

## Supplemental material

Clinical, serological and epidemiological features of hepatitis A in León, Nicaragua

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| <b>Table S1.</b> Characteristics of study population for acute hepatitis A cases (n=315) by age, | 2 |
| <b>Table S2.</b> Characteristics of study population for non-hepatitis A cases (n=242) by age    | 4 |

**Table S1: Characteristics of study population for acute hepatitis A cases (n=315) by age, n (%)**

| Characteristic           | Category    | ≤1 year<br>(n=2) | 1 - ≤5 years<br>(n=70) | 5 - ≤10 years<br>(n=182) | 14 - ≤18 years<br>(n=46) | 14 - ≤18 years<br>(n=10) | >18 years<br>(n=5) | Total<br>(n=315) |
|--------------------------|-------------|------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------|------------------|
| <b>Demographics</b>      |             |                  |                        |                          |                          |                          |                    |                  |
| Sex                      |             |                  |                        |                          |                          |                          |                    |                  |
|                          | female      | 2 (100.0)        | 28 (40.0)              | 102 (56.0)               | 20 (43.5)                | 3 (30.0)                 | 2 (40.0)           | 157 (49.8)       |
|                          | male        | 0 ( 0.0)         | 42 (60.0)              | 80 (44.0)                | 26 (56.5)                | 7 (70.0)                 | 3 (60.0)           | 158 (50.2)       |
| <b>Socioeconomic</b>     |             |                  |                        |                          |                          |                          |                    |                  |
| Housing                  |             |                  |                        |                          |                          |                          |                    |                  |
|                          | no crowding | 1 (50.0)         | 27 (38.6)              | 78 (42.9)                | 27 (58.7)                | 5 (50.0)                 | 3 (60.0)           | 141 (44.8)       |
|                          | crowding    | 1 (50.0)         | 43 (61.4)              | 104 (57.1)               | 19 (41.3)                | 5 (50.0)                 | 2 (40.0)           | 174 (55.2)       |
| Toilets                  |             |                  |                        |                          |                          |                          |                    |                  |
|                          | outside     | 0 ( 0.0)         | 38 (54.3)              | 91 (50.0)                | 23 (50.0)                | 3 (30.0)                 | 2 (40.0)           | 157 (49.8)       |
|                          | inside      | 2 (100.0)        | 32 (45.7)              | 91 (50.0)                | 23 (50.0)                | 7 (70.0)                 | 3 (60.0)           | 158 (50.2)       |
| Water                    |             |                  |                        |                          |                          |                          |                    |                  |
|                          | outside     | 0 ( 0.0)         | 14 (20.0)              | 33 (18.1)                | 9 (19.6)                 | 1 (10.0)                 | 0 ( 0.0)           | 57 (18.1)        |
|                          | inside      | 2 (100.0)        | 56 (80.0)              | 149 (81.9)               | 37 (80.4)                | 9 (90.0)                 | 5 (100.0)          | 258 (81.9)       |
| <b>Clinical features</b> |             |                  |                        |                          |                          |                          |                    |                  |
| Jaundice                 |             |                  |                        |                          |                          |                          |                    |                  |
|                          | no          | 0 ( 0.0)         | 1 ( 1.4)               | 12 ( 6.6)                | 1 ( 2.2)                 | 0 ( 0.0)                 | 0 ( 0.0)           | 14 ( 4.4)        |
|                          | yes         | 2 (100.0)        | 69 (98.6)              | 170 (93.4)               | 45 (97.8)                | 10 (100.0)               | 5 (100.0)          | 301 (95.6)       |
| Pale stool               |             |                  |                        |                          |                          |                          |                    |                  |
|                          | no          | 2 (100.0)        | 42 (60.0)              | 116 (63.7)               | 36 (78.3)                | 8 (80.0)                 | 3 (60.0)           | 207 (65.7)       |
|                          | yes         | 0 ( 0.0)         | 28 (40.0)              | 66 (36.3)                | 10 (21.7)                | 2 (20.0)                 | 2 (40.0)           | 108 (34.3)       |
| Dark Urine               |             |                  |                        |                          |                          |                          |                    |                  |
|                          | no          | 1 (50.0)         | 27 (38.6)              | 74 (40.7)                | 14 (30.4)                | 3 (30.0)                 | 1 (20.0)           | 120 (38.1)       |
|                          | yes         | 1 (50.0)         | 43 (61.4)              | 108 (59.3)               | 32 (69.6)                | 7 (70.0)                 | 4 (80.0)           | 195 (61.9)       |
| Nausea                   |             |                  |                        |                          |                          |                          |                    |                  |
|                          | no          | 2 (100.0)        | 23 (32.9)              | 45 (24.7)                | 10 (21.7)                | 2 (20.0)                 | 1 (20.0)           | 83 (26.3)        |
|                          | yes         | 0 ( 0.0)         | 47 (67.1)              | 137 (75.3)               | 36 (78.3)                | 8 (80.0)                 | 4 (80.0)           | 232 (73.7)       |
| Vomiting                 |             |                  |                        |                          |                          |                          |                    |                  |
|                          | no          | 1 (50.0)         | 18 (25.7)              | 48 (26.4)                | 8 (17.4)                 | 4 (40.0)                 | 2 (40.0)           | 81 (25.7)        |
|                          | yes         | 1 (50.0)         | 52 (74.3)              | 134 (73.6)               | 38 (82.6)                | 6 (60.0)                 | 3 (60.0)           | 234 (74.3)       |
| Fever                    |             |                  |                        |                          |                          |                          |                    |                  |
|                          | no          | 2 (100.0)        | 19 (27.1)              | 29 (15.9)                | 13 (28.3)                | 1 (10.0)                 | 0 ( 0.0)           | 64 (20.3)        |
|                          | yes         | 0 ( 0.0)         | 51 (72.9)              | 153 (84.1)               | 33 (71.7)                | 9 (90.0)                 | 5 (100.0)          | 251 (79.7)       |
| Anorexic                 |             |                  |                        |                          |                          |                          |                    |                  |
|                          | no          | 0 ( 0.0)         | 18 (25.7)              | 30 (16.5)                | 5 (10.9)                 | 2 (20.0)                 | 0 ( 0.0)           | 55 (17.5)        |
|                          | yes         | 2 (100.0)        | 52 (74.3)              | 152 (83.5)               | 41 (89.1)                | 8 (80.0)                 | 5 (100.0)          | 260 (82.5)       |

| Characteristic             | Category | ≤1 year<br>(n=2) | 1 - ≤5 years<br>(n=70) | 5 - ≤10 years<br>(n=182) | 14 - ≤18 years<br>(n=46) | 14 - ≤18 years<br>(n=10) | >18 years<br>(n=5) | Total<br>(n=315) |
|----------------------------|----------|------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------|------------------|
| Malaise                    | no       | 1 (50.0)         | 14 (20.0)              | 24 (13.2)                | 6 (13.0)                 | 1 (10.0)                 | 0 ( 0.0)           | 46 (14.6)        |
|                            | yes      | 1 (50.0)         | 56 (80.0)              | 158 (86.8)               | 40 (87.0)                | 9 (90.0)                 | 5 (100.0)          | 269 (85.4)       |
| <b>Laboratory findings</b> |          |                  |                        |                          |                          |                          |                    |                  |
| Liver enzymes GOT          | elevated | 2 (100.0)        | 61 (87.1)              | 164 (90.1)               | 42 (91.3)                | 8 (80.0)                 | 4 (80.0)           | 281 (89.2)       |
|                            | normal   | 0 ( 0.0)         | 9 (12.9)               | 18 ( 9.9)                | 4 ( 8.7)                 | 2 (20.0)                 | 1 (20.0)           | 34 (10.8)        |
| Liver enzymes GTP          | elevated | 2 (100.0)        | 62 (88.6)              | 168 (92.3)               | 44 (95.7)                | 9 (90.0)                 | 4 (80.0)           | 289 (91.7)       |
|                            | normal   | 0 ( 0.0)         | 8 (11.4)               | 14 ( 7.7)                | 2 ( 4.3)                 | 1 (10.0)                 | 1 (20.0)           | 26 ( 8.3)        |
| Total serum bilirubin      | elevated | 2 (100.0)        | 55 (78.6)              | 161 (88.5)               | 42 (91.3)                | 10 (100.0)               | 4 (80.0)           | 274 (87.0)       |
|                            | normal   | 0 ( 0.0)         | 15 (21.4)              | 21 (11.5)                | 4 ( 8.7)                 | 0 ( 0.0)                 | 1 (20.0)           | 41 (13.0)        |

**Table S2: Characteristics of study population for non-hepatitis A cases (n=242) by age, n (%)**

| Characteristic           | Category    | ≤1 year<br>(n=16) | 1 - ≤5 years<br>(n=47) | 5 - ≤10 years<br>(n=64) | 14 - ≤18 years<br>(n=32) | 14 - ≤18 years<br>(n=11) | >18 years<br>(n=72) | Total<br>(n=242) |
|--------------------------|-------------|-------------------|------------------------|-------------------------|--------------------------|--------------------------|---------------------|------------------|
| <b>Demographics</b>      |             |                   |                        |                         |                          |                          |                     |                  |
| Sex                      |             |                   |                        |                         |                          |                          |                     |                  |
|                          | female      | 9 (56.3)          | 22 (46.8)              | 30 (46.9)               | 14 (43.8)                | 3 (27.3)                 | 42 (58.3)           | 120 (49.6)       |
|                          | male        | 7 (43.8)          | 25 (53.2)              | 34 (53.1)               | 18 (56.3)                | 8 (72.7)                 | 30 (41.7)           | 122 (50.4)       |
| <b>Socioeconomic</b>     |             |                   |                        |                         |                          |                          |                     |                  |
| Housing                  |             |                   |                        |                         |                          |                          |                     |                  |
|                          | no crowding | 6 (37.5)          | 26 (55.3)              | 30 (46.9)               | 14 (43.8)                | 5 (45.5)                 | 54 (75.0)           | 135 (55.8)       |
|                          | crowding    | 10 (62.5)         | 21 (44.7)              | 34 (53.1)               | 18 (56.3)                | 6 (54.5)                 | 18 (25.0)           | 107 (44.2)       |
| Toilets                  |             |                   |                        |                         |                          |                          |                     |                  |
|                          | outside     | 6 (37.5)          | 23 (48.9)              | 34 (53.1)               | 9 (28.1)                 | 4 (36.4)                 | 23 (31.9)           | 99 (40.9)        |
|                          | inside      | 10 (62.5)         | 24 (51.1)              | 30 (46.9)               | 23 (71.9)                | 7 (63.6)                 | 49 (68.1)           | 143 (59.1)       |
| Water                    |             |                   |                        |                         |                          |                          |                     |                  |
|                          | outside     | 6 (37.5)          | 11 (23.4)              | 14 (21.9)               | 3 ( 9.4)                 | 1 ( 9.1)                 | 8 (11.1)            | 43 (17.8)        |
|                          | inside      | 10 (62.5)         | 36 (76.6)              | 50 (78.1)               | 29 (90.6)                | 10 (90.9)                | 64 (88.9)           | 199 (82.2)       |
| <b>Clinical features</b> |             |                   |                        |                         |                          |                          |                     |                  |
| Jaundice                 |             |                   |                        |                         |                          |                          |                     |                  |
|                          | no          | 2 (12.5)          | 9 (19.1)               | 13 (20.3)               | 3 ( 9.4)                 | 1 ( 9.1)                 | 20 (27.8)           | 48 (19.8)        |
|                          | yes         | 14 (87.5)         | 38 (80.9)              | 51 (79.7)               | 29 (90.6)                | 10 (90.9)                | 52 (72.2)           | 194 (80.2)       |
| Pale stool               |             |                   |                        |                         |                          |                          |                     |                  |
|                          | no          | 13 (81.3)         | 37 (78.7)              | 51 (79.7)               | 25 (78.1)                | 10 (90.9)                | 67 (93.1)           | 203 (83.9)       |
|                          | yes         | 3 (18.8)          | 10 (21.3)              | 13 (20.3)               | 7 (21.9)                 | 1 ( 9.1)                 | 5 ( 6.9)            | 39 (16.1)        |
| Dark Urine               |             |                   |                        |                         |                          |                          |                     |                  |
|                          | no          | 9 (56.3)          | 32 (68.1)              | 39 (60.9)               | 20 (62.5)                | 7 (63.6)                 | 55 (76.4)           | 162 (66.9)       |
|                          | yes         | 7 (43.8)          | 15 (31.9)              | 25 (39.1)               | 12 (37.5)                | 4 (36.4)                 | 17 (23.6)           | 80 (33.1)        |
| Nausea                   |             |                   |                        |                         |                          |                          |                     |                  |
|                          | no          | 12 (75.0)         | 21 (44.7)              | 24 (37.5)               | 8 (25.0)                 | 5 (45.5)                 | 28 (38.9)           | 98 (40.5)        |
|                          | yes         | 4 (25.0)          | 26 (55.3)              | 40 (62.5)               | 24 (75.0)                | 6 (54.5)                 | 44 (61.1)           | 144 (59.5)       |
| Vomiting                 |             |                   |                        |                         |                          |                          |                     |                  |
|                          | no          | 6 (37.5)          | 24 (51.1)              | 26 (40.6)               | 11 (34.4)                | 8 (72.7)                 | 52 (72.2)           | 127 (52.5)       |
|                          | yes         | 10 (62.5)         | 23 (48.9)              | 38 (59.4)               | 21 (65.6)                | 3 (27.3)                 | 20 (27.8)           | 115 (47.5)       |
| Fever                    |             |                   |                        |                         |                          |                          |                     |                  |
|                          | no          | 5 (31.3)          | 14 (29.8)              | 10 (15.6)               | 7 (21.9)                 | 2 (18.2)                 | 34 (47.2)           | 72 (29.8)        |
|                          | yes         | 11 (68.8)         | 33 (70.2)              | 54 (84.4)               | 25 (78.1)                | 9 (81.8)                 | 38 (52.8)           | 170 (70.2)       |
| Anorexic                 |             |                   |                        |                         |                          |                          |                     |                  |
|                          | no          | 6 (37.5)          | 12 (25.5)              | 11 (17.2)               | 3 ( 9.4)                 | 5 (45.5)                 | 31 (43.1)           | 68 (28.1)        |
|                          | yes         | 10 (62.5)         | 35 (74.5)              | 53 (82.8)               | 29 (90.6)                | 6 (54.5)                 | 41 (56.9)           | 174 (71.9)       |

| Characteristic             | Category | ≤1 year   | 1 - ≤5 years | 5 - ≤10 years | 14 - ≤18 years | 14 - ≤18 years | >18 years | Total      |
|----------------------------|----------|-----------|--------------|---------------|----------------|----------------|-----------|------------|
|                            |          | (n=16)    | (n=47)       | (n=64)        | (n=32)         | (n=11)         | (n=72)    | (n=242)    |
| Malaise                    | no       | 6 (37.5)  | 5 (10.6)     | 9 (14.1)      | 3 (9.4)        | 3 (27.3)       | 23 (31.9) | 49 (20.2)  |
|                            | yes      | 10 (62.5) | 42 (89.4)    | 55 (85.9)     | 29 (90.6)      | 8 (72.7)       | 49 (68.1) | 193 (79.8) |
| <b>Laboratory findings</b> |          |           |              |               |                |                |           |            |
| Liver enzymes GOT          | elevated | 10 (62.5) | 26 (55.3)    | 28 (43.8)     | 15 (46.9)      | 4 (36.4)       | 25 (34.7) | 108 (44.6) |
|                            | normal   | 6 (37.5)  | 21 (44.7)    | 36 (56.3)     | 17 (53.1)      | 7 (63.6)       | 47 (65.3) | 134 (55.4) |
| Liver enzymes GTP          | elevated | 9 (56.3)  | 23 (48.9)    | 22 (34.4)     | 11 (34.4)      | 2 (18.2)       | 26 (36.1) | 93 (38.4)  |
|                            | normal   | 7 (43.8)  | 24 (51.1)    | 42 (65.6)     | 21 (65.6)      | 9 (81.8)       | 46 (63.9) | 149 (61.6) |
| Total serum bilirubin      | elevated | 12 (75.0) | 24 (51.1)    | 28 (43.8)     | 17 (53.1)      | 7 (63.6)       | 30 (41.7) | 118 (48.8) |
|                            | normal   | 4 (25.0)  | 23 (48.9)    | 36 (56.3)     | 15 (46.9)      | 4 (36.4)       | 42 (58.3) | 124 (51.2) |