | GODT                                       | 2016 |   |                                  | 4.74                      | 2.63                                     | 2.11                                   |
| Bulgaria                           | USRDS                                      | 2015 | 7   | 79                               |                           |  |  |
| Bulgaria                           | GODT                                       | 2017 |   |                                  | 5.63                      | 4.51                                     | 1.13                                   |
| Croatia                            | USRDS                                      | 2013 | 58.6  |                                  |                           |  |  |
| Croatia                            | GODT                                       | 2017 |   |                                  | 39.29                     | 36.67                                    | 2.62                                   |
| Cyprus                             | GODT                                       | 2017 |   |                                  | 15.83                     | 8.33                                     | 7.5                                    |
| Czech Republic                     | USRDS                                      | 2015 | 43  | 431                              |                           |  |  |
| Czech Republic                     | GODT                                       | 2017 |   |                                  | 44.25                     | 39.43                                    | 4.81                                   |
| Estonia                            | ERA-EDTA                                   | 2017 | 0.8   | 411.4                            |                           |  |  |
| Estonia                            | GODT                                       | 2017 |   |                                  | 26.92                     | 23.08                                    | 3.85                                   |
| Hungary                            | USRDS                                      | 2015 | 35  | 329                              |                           |  |  |
| Hungary                            | GODT                                       | 2017 |   |                                  | 30.62                     | 26.49                                    | 4.12                                   |
| Latvia                             | USRDS                                      | 2015 | 33  | 275                              |                           |  |  |
| Latvia                             | GODT                                       | 2017 |   |                                  | 26.32                     | 19.47                                    | 6.84                                   |
| Lithuania                          | USRDS                                      | 2015 | 39  | 282                              |                           |  |  |
| Lithuania                          | GODT                                       | 2017 |   |                                  | 26.21                     | 24.14                                    | 2.07                                   |
| Macedonia                          | USRDS                                      | 2015 | 6   | 105                              |                           |  |  |
| Poland                             | USRDS                                      | 2015 | 32  | 278                              |                           |  |  |
| Poland                             | GODT                                       | 2017 |   |                                  | 28.56                     | 27.09                                    | 1.47                                   |
| Romania                            | ERA-EDTA                                   | 2017 | 0.7   | 98.4                             |                           |  |  |
| Romania                            | GODT                                       | 2017 |   |                                  | 7.56                      | 4.97                                     | 2.59                                   |
| Serbia                             | ERA-EDTA                                   | 2016 | 0.7   | 51.7                             | 51.7                      | 16.9                                     | 34.3                                   |
| Slovak Republic (Slovakia)         | GODT                                       | 2017 |   |                                  | 28.33                     | 26.3                                     | 2.04                                   |
| Slovenia                           | ERA-EDTA                                   | 2013 | 1.9   | 328.2                            |                           |  |  |
| Slovenia                           | GODT                                       | 2017 |   |                                  | 22.86                     | 21.9                                     | 0.95                                   |
| Turkey                             | USRDS                                      | 2015 | 41  | 163                              |                           |  |  |
| Turkey                             | Renal Registry of Turkey                   | 2015 | 41  |                                  | 41                        | 8.6                                      | 32.4                                   |
| <b>LATIN AMERICA AND CARIBBEAN</b> |  |      |   |                                  |                           |  |  |
| Argentina                          | USRDS                                      | 2015 | 29  | 203                              |                           |  |  |
| Argentina                          | GODT                                       | 2017 |   |                                  | 29.82                     | 20.97                                    | 8.85                                   |
| Bolivia                            | Gonzalez-Bedat et al                       | 2010 | 8.2   | 33                               |                           |  |  |
| Bolivia                            | GODT                                       | 2017 |   |                                  | 7.3                       | 1.8                                      | 5.5                                    |
| Brazil                             | USRDS                                      | 2015 | 27  | 232                              |                           |  |  |
| Brazil                             | GODT                                       | 2017 |   |                                  | 28.41                     | 22.97                                    | 5.44                                   |
| Chile                              | USRDS                                      | 2015 | 17  | 194                              |                           |  |  |
| Chile                              | GODT                                       | 2017 |   |                                  | 20.17                     | 16.13                                    | 4.03                                   |
| Colombia                           | USRDS                                      | 2015 | 36  | 122                              |                           |  |  |
| Colombia                           | GODT                                       | 2017 |   |                                  | 19.06                     | 16.25                                    | 2.81                                   |
| Costa Rica                         | Gonzalez-Bedat et al                       | 2010 | 26.3  | 288.9                            |                           |  |  |
| Costa Rica                         | GODT                                       | 2017 |   |                                  | 18.57                     | 8.16                                     | 10.41                                  |
| Cuba                               | Gonzalez-Bedat et al                       | 2010 | 10.4  | 71.2                             |                           |  |  |
| Cuba                               | GODT                                       | 2017 |   |                                  | 17.65                     | 15.13                                    | 2.52                                   |
| Dominican Republic                 | Gonzalez-Bedat et al                       | 2010 | 4.5   | 28.8                             |                           |  |  |
| Dominican Republic                 | GODT                                       | 2017 |   |                                  | 4.91                      | 2.04                                     | 2.87                                   |
| Ecuador                            | Gonzalez-Bedat et al                       | 2010 | 5.5   | 19.5                             |                           |  |  |
| Ecuador                            | GODT                                       | 2017 |   |                                  | 9.04                      | 8.49                                     | 0.54                                   |
| El Salvador                        | Gonzalez-Bedat et al                       | 2010 | 4.5   | 66.3                             |                           |  |  |
| El Salvador                        | GODT                                       | 2015 |   |                                  | 7.21                      |  | 7.21                                   |
| Guatemala                          | Gonzalez-Bedat et al                       | 2010 | 3.1   | 28.8                             |                           |  |  |
| Guatemala                          | GODT                                       | 2017 |   |                                  | 6.63                      | 0.24                                     | 6.39                                   |
| Honduras                           | Gonzalez-Bedat et al                       | 2010 | 0.5   | 3.8                              |                           |  |  |
| Mexico                             | USRDS                                      | 2015 | 71  | 632                              |                           |  |  |
| Mexico                             | GODT                                       | 2017 |   |                                  | 24.5                      | 7.21                                     | 17.29                                  |
| Nicaragua                          | Gonzalez-Bedat et al                       | 2010 | 1.9   | 5.2                              |                           |  |  |
| Nicaragua                          | GODT                                       | 2017 |   |                                  | 1.77                      | 0.16                                     | 1.61                                   |
| Panama                             | Gonzalez-Bedat et al                       | 2010 | 10.1  | 80.6                             |                           |  |  |
| Panama                             | GODT                                       | 2017 |   |                                  | 10.49                     | 6.83                                     | 3.66                                   |
| Paraguay                           | Gonzalez-Bedat et al                       | 2010 | 4.6   | 20.9                             |                           |  |  |
| Paraguay                           | GODT                                       | 2017 |   |                                  | 5.74                      | 2.94                                     | 2.79                                   |

|  |   |      |       |       |        |        |       |
|--|---|------|-------|-------|--------|--------|-------|
| Peru                                       | Gonzalez-Bedat et al                                    | 2010 | 6     | 65.5  |        |        |       |
| Peru                                       | GODT  | 2017 |       |       | 4.01   | 2.64   | 1.37  |
| Puerto Rico                                | Gonzalez-Bedat et al                                    | 2010 | 21.8  | 173.1 |        |        |       |
| Uruguay                                    | USRDS   | 2015 | 27    | 339   |        |        |       |
| Uruguay                                    | GODT  | 2017 |       |       | 42     | 36.57  | 5.43  |
| Venezuela                                  | Gonzalez-Bedat et al                                    | 2010 | 8.4   | 59.1  |        |        |       |
| Venezuela                                  | GODT  | 2015 |       |       | 5.98   | 3.09   | 2.89  |
| <b>MIDDLE EAST</b>                         |   |      |       |       |        |        |       |
| Bahrain                                    | USRDS   | 2011 | 6.7   | 52.7  |        |        |       |
| Iran                                       | USRDS   | 2015 | 32    | 302   |        |        |       |
| Iran                                       | GODT  | 2016 |       |       | 30.96  | 17.49  | 13.48 |
| Jordan                                     | GODT  | 2016 |       |       | 25.19  |        | 25.19 |
| Kuwait                                     | USRDS   | 2015 | 35    | 342   |        |        |       |
| Kuwait                                     | GODT  | 2017 |       |       | 21.71  | 7.07   | 14.63 |
| Lebanon                                    | GODT  | 2015 |       |       | 12.88  | 1.02   | 11.86 |
| Oman                                       | USRDS   | 2015 | 17    | 279   |        |        |       |
| Oman                                       | GODT  | 2013 |       |       | 2.22   |        | 2.22  |
| Qatar                                      | USRDS   | 2015 | 22    | 368   |        |        |       |
| Qatar                                      | GODT  | 2016 |       |       | 11.74  | 2.61   | 9.13  |
| Saudi Arabia                               | USRDS   | 2015 | 24    | 215   |        |        |       |
| Saudi Arabia                               | GODT  | 2017 |       |       | 27.99  | 4.41   | 23.59 |
| Syria                                      | GODT  | 2017 |       |       | 12.73  |        | 12.73 |
| United Arab Emirates                       | GODT  | 2015 |       |       | 3.04   | NA     | 3.04  |
| <b>NEWLY INDEPENDENT STATES AND RUSSIA</b> |   |      |       |       |        |        |       |
| Armenia                                    | GODT  | 2017 |       |       | 3.79   |        | 3.79  |
| Belarus                                    | GODT  | 2017 |       |       | 38.11  | 37.16  | 0.95  |
| Georgia                                    | GODT  | 2017 |       |       | 5.38   |        | 5.38  |
| Kazakhstan                                 | USRDS   | 2015 | 8     | 25    |        |        |       |
| Kazakhstan                                 | GODT  | 2016 |       |       | 12.35  | 1.68   | 10.67 |
| Russia                                     | USRDS   | 2015 | 6     | 56    |        |        |       |
| Russia                                     | GODT  | 2017 |       |       | 8.16   | 6.76   | 1.4   |
| Tajikistan                                 | GODT  | 2015 |       |       | 2.94   |        | 2.94  |
| Ukraine                                    | USRDS   | 2015 | 2     | 25    |        |        |       |
| Ukraine                                    | GODT  | 2015 |       |       | 2.81   | 0.13   | 2.68  |
| <b>NORTH AMERICA</b>                       |   |      |       |       |        |        |       |
| Bahamas                                    | Caribbean Renal Registry                                | 2006 |       |       | 3.1    |        |       |
| Barbados                                   | Caribbean Renal Registry                                | 2006 |       |       | 3.7    |        |       |
| Canada                                     | CORR  | 2017 | 6.3   | 577   |        |        |       |
| Canada                                     | GODT  | 2017 |       |       | 48.39  | 35.49  | 12.9  |
| Jamaica                                    | Caribbean Renal Registry                                | 2006 |       |       | 6.8    |        |       |
| United States of America                   | USRDS   | 2015 | 59    | 647   |        |        |       |
| United States of America                   | GODT  | 2017 |       |       | 63.6   | 45.69  | 17.91 |
| <b>NORTH AND EAST ASIA</b>                 |   |      |       |       |        |        |       |
| China                                      | GODT  | 2016 |       |       | 6.52   | 5.23   | 1.3   |
| Hong Kong                                  | USRDS   | 2015 | 11    | 493   |        |        |       |
| Japan                                      | USRDS   | 2015 | 13    | 64    |        |        |       |
| Japan                                      | GODT  | 2016 |       |       | 13.05  | 1.4    | 11.65 |
| Mongolia                                   | GODT  | 2015 |       |       | 6.67   |        | 6.67  |
| Republic of Korea (south Korea)            | USRDS   | 2015 | 37    | 331   |        |        |       |
| Taiwan, China                              | USRDS   | 2015 |       |       |        |        | 132   |
| <b>OCEANIA AND SOUTH EAST ASIA</b>         |   |      |       |       |        |        |       |
| Australia                                  | ANZDATA   | 2016 | 45.21 | 461   | 245.11 | 184.89 | 60.22 |
| Australia                                  | ANZDATA   | 2019 |       | 490   |        |        |       |
| Brunei Darussalam                          | Chan-on et al.  | 2007 |       |       |        |        | 5.2   |
| Indonesia                                  | GODT  | 2013 |       |       | 1.98   |        | 1.98  |
| Malaysia                                   | USRDS   | 2015 | 4     | 61    |        |        |       |
| Malaysia                                   | GODT  | 2017 |       |       | 2.5    | 0.82   | 1.68  |
| Myanmar                                    | GODT  | 2013 |       |       | 0.04   |        | 0.04  |
| New Zealand                                | ANZDATA   | 2016 | 36.65 | 380   |        | 19.18  | 17.47 |
| New Zealand                                | ANZDATA   | 2019 |       | 402   |        |        |       |
| New Zealand                                | GODT  | 2017 |       |       | 39.79  | 25.11  | 14.68 |
| Philippines                                | USRDS   | 2015 | 5     | 5     |        |        |       |
| Philippines                                | GODT  | 2016 |       |       | 4.71   | 0.41   | 4.28  |
| Singapore                                  | Singapore Renal Registry Annual Registry Report (SRRAR) | 2016 | 16.9  | 267.5 |        |        |       |
| Singapore                                  | GODT  | 2016 |       |       | 12.63  | 7.02   | 5.61  |
| Thailand                                   | Thailand Renal Replacement Therapy (TRRT)               | 2015 | 9.14  | 114.1 |        |        |       |
| Thailand                                   | GODT  | 2016 |       |       | 9.35   | 6.14   | 3.22  |
| Vietnam                                    | GODT  | 2015 |       |       | 2.89   | 0.1    | 2.79  |
| <b>SOUTH ASIA</b>                          |   |      |       |       |        |        |       |
| Bangladesh                                 | USRDS   | 2015 | 1     |       |        |        |       |
| Bangladesh                                 | GODT  | 2013 |       |       | 0.18   |        | 0.18  |
| India                                      | GODT  | 2015 |       |       | 4.96   |        | 4.96  |
| Nepal                                      | GODT  | 2015 |       |       | 3.51   |        | 3.51  |
| Pakistan                                   | GODT  | 2016 |       |       | 4.75   |        | 4.75  |
| Sri Lanka                                  | USRDS   | 2015 | 12    |       |        |        |       |
| Sri Lanka                                  | GODT  | 2013 |       |       | 14.08  | NA     | 14.08 |
| <b>WESTERN EUROPE</b>                      |   |      |       |       |        |        |       |
| Austria                                    | ERA-EDTA  | 2017 | 3.4   | 569   |        |        |       |
| Austria                                    | GODT  | 2017 |       |       | 49.2   | 41.26  | 7.93  |
| Belgium                                    | ERA-EDTA  | 2017 | 3.7   | 569.2 |        |        |       |
| Belgium                                    | GODT  | 2017 |       |       | 48.07  | 42.54  | 5.53  |



|                |   |      |      |       |       |       |       |
|----------------|---|------|------|-------|-------|-------|-------|
| Denmark        | ERA-EDTA                                    | 2017 | 11.3 | 499.2 |       |       |       |
| Denmark        | GODT  | 2017 |      |       | 45.09 | 28.95 | 16.14 |
| Finland        | ERA-EDTA                                    | 2017 | 2    | 547.9 |       |       |       |
| Finland        | GODT  | 2017 |      |       | 43.64 | 38.36 | 5.27  |
| Finland        | Finnish Registry for Kidney Diseases Report | 2017 |      | 547   |       |       |       |
| France         | ERA-EDTA                                    | 2017 | 8.4  | 593.4 |       |       |       |
| France         | GODT  | 2017 |      |       | 58.18 | 48.78 | 9.4   |
| Germany        | GODT  | 2017 |      |       | 23.4  | 16.61 | 6.78  |
| Greece         | ERA-EDTA                                    | 2017 | 0.7  | 242.1 |       |       |       |
| Greece         | GODT  | 2017 |      |       | 15.71 | 9.64  | 6.07  |
| Iceland        | ERA-EDTA                                    | 2017 | 14.6 | 506.7 |       |       |       |
| Iceland        | GODT  | 2017 |      |       | 26.67 |       | 26.67 |
| Ireland        | USRDS                                       | 2013 |      | 40.3  |       |       |       |
| Ireland        | GODT  | 2017 |      |       | 40    | 29.38 | 10.63 |
| Israel         | ERA-EDTA                                    | 2017 |      | 432   |       |       |       |
| Israel         | GODT  | 2017 |      |       | 44.22 | 17.47 | 26.75 |
| Italy          | ERA-EDTA                                    | 2017 |      | 419   |       |       |       |
| Italy          | GODT  | 2017 |      |       | 37.81 | 32.54 | 5.27  |
| Luxembourg     | GODT  | 2010 |      |       | 12    | 12    |       |
| Malta          | GODT  | 2017 |      |       | 52.5  | 40    | 12.5  |
| Netherlands    | ERA-EDTA                                    | 2017 | 15.1 | 661.8 |       |       |       |
| Netherlands    | GODT  | 2017 |      |       | 57.59 | 25.18 | 32.41 |
| Norway         | ERA-EDTA                                    | 2017 | 13.8 | 679.6 |       |       |       |
| Norway         | GODT  | 2017 |      |       | 51.7  | 37.17 | 14.53 |
| Portugal       | ERA-EDTA                                    | 2017 |      | 693   |       |       |       |
| Portugal       | GODT  | 2017 |      |       | 51.36 | 43.88 | 7.48  |
| Spain          | ERA-EDTA                                    | 2017 | 5.1  | 645.7 |       |       |       |
| Spain          | GODT  | 2017 |      |       | 70.45 | 63.3  | 7.16  |
| Sweden         | ERA-EDTA                                    | 2017 | 9.1  | 579   |       |       |       |
| Sweden         | GODT  | 2017 |      |       | 47.88 | 35.25 | 12.63 |
| Switzerland    | ERA-EDTA                                    | 2017 | 7.7  | 501.9 |       |       |       |
| Switzerland    | GODT  | 2017 |      |       | 42.35 | 27.29 | 15.06 |
| United Kingdom | ERA-EDTA                                    | 2017 | 10.4 | 533.8 |       |       |       |
| United Kingdom | GODT  | 2017 |      |       | 52.08 | 36.98 | 15.11 |

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  2. European Renal Association – European Dialysis and Transplant Association (ERA-EDTA): <https://www.era-edta-reg.org/index.jsp?p=14>
  3. Australia & New Zealand Dialysis & Transplant Registry (ANZDATA): <https://www.anzdata.org.au/report/anzdata-41st-annual-report-2018-anzdata/>
  4. Canadian Organ Replacement Register (CORR): [https://www.cihi.ca/sites/default/files/document/corr\\_ar-kidney-data-tables-en.xlsx](https://www.cihi.ca/sites/default/files/document/corr_ar-kidney-data-tables-en.xlsx)
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- B. Published articles
1. Gonzalez-Bedat et al. Clinical Nephrology 2015; 83 (Supplement 1) 3-6
  2. Soyibo et al. Caribbean Renal Registry. West Indian Medical Journal 2007; 56(4):355-63
  3. Chan-on et al. Frontiers in medicine. 2017 Jun 23;4:84
- C. Database
1. Global Observatory on Donation and Transplantation (GODT): <http://www.transplant-observatory.org/summary/>

## Supplementary Appendix 2

# **Global Kidney Health Atlas (GKHA) Questionnaire**

Topical survey: Access to  
End-stage Kidney Disease (ESKD) Care

**Survey ID (provided in email):**

**Current position:**

**Role: Please check all that apply.**

- Nephrologist
- Non-nephrologist (physician)
- Health professional (non-physician)
- Administrator/policymaker/civil servant
- Other (please specify) *Textbox*

**In which country do you reside? (a dropdown with all countries)**

**In which city do you reside?**

**In which ISN region do you reside? (a dropdown with all ISN regions)**

## **A. Health finance and service delivery**

List of abbreviations:

**CKD:** *Chronic kidney disease*

**NGO:** *Non-governmental organization*

### **A1. Healthcare system and funding mechanism**

**A1.1. In general, what best describes your healthcare system funding structure for non-dialysis CKD (Chronic Kidney Disease)? (please choose the most appropriate response)**

- Publicly funded by government and free at the point of delivery
- Publicly funded by government but with some fees at the point of delivery
- A mix of publicly funded (whether or not publicly funded component is free at point of delivery) and private systems (please explain) *Textbox*
- Solely private and out-of-pocket
- Solely private through health insurance providers
- Multiple systems – programs provided by government, NGOs, and communities
- Other (please specify) *Textbox*

**A1.2. In general, what best describes your healthcare system funding structure for RRT (renal replacement therapy)? (please choose the most appropriate response)**

- Publicly funded by government and free at the point of delivery

- Publicly funded by government but with some fees at the point of delivery
- A mix of publicly funded (whether or not publicly funded component is free at point of delivery) and private systems (please explain) *Textbox*
- Solely private and out-of-pocket
- Solely private through health insurance providers
- Multiple systems – programs provided by government, NGOs, and communities
- N/A (RRT is not available in my country)
- Other (please specify) *Textbox*

**A1.2.1. If RRT is publicly funded (in whole or in part), is this coverage universal (that is, are all residents of your country eligible to participate)?**

- Yes, all residents are included in the coverage
- No, not all residents are included (please provide details) *Textbox*

**A1.2.2. If RRT is publicly funded (in whole or in part), which aspects of care are *not* included in the coverage? Please check all that apply.**

- Dialysis
- Transplantation
- Comprehensive conservative care (renal palliative supportive services)
- Management of associated complications (anaemia, bone disease, malnutrition)
- None – all aspects funded
- Other (please specify) *Textbox*

**A1.3. What best describes your healthcare system’s coverage for surgical services for RRT? (please choose the most appropriate response for each row)**

|   | Publicly funded by government and free at the point of delivery | Publicly funded by government but with some fees at the point of delivery | A mix of publicly funded (whether or not publicly funded component is free at point of delivery) and private systems (please explain) | Solely private and out-of-pocket | Solely private through health insurance providers | Multiple systems – programs provided by government, NGOs, and communities | Other (please specify) | N/A (RRT is not available in my country) |
|---|---|---|---|----------------------------------|---|---|------------------------|--|
| A1.3.1 Vascular access for haemodialysis (central venous catheters)   |   |   |   |                                  |   |   |                        |  |
| A1.3.2 Vascular access for haemodialysis (fistula or graft creation)  |   |   |   |                                  |   |   |                        |  |
| A1.3.3 Access surgery for peritoneal dialysis (PD catheter insertion) |   |   |   |                                  |   |   |                        |  |

|   |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|
| A1.3.4 Surgery for kidney transplantation |  |  |  |  |  |  |  |  |
|---|--|--|--|--|--|--|--|--|

## A2. Within-country variation

*We are interested in understanding within-country variation in ESKD care delivery as well as between-country variation.*

### A2.1. Does organization or delivery of ESKD (End-stage Kidney Disease) care differ regionally within your country?

- Yes (if possible, please provide brief details) *Textbox*
- No
- Unknown

### A2.2. Does organization or delivery of ESKD care differ between children and adults in your country?

- Yes (if possible, please provide brief details) *Textbox*
- No
- Unknown

### A2.3. Does the access to RRT differ between children and adults in your country?

- Yes (if possible, please provide brief details) *Textbox*
- No
- Unknown

#### A2.3.1 If RRT services are not equal between adults and children, what is the difference in access to haemodialysis? *Textbox*

#### A2.3.2 If RRT services are not equal between adults and children, what is the difference in access to peritoneal dialysis? *Textbox*

#### A2.3.3 If RRT services are not equal between adults and children, what is the difference in access to kidney transplant? *Textbox*

## A3. Oversight

### A3.1. What best describes the management/oversight of ESKD care in your country?

**Please check all that apply.**

- Managed/overseen by a national body
- Managed/overseen by provincial/regional/state level authorities only
- Managed by individual hospitals/trusts/organizations
- Managed by NGOs
- Other (please specify) *Textbox*
- No organized system

## B. Health workforce for nephrology care

### B1. Clinical responsibility

**B1.1. Who bears primary clinical responsibility for the delivery of ESKD care in your country? Please check all that apply.**

- Nephrologists
- Primary care physicians
- Nurse practitioners or specialized nurses
- Multidisciplinary teams
- Health officers/extension workers
- Other (please specify) *Textbox*

### B2. Workforce

**B2.1. Approximately how many nephrologists are there in your country? Please leave blank if unknown.**

**B2.2. Approximately how many nephrologist trainees are there in your country? Click or tap here to enter text. Please leave blank if unknown.**

**B2.3. In your opinion, is there a shortage of any of the following providers in your country for ESKD care? Please check all that apply.**

- Nephrologists
- Transplant surgeons
- Surgeons (who can put in arteriovenous haemodialysis access)
- Surgeons (who can put in peritoneal dialysis access)
- Interventional radiologists (who can put in arteriovenous haemodialysis access)
- Interventional radiologists (who can put in peritoneal dialysis access)
- Dietitians
- Laboratory technicians
- Radiologists to conduct and interpret renal ultrasounds
- Vascular access coordinators
- Counsellors/psychologists
- Transplant coordinators
- Dialysis nurses
- Dialysis technicians
- No shortage of any of the staff mentioned above

## C. Essential medications and health product access for ESKD care

## **C1. Capacity for RRT service provision**

**C1.1. Is chronic haemodialysis (adult and paediatric) available in your country?**

- Yes  
 No

**C1.1.1. If yes, how many centres in your country provide chronic haemodialysis (HD)?**

- Number of centres *Textbox*

**C1.2. Is chronic peritoneal dialysis (PD) (adult and paediatric) available in your country?**

- Yes  
 No

**C1.2.1 If yes, how many centres in your country provide chronic PD?**

- Number of centres *Textbox*

**C1.3. Is kidney transplantation performed in your country?**

- Yes  
 No

**C1.3.1. If yes, what is the source of donated kidneys? (please choose the most appropriate response)**

- Deceased donors only  
 Live donors only  
 A combination of deceased and live donors

**If kidneys for transplant come from both deceased and live donors, what percentage are live? (textbox)**

**C1.3.2. If kidney transplantation is available in your country, what kind of kidney transplant waitlist or waitlists are there?**

- National  
 Regional only  
 None

**C1.3.3. If kidney transplantation is available in your country, how many centres perform kidney transplantation?**

- Number of centres *Textbox*

## **C2. Preparation for RRT**

*Optimal ESKD care: In the context of the ISN Vision, Mission and Values, we believe all patients approaching ESKD should receive timely preparation for RRT, so the complications and progression of their disease are minimized, and their choice of clinically appropriate treatment options is optimized. The answers to the following questions are important to improve our understanding of current service provision.*

**C2.1. Please indicate the availability of the following services (tests and treatments) for ESKD care in your country, where 'Generally available' means: in 50% or more centres (hospitals or clinics) and 'Generally not available' means: in less than 50% of centres (hospitals or clinics)**

|  | Generally available | Generally not available | Never | Unknown |
|--|---------------------|-------------------------|-------|---------|
| <b>Management of haemoglobin level</b>   |                     |                         |       |         |
| C2.1.1 Measurement of serum haemoglobin  |                     |                         |       |         |
| C2.1.2 Measurement of iron parameters (iron, ferritin, transferrin saturation)     |                     |                         |       |         |
| C2.1.3 Measurement of inflammatory markers (for example, serum C-reactive protein) |                     |                         |       |         |
| C2.1.4 Oral iron   |                     |                         |       |         |
| C2.1.5 Parenteral iron   |                     |                         |       |         |
| C2.1.6 Erythropoietin  |                     |                         |       |         |
| <b>Management of renal bone disease</b>  |                     |                         |       |         |
| C2.1.7 Measurement of serum calcium  |                     |                         |       |         |
| C2.1.8 Measurement of serum phosphorus   |                     |                         |       |         |
| C2.1.9 Measurement of serum parathyroid hormone                                    |                     |                         |       |         |
| C2.1.10 Calcium-based phosphate binders  |                     |                         |       |         |
| C2.1.11 Non-calcium-based phosphate binders (for example, sevelamer)               |                     |                         |       |         |



|   |  |  |  |  |
|---|--|--|--|--|
| C2.1.12 Cinacalcet  |  |  |  |  |
| C2.1.13 Surgical services for parathyroidectomy                               |  |  |  |  |
| <b>Management of electrolyte disorders and chronic metabolic acidosis</b>     |  |  |  |  |
| C2.1.14 Measurement of serum electrolytes (sodium, potassium, chloride, etc.) |  |  |  |  |
| C2.1.15 Measurement of serum bicarbonate                                      |  |  |  |  |
| C2.1.16 Potassium exchange resins (for example, Kayexalate)                   |  |  |  |  |
| C2.1.17 Oral sodium bicarbonate   |  |  |  |  |
| <b>Management of blood pressure</b>   |  |  |  |  |
| C2.1.18 Analogue BP monitoring  |  |  |  |  |
| C2.1.19 Automated BP monitoring   |  |  |  |  |

### C3. Nutritional services

**C3.1. Please indicate the availability of the following nutritional services for kidney care in your country, where 'Generally available' means: in 50% or more centres (hospitals or clinics) and 'Generally not available' means: in less than 50% of centres (hospitals or clinics)**

| <b>Nutritional Services</b>  |                     |                         |       |         |
|--|---------------------|-------------------------|-------|---------|
|  | Generally available | Generally not available | Never | Unknown |
| C3.1.1 Dietary counselling by a person trained in nutrition (for example, a dietitian) |                     |                         |       |         |
| C3.1.2 Measurement of serum albumin  |                     |                         |       |         |
| C3.1.3 Use of anthropometry for nutritional assessment (changes in body weight)        |                     |                         |       |         |

|  |  |  |  |  |
|--|--|--|--|--|
| C3.1.4 Use of anthropometry for nutritional assessment (skin fold assessment)    |  |  |  |  |
| C3.1.5 Use of anthropometry for nutritional assessment (body mass index)         |  |  |  |  |
| C3.1.6 Oral nutrition supplements (for example, vitamins, oral meal supplements) |  |  |  |  |

**C3.2. Are dietitians or dietitians specialized in renal nutrition (renal dietitians) available for consultation in your country?**

- Yes  
 No  
 Unknown

**C3.2.1 If there are dietitians/renal dietitians in your country, in which settings are they available for consultation? (please check all that apply)**

- Inpatient setting
- Outpatient clinic/office setting

**C3.2.2 If there are dietitians/renal dietitians in your country, which patients are eligible for consultation? (please check all that apply)**

- Non-dialysis CKD patients
- Dialysis patients

**C3.2.3. If there are dietitians/renal dietitians in your country that offer services in inpatient settings, how much does it usually cost (USD) patients directly (out-of-pocket expenses) for each consultation (encounter)? *Textbox***

**C3.2.4 If there are dietitians/renal dietitians in your country that offer services in outpatient settings, how much does it usually cost (USD) patients directly (out-of-pocket expenses) for each consultation (encounter)? *Textbox***

**C3.2.5. If there are dietitians/renal dietitians in your country, how often per year (on average) does each CKD patient in stage 3, 4, 5 or 5D in your country undergoing each of**

the following treatments receive dietitian counselling? Please check the most appropriate answer for each row. If the service is not available, please select N/A.

|   | Never | At least annually | 1–2 times per year | 3–4 times per year | As clinically scheduled | No schedule | N/A (kidney care service not available) |
|---|-------|-------------------|--------------------|--------------------|-------------------------|-------------|---|
| <b>C3.2.5.1 Non-dialysis CKD (stages 3–5)</b> |       |                   |                    |                    |                         |             |   |
| <b>C3.2.5.2 Haemodialysis</b>                 |       |                   |                    |                    |                         |             |   |
| <b>C3.2.5.3 Peritoneal Dialysis</b>           |       |                   |                    |                    |                         |             |   |
| <b>C3.2.5.4 Conservative Care</b>             |       |                   |                    |                    |                         |             |   |

**C3.2.6. If there are dietitians/renal dietitians in your country, how often is there formal communication between dietitians and nephrologists in your country that centre around these issues:**

|   | <b>Always</b> | <b>Often</b> | <b>Sometimes</b> | <b>Never</b> | <b>Unknown</b> |
|---|---------------|--------------|------------------|--------------|----------------|
| <b>C3.2.6.1<br/>Prescriptions<br/>to CKD<br/>patients</b>                   |               |              |                  |              |                |
| <b>C3.2.6.2<br/>Dietary<br/>adherence<br/>and<br/>suggested<br/>changes</b> |               |              |                  |              |                |

**C3.2.7. Is there formal assessment of nutritional status in patients with CKD (including ESKD)?**

- Yes
- No
- Unknown

**C3.2.7.1. If there is a nutritional assessment, how often are nephrologists informed of the findings of nutritional assessments?**

- 1) Never
- 2) Sometimes
- 3) Often
- 4) Usually
- 5) Always

**C3.3 Do personnel other than dietitians give dietary counselling to CKD patients in your country?**

- Yes
- No
- Unknown

**C3.3.1 If yes, who provides most of the dietary counselling to CKD patients? (please select the most appropriate response)**

- Nephrologists
- Non-nephrologist physicians
- Nurses
- Nutritional technicians
- Other

**C3.4. In managing non-dialysis CKD patients in your country, is a low-protein diet adopted in regular practice as a standard treatment strategy for reducing CKD progression?**

- Yes
- No
- Unknown

**C3.4.1. If yes, at what eGFR level is a low-protein diet usually introduced?**

- eGFR 30-59
- eGFR 15-29
- eGFR <15

**C3.4.2 If a low-protein diet is adopted, what protein intake threshold is regarded as a low-protein diet in your country?**

- ≤ 0.6g/kg/day (1.3 g/pounds/day)
- ≤ 0.7g/kg/day (1.5 g/pounds/day)
- ≤ 0.8g/kg/day (1.7 g/pounds/day)

**C3.5. In which settings are oral nutrition supplements (ONS) provided free of charge to patients?**

- C3.5.1 Inpatient? Yes or no
- C3.5.2 Outpatient clinic/office? Yes or No

**C3.6. In your country, how often is the following nutritional care provided to patients with advanced CKD who are not yet on dialysis?**

|  |        |         |           |        |       |
|--|--------|---------|-----------|--------|-------|
| C3.6.1 Dietary calorie prescription?   | Always | Usually | Sometimes | Rarely | Never |
| C3.6.2 Dietary protein prescription?   | Always | Usually | Sometimes | Rarely | Never |
| C3.6.3 Dietary calcium prescription?   | Always | Usually | Sometimes | Rarely | Never |
| C3.6.4 Dietary sodium restriction      | Always | Usually | Sometimes | Rarely | Never |
| C3.6.5 Dietary potassium restriction?  | Always | Usually | Sometimes | Rarely | Never |
| C3.6.6 Dietary phosphorus restriction? | Always | Usually | Sometimes | Rarely | Never |

**C3.7. How often are other dietary interventions (for example, Mediterranean diet, vegetarian diet, purine or keto analogues restriction) attempted?**

Always    Usually    Sometimes    Rarely    Never

#### C4. Dialysis treatment – Quality and Choice

**C4.1. Please indicate the availability of the following services for dialysis care in your country, where 'Generally available' means: in 50% or more centres (hospitals or clinics) and 'Generally not available' means: in less than 50% of centres (hospitals or clinics).**

|  | Generally available | Generally not available | Never | Unknown | N/A (dialysis not provided) |
|--|---------------------|-------------------------|-------|---------|-----------------------------|
| <b>Modality choice</b>   |                     |                         |       |         |                             |
| C4.1.1 Haemodialysis   |                     |                         |       |         |                             |
| C4.1.2 Peritoneal dialysis   |                     |                         |       |         |                             |
| <b>Quality</b>   |                     |                         |       |         |                             |
| C4.1.3 Centre-based haemodialysis service of adequate frequency (treatment three times a week for three or four hours)               |                     |                         |       |         |                             |
| C4.1.4 Home haemodialysis  |                     |                         |       |         |                             |
| C4.1.5 Peritoneal dialysis exchanges of adequate frequency (3–4 per day or equivalent cycles on automated PD)                        |                     |                         |       |         |                             |
| C4.1.6 Determination of the effectiveness of peritoneal dialysis (that is, by measurement of urea reduction ratio [URR] and/or Kt/V) |                     |                         |       |         |                             |
| C4.1.7 Affordable patient transport services   |                     |                         |       |         |                             |

#### C5. Transplant – Quality & Choice

**Transplant choice:** *In the context of the ISN Vision, Mission and Values, we believe all patients with kidney transplant are to receive a high-quality service which supports them in managing their transplant and enables them to achieve the best possible quality of life. The answers to the following questions are important to improve our understanding of current service provision.*

**C5.1 Please indicate the availability of the following services for transplantation services in your country, where 'Generally available' means: in 50% or more centres (hospitals or**

clinics) and 'Generally not available' means: in less than 50% of centres (hospitals or clinics).

If transplantation is NOT available in your country, select N/A.

|  | Generally available | Generally not available | Never | Unknown | N/A (transplantation not available) |
|--|---------------------|-------------------------|-------|---------|-------------------------------------|
| C5.1.1 Early provision of culturally appropriate information to patients, relatives and caregivers about the risks and benefits of transplantation with a clear explanation of tests, procedures and results |                     |                         |       |         |                                     |
| C5.1.2 Effective preventive therapy to control infections (for example, antivirals, antifungals, etc.)   |                     |                         |       |         |                                     |
| C5.1.3 Timely access to operating space for kidney transplantation   |                     |                         |       |         |                                     |
| C5.1.4 Appropriate immunosuppression and anti-rejection treatment  |                     |                         |       |         |                                     |
| C5.1.5 Appropriate facilities to monitor administration of immunosuppression drugs   |                     |                         |       |         |                                     |
| C5.1.6 Multidisciplinary team to support patients with a renal transplant  |                     |                         |       |         |                                     |
| C5.1.7 Standard framework for organ procurement (for example, legislation around brain death)  |                     |                         |       |         |                                     |

## C6. Conservative care

**Conservative (non-dialytic) kidney care:** *Comprehensive conservative care is defined as planned, holistic, patient-centred care for patients with CKD stage 5, according to Kidney Disease: Improving Global Outcomes (KDIGO). This is appropriate for patients who choose not to initiate RRT or in whom resource constraints prevent or limit access to RRT.*

We would like to know more about the capacity to deliver conservative care in your country (that is, capacity to support/manage patients who will not receive RRT despite being in kidney failure).

The goals of conservative care are usually to optimize quality of life, manage symptoms of kidney failure, and when appropriate, preserve residual renal function in patients with advanced CKD (CKD stage 5).

**C6.1. Considering the definition above, is conservative care available in your country?**

- Yes
- No
- Unknown

**C6.2 Please indicate the availability of a system for conservative care (holistic patient-centred care for patients with CKD stage 5) that includes all or any of the following:**

**'Generally available' means: in 50% or more centres (hospitals or clinics) and 'Generally not available' means: in less than 50% of centres (hospitals or clinics).**

**If conservative care is NOT available in your country, select N/A.**

|   | Generally available | Generally not available | Never | Unknown | N/A (conservative care not available) |
|---|---------------------|-------------------------|-------|---------|---------------------------------------|
| C6.2.1 Established choice-restricted conservative care (conservative care for patients in whom resource constraints prevent or limit access to RRT)                             |                     |                         |       |         |                                       |
| C6.2.2 Established conservative care that is chosen or medically advised (conservative care program for patients who opted not to have dialysis, where it is readily available) |                     |                         |       |         |                                       |
| C6.2.3 Multidisciplinary team approach to care via shared decision making   |                     |                         |       |         |                                       |
| C6.2.4 Shared decision-making tools for patients and providers; for example, practice guidelines for providers, patient decision aids   |                     |                         |       |         |                                       |
| C6.2.5 Systematic active recognition and management of symptoms associated with advanced kidney failure   |                     |                         |       |         |                                       |



|  |  |  |  |  |  |
|--|--|--|--|--|--|
| C6.2.6 Systematic provision of psychological, cultural, and spiritual support                                    |  |  |  |  |  |
| C6.2.7 Systematic provision to care providers of additional training in conservative care                        |  |  |  |  |  |
| C6.2.8 Easy access to conservative care across settings (for example, home, hospital, hospice, and nursing home) |  |  |  |  |  |

**C7. Essential medications and technologies for RRT – Accessibility, affordability and reimbursement plans and quality**

## **Medication funding and reimbursement plans in RRT patients**

**C7.1. For all dialysis patients, how are medications funded? (please choose most appropriate response). If dialysis is not available in your country, please do not answer this question.**

- Publicly funded by government and free at the point of delivery
- Publicly funded by government but with some fees at the point of delivery
- A mix of publicly funded (whether or not publicly funded component is free at point of delivery) and private systems (please specify) *Textbox*
- Solely private and out-of-pocket
- Solely private through health insurance providers
- Multiple systems – programs provided by government, NGOs, and communities
- Other (please specify) *Textbox*

**C7.2. For all transplant patients, how are medications funded? (please choose most appropriate response). If transplantation is not available in your country, please do not answer this question.**

- Publicly funded by government and free at the point of delivery
- Publicly funded by government but with some fees at the point of delivery
- A mix of publicly funded (whether or not publicly funded component is free at point of delivery) and private systems (please specify) *Textbox*
- Solely private and out-of-pocket
- Solely private through health insurance providers
- Multiple systems – programs provided by government, NGOs, and communities
- Other (please specify) *Textbox*

## **C8. Affordability**

**C8.1. What is the national average co-payment (including medications but no other ancillaries) for haemodialysis patients in your country (that is, the proportion of the treatment cost paid for directly (out-of-pocket) by the patient?**

- N/A (not available in my country)
- 0%
- 1–25%
- 26–50%
- 51–75%
- >75%
- 100%

**C8.1.1 Does this proportion vary in different parts of the country?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please explain below) *Textbox*

**C8.1.2. Does this proportion vary depending on patients' characteristics (for example, age, gender, employment status)?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please explain below) *Textbox*

**C8.2. What is the national average co-payment (including medications but no other ancillaries) for peritoneal dialysis patients in your country, that is, the proportion of the treatment cost paid for directly (out-of-pocket) by the patient?**

- N/A (not available in my country)
- 0%
- 1–25%
- 26–50%
- 51–75%
- >75%
- 100%

**C8.2.1. Does this proportion vary in different parts of the country?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please explain below) *Textbox*

**C8.2.2. Does this proportion vary depending on patients' characteristics (for example, age, gender, employment status)?**

- Yes (please explain below)
- No
- N/A (not available in my country)

Other (please explain below) *Textbox*

**C8.3. What is the national average co-payment (including medications but no other ancillaries) for kidney transplant patients in your country, that is, the proportion of the treatment cost paid for directly (out-of-pocket) by the patient?**

- N/A (not available in my country)
- 0%
- 1–25%
- 26–50%
- 51–75%
- >75%
- 100%

**C8.3.1. Does this proportion vary in different parts of the country?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please explain below) *Textbox*

**C8.3.2. Does this proportion vary depending on patients' characteristics (for example, age, gender, employment status)?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please explain below) *Textbox*

## Accessibility

**C8.4 What proportion (national average) of patients with ESKD are able to access dialysis in your country?**

- 0% (not available in my country)
- 1–10%
- 11–25%
- 26–50%
- >50%

**C8.4.1. Does this proportion vary in different parts of the country?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please explain below) *Textbox*

**C8.4.2. Does this proportion vary depending on patients' characteristics (for example, age, gender, employment status)?**

- Yes (please explain below)
- No

- N/A (not available in my country)
- Other (please specify) *Textbox*

**C8.5. Out of those patients in your country who have ESKD and are able to access dialysis, what proportion usually start with peritoneal dialysis?**

- N/A – dialysis (of any kind) is not available in my country
- 0% (means that there are patients who are able to access some form of dialysis, but none of them start with PD)
- 1–10%
- 11–25%
- 26–50%
- >50%

**C8.5.1. Does this proportion vary in different parts of the country?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please specify) *Textbox*

**C8.5.2. Does this proportion vary depending on patients' characteristics (for example, age, gender, employment status)?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please specify) *Textbox*

**C8.6. Out of those patients in your country who have ESKD and are suitable for transplant, what proportion are able to access kidney transplantation?**

- 0% (not available in my country)
- 1–10%
- 11–25%
- 26–50%
- >50%

**C8.6.1. Does this proportion vary in different parts of the country?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please specify) *Textbox*

**C8.6.2. Does this proportion vary depending on patients' characteristics (for example, age, gender, employment status)?**

- Yes (please explain below)
- No
- N/A (not available in my country)
- Other (please specify) *Textbox*

## C9. Peritoneal Dialysis Quality

*If peritoneal dialysis is available in your country, what proportion of centres routinely measure and report the following to assess the quality of the dialysis that is provided? If peritoneal dialysis is **not** available in your country, skip this section.*

### C9.1. Patient-reported outcome measures (for example, fatigue, quality of life, satisfaction, pain):

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

### C9.2. Blood pressure:

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

### C9.3. Small solute clearance (for example, Kt/V or creatinine clearance):

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

### C9.4. Haemoglobin/haematocrit:

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

### C9.5. Bone mineral markers (calcium, phosphate, parathyroid hormone [PTH]):

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

### C9.6. Technique survival:

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)

>75% (Almost all)

**C9.7. Patient survival:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

## **C10. Haemodialysis quality**

*If haemodialysis is available in your country, what proportion of centres routinely measure and report the following to assess the quality of the dialysis that is provided? If haemodialysis is **not** available in your country, skip this section.*

**C10.1. Patient-reported outcome measures (for example, fatigue, quality of life, satisfaction, pain, etc.):**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C10.2. Blood pressure:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C10.3. Small solute clearance (for example, Kt/V or creatinine clearance):**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C10.4. Haemoglobin/haematocrit:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C10.5. Bone mineral markers (calcium, phosphate, PTH):**

- 0% (None)
- 1–10% (Few)

- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C10.6. Technique survival:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C10.7. Patient survival:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

## **C11. Kidney Transplantation Quality**

*If kidney transplantation is available in your country, what proportion of centres routinely measure and report the following to assess the quality of the transplantation that is provided? If transplantation is **not** available in your country, skip this section.*

**C11.1. Patient-reported outcome measures (for example, fatigue, quality of life, satisfaction, pain, etc.):**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C11.2. Delayed graft function:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C11.3. Rejection rates:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C11.4. Renal allograft function:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C11.5. Graft survival:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C11.6. Patient survival:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

## **C12. Access**

*Access for haemodialysis – answer only if haemodialysis is available in your country.*

**C12.1. For haemodialysis, what proportion of patients routinely start dialysis with a functioning vascular access (AV fistula or graft):**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C12.2. For haemodialysis, what proportion of patients routinely start dialysis with a tunnelled dialysis catheter:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

**C12.3. For haemodialysis, what proportion of patients commonly start dialysis with a temporary dialysis catheter:**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)



- 51–75% (Most)
- >75% (Almost all)

Access for all dialysis – answer **only** if haemodialysis or peritoneal dialysis is available in your country

**C12.4. For either haemodialysis or peritoneal dialysis, what proportion of patients routinely receive education about the best means of access and timely surgery (for example, six months before start of haemodialysis, one month before start of peritoneal dialysis):**

- 0% (None)
- 1–10% (Few)
- 11–50% (Some)
- 51–75% (Most)
- >75% (Almost all)

## D. Health information systems and statistics

### D1. Registries

#### Definitions/abbreviations

**Registry:** A systematic collection of data to evaluate specified outcomes for a defined population in order to serve one or more predetermined scientific, clinical, or policy purposes.

**AKI:** Acute Kidney Injury

**D1.1. For which conditions or treatments is there an ‘official’ registry in your country?**

- D1.1.1 CKD (non-RRT)  Yes  No  Unknown
- D1.1.2 Dialysis  Yes  No  Unknown
- D1.1.3 Transplantation  Yes  No  Unknown
- D1.1.4 AKI  Yes  No  Unknown

**D1.2. If there is a CKD registry for patients *who do not require RRT*, what is the basis of participation in the CKD registry?**

- Voluntary
- Mandatory
- Unknown

**D1.3. If there is a CKD registry for patients *who do not require RRT*, what is the geographical coverage of the CKD registry? (please check all that apply)**

- National
- Regional/state/provincial
- Local/hospital/community

**D1.4. If there is a CKD registry for patients *who do not require RRT*, what does it cover? (please check all that apply)**

- The whole spectrum of CKD (stages 1–5)
- Advanced CKD only (stages 4/5)

**D1.5. If there is a dialysis registry, what is the basis of participation in the dialysis registry?**

- Voluntary
- Mandatory
- Unknown

**D1.6. If there is a dialysis registry, what is the geographical coverage of the dialysis registry? (please check all that apply)**

- National
- Regional/state/provincial
- Local/hospital/community

**D1.7. If there is a dialysis registry, what information does the dialysis registry collate? (please check all that apply)**

- Aetiology of ESKD
- Modality of dialysis
- Process-based measures  
(anaemia, bone disease, BP control markers)
- Patient outcome measures  
(hospitalizations)
- Patient outcome measures  
(for example, satisfaction, quality of life)
- Patient outcome measures  
(mortality)

**D1.8. If there is a transplantation registry, what is the basis of participation in the transplant registry?**

- Voluntary
- Mandatory
- Unknown

**D1.9. If there is a transplantation registry, what is the geographical coverage of the transplant registry? (please check all that apply)**

- National
- Regional/state/provincial
- Local/hospital/community

**D1.10. If there is a transplantation registry, what information does the transplant registry collate? (please check all that apply)**

- Aetiology of ESKD
- Transplant source (deceased/live donor)

- Process-based measures  
(anaemia, bone disease, BP control markers)
- Patient outcome measures  
(hospitalizations)
- Patient outcome measures  
(for example, satisfaction, quality of life)
- Patient outcome measures  
(mortality)

**D1.11. If there is an AKI registry, what is the basis of participation in the AKI registry?**

- Voluntary
- Mandatory
- Unknown

**D1.12. If there is an AKI registry, what is the geographical coverage of the AKI registry?  
(please check all that apply)**

- National
- Regional/state/provincial
- Local/hospital/community

**D1.13. If there is an AKI registry, what information does the AKI registry collate? (please check all that apply)**

- Risk factors for AKI
- Aetiology of AKI
- Incidence of AKI
- Patient outcome measures  
(hospitalizations)
- Patient outcome measures  
(requirement for RRT, for example, dialysis or slow dialysis therapies like CRRT)
- Patient outcome measures  
(mortality)

## **D2. Identification of disease (AKI and CKD)**

Definitions:

**Guidelines:** Evidence-based recommended courses of action for prevention or management of disease.

**Identification:** Measures performed in at-risk populations in order to diagnose individuals who have risk factors or early stages of disease but may not yet have symptoms.

**Policy:** A specific official decision or set of decisions designed to carry out a course of action endorsed by a government body; including a set of goals, priorities and main directions for attaining these goals. The policy document may include a strategy to give effect to the policy.

**Program:** A planned set of activities or procedures directed at a specific purpose.

**D2.1. For which of the following high-risk groups do practitioners in your country routinely offer testing for CKD? (please check all that apply)**

- Those with hypertension
- Those with diabetes
- Those with cardiovascular disease (ischaemic heart disease, stroke, peripheral vascular disease, heart failure)
- Those with autoimmune/multisystem diseases (systemic lupus erythematosus, rheumatoid arthritis)
- The elderly
- Those with urological disorders (structural, stone diseases)
- Chronic users of nephrotoxic medications
- Members of high-risk ethnic groups (Aboriginal, African, Indo-Asian)
- Those with a family history of CKD
- N/A – routine testing for CKD not offered

**D2.2. In your country, are there ethnic groups considered to be at increased risk for CKD?**

- Yes (please specify below)
- No
- Unknown

**D2.3. In your country, is there a CKD detection program in use that is based on national policy or guidelines?**

- Yes
- No
- Unknown

**D2.3.1 If there is a program, how is it implemented (please check all that apply):**

- Reactive approach – cases managed as identified through practice
- Active screening of at-risk population through routine health encounters
- Active screening of at-risk population through specific screening processes
- Other (please specify)

**D2.4. In your country, are there specific groups considered to be at increased risk for AKI?**

- Yes (please specify below) Textbox
- No
- Unknown

**D2.5. In your country, is an AKI detection program in use that is based on national policy and/or guidelines?**

- Yes
- No
- Unknown

**D2.5.1 If there is a program, how is this program implemented? (please check all that apply):**

- Reactive approach – cases managed as identified through practice
- Active screening of at-risk population through routine health encounters
- Active screening of at-risk population through specific screening processes
- Other (please specify)

## **E. National health policy**

Definitions:

**Policy:** *A specific official decision or set of decisions designed to carry out a course of action endorsed by a government body; including a set of goals, priorities and main directions for attaining these goals. The policy document may include a strategy to give effect to the policy.*

**Program:** *A planned set of activities or procedures directed at a specific purpose.*

**Strategy:** *a long-term plan designed to achieve a particular goal.*

### **E1. Policy and strategy**

**Non-communicable diseases (NCDs):** *Diseases that cannot be transmitted from person to person, notably cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes.*

**E1.1. Does your country have a national strategy for non-communicable diseases?**

- Yes, in place (please provide details below) Textbox
- Under development but not yet being implemented (please provide details below)
- No
- Unknown

**E1.2. Does your country have a national strategy for improving the care of CKD patients?**

- Yes, a national CKD-specific strategy exists
- Yes, but the CKD strategy is incorporated into an NCD strategy that includes other diseases.
- No
- Unknown

**E1.2.1 Please select which populations are covered in the national CKD-specific strategy (check all that apply)**

- Non-dialysis dependent CKD
- Chronic dialysis
- Kidney transplantation

**E1.2.2 Please select which populations are covered in the national general NCD strategy (check all that apply)**

- Non-dialysis dependent CKD
- Chronic dialysis
- Kidney transplantation

**E1.3. Are CKD-specific policies available?**

- Yes
- No
- Unknown

**E1.3.1 If yes, please specify which type of CKD policies are available in your country (check all that apply)**

- National policies
- Regional policies

## **E2. Advocacy**

**E2.1. In your opinion, is CKD recognized as a health priority by the government in your country?**

- Yes (please provide details below) *Textbox*
- No (please explain why not below) *Textbox*

**E2.2. Is there an advocacy group at the higher levels of government (for example, a parliamentary committee) or an NGO to raise the profile of CKD and its prevention?**

- Yes (please provide details below) *Textbox*
- No (please explain why not below) *Textbox*
- Unknown

**E2.3. In your opinion, is AKI and/or its prevention recognized as a health priority by the government in your country?**

- Yes (please provide details below) *Textbox*
- No (please explain why not below) *Textbox*

**E2.4. Is there an advocacy group at the higher levels of government (for example, a parliamentary committee) or an NGO to raise the profile of AKI and its prevention?**

- Yes (please provide details below) *Textbox*
- No (please explain why not below) *Textbox*
- Unknown

**E2.5. In your opinion, is ESKD and/or its treatment by RRT recognized as a health priority by the government in your country?**

- Yes (please provide details below) *Textbox*
- No (please explain why not below) *Textbox*

**E2.6. Is there an advocacy group at the higher levels of government (for example, a parliamentary committee) or an NGO to raise the profile of ESKD/RRT?**

- Yes (please provide details below) *Textbox*
- No (please explain why not below) *Textbox*
- Unknown

**E2.7. Are there existing national/regional physician-oriented organizations or patient organizations that provide resources for ESKD care?**

- Yes (please provide details below) *Textbox*
- No (please explain why not below) *Textbox*
- Unknown

### **E3. Barriers to optimal ESKD care**

**E3.1. Are there specific barriers to optimal ESKD care in your country? Please check all that apply.**

- Geography (distance from care or prolonged travel time)
- Physician (availability, access, knowledge, attitude)
- Patient (knowledge, attitude)
- Nephrologist (availability)
- Healthcare system (availability, access, capability)
- Lack of political will and enabling policies
- Economic factors (limited funding, poor reimbursement mechanisms)
- Other (please specify) *Textbox*
- None

**How did you gather the information to complete this questionnaire? Please check all that apply.**

- Personal opinion/knowledge
- Gathered knowledge from other sources (for example, published literature or reports)
- Consultation with other colleagues
- Other (please specify) *Textbox*