Methods. Patients were collected from a 2-year period in the Hospital Dr. Bernardo Sepúlveda in Nuevo Leon, Mexico. Inclusion criteria were patients >18 years of age, with positive tuberculosis tests, and sodium and serum glucose values upon admission. Clinical data from the electronic file were collected and analyzed by descriptive statistics; Student’s t-test and chi-square test were used to compare categorical variables, and Kaplan–Meier to estimate survival curves.

Results. There were 314 patients with suspected TB, 77 patients were included (Table 1).

Table 1. Patient characteristics.

| Characteristics               | Total N = 77 | Normal Sodium N = 23 | Hyponatremia N = 54 | P       |
|------------------------------|--------------|----------------------|---------------------|---------|
| Age, Mean (SD)               | 41.46 (16.22)| 41.25 (16.32)        | 41.44 (16.08)       |         |
| Sex                          |              |                      |                     |         |
| Female, %                    | 26 (33.7%)   | 8 (34.7%)            | 18 (33.3%)          | 0.90    |
| Infection                    |              |                      |                     |         |
| Pulmonary                    | 66 (85.7%)   | 20 (86.9%)           | 46 (85.18%)         | 0.63    |
| Pleural                      | 6 (7.7%)     | 2 (8.6%)             | 4 (7.4%)            |         |
| Meningeal                    | 3 (3.8%)     | 3 (5.5%)             |                     |         |
| Disseminated                 | 2 (2.5%)     | 1 (4.3%)             | 1 (1.8%)            |         |
| Serum sodium, mean (SD)      | 131.08 (6.1) |                      |                     |         |
| Comorbidities                |              |                      |                     |         |
| Diabetes                     | 26 (33.7%)   | 9 (39.1%)            | 17 (31.4%)          | 0.51    |
| Cirrhosis                    | 4 (5.1%)     | 4 (17.4%)            |                     | 0.18    |
| HIV                          | 14 (18.1%)   | 1 (4.3%)             | 13 (42.5%)          | 0.04    |
| Charlson Comorbidity Index, Mean (SD) | 2.05 (2.38) | 2.06 (2.38)         | 2.07 (2.39)         |         |
| Drugs                        |              |                      |                     |         |
| Diuretics                    | 3 (3.8%)     | 1 (4.3%)             | 2 (3.7%)            | 0.89    |
| ARV                          | 5 (6.4%)     | 2 (8.3%)             | 3 (5.7%)            | 0.25    |
| Hospitalized                 | 21 (27.4%)   | 22 (41.3%)           | 49 (90.7%)          |         |
| Survival, Mean (SD) Months   | 6.5 (7.15)   | 7.3 (30.4%)          | 21 (38.8%)          | 0.48    |

Panel A: Kaplan-Meier curves for survival by normal sodium status. Panel B: Kaplan-Meier curves for survival by hyponatremia status.

Mean follow-up was 6.5 ± 7.1 months. Overall mortality rate was 36.3%. Analysis of mortality is presented in Fig 2, and in severe hyponatremia in Figure 3.

Conclusion. Overall mortality was higher than previously reported, but there was no statistical association between hyponatremia and mortality compared with patients with normal sodium, or by severity. Within the limitations of this study, we must consider that 92% of patients were hospitalized patients at the time of diagnosis, implying that they were patients with complications and may be the reason why both mortality and the incidence of hyponatremia were higher.

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792. Number and Volume of Cavitary Lesions on Chest Computed Tomography Associated With Prolonged Time to Culture Conversion in Drug-Susceptible Pulmonary Tuberculosis

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Background. Cavitary lesions (CLs) may be a marker of poor treatment response in pulmonary tuberculosis (PTB). Identification of CLs by chest roentgenogram (CXR) has important limitations. Chest computed tomography (CT) is more sensitive than CXR to detect CLs but the clinical relevance of CLs identified by CT remains understudied. We compared detection of CLs between CT and CXR and assessed their association with time to sputum culture conversion (tSCC). We hypothesized that increasing number and volume of CLs on CT would be associated with prolonged tSCC.

Methods. Retrospective cohort study of 141 culture confirmed PTB patients who underwent chest CT. We used multivariate Cox proportional hazards models to evaluate the association between chest radiological features and tSCC.

Results. Seventy-five (53%) patients had one or more CLs on CT. CT identified cavities in 31% of patients without a CL on CXR. Detection of cavity on CT was associated with an increased median [IQR] time to culture conversion (15 [7–35] days among non-cavitary CT vs. 39 [25–55] days among cavitary CT, P < 0.0001). Among patients without CL on CXR, detection of CL on CT was associated with prolonged tSCC (median difference: 16 [7–25] days, P = 0.0008). Similar results were observed among patients with 3–4+ sputum smear (median difference: 19.5 [8–31] days, P = 0.001). Adjusted Kaplan–Meier curves of number and volume of CLs and tSCC are shown in Figure 1. After confounder adjustment patients with single and multiple CL had a prolonged tSCC relative to patients without CLs on CT (adjusted Hazard Ratio [aHR] 0.56 (0.32–0.97) and 0.31 (0.16–0.60), respectively). Similarly, patients with CL volume 25 mL or more had a prolonged tSCC (aHR 0.39 (0.21–0.72)). CXR CL was not associated with prolonged tSCC.

Conclusion. We observed a dose–response relationship between increasing number and volume of CLs on CT and delayed tSCC independent of sputum bacillary load. Our findings highlight a role for CT in a clinical research setting to predict shorter time to culture conversion.

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793. Diagnostic Accuracy of Single vs. Multiple Gene Xpert for Discontinuation of Airborne Infection Isolation in Suspected Pulmonary Tuberculosis Patients at a US Safety-Net Hospital

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Background. Patients suspected to have pulmonary tuberculosis (PTB) undergo serial sputum analysis under airborne infection isolation (AII). The US FDA approved the Cepheid GeneXpert-MTB-Rif to support removing patients from AII. The FDA requires that “either one or two” separate sputum specimens be examined. To clarify this statement, the National Tuberculosis Controllers’ Association and the Association of Public Health Laboratories published guidelines that recommend that two sputum specimens be used and recommend that each institution examine their own data to determine whether one specimen is sufficient. Most patients in low prevalence settings do not have PTB yet are tested several times; an optimal testing strategy will reduce unnecessary isolation and related expenses. We sought to determine the diagnostic accuracy of a single vs. two sputum samples for Xpert MTB/RIF in discharging suspected PTB patients from AII.

Methods. Retrospective review of patients admitted between September 2016 to January 2018 was undertaken to identify sensitivity, specificity, positive and negative predictive values, for MTB gene Xpert in comparison to Mycobacterial culture as the gold standard. We further analyzed whether a larger number of such tests improved diagnostic yield for PTB.

Results. One hundred seventy-one patients, 17.5% of whom were HIV+, mostly of non-US origins (64%); provided 312 samples for Xpert MTB/RIF, of which 26 were Xpert-positive. These 26 samples came from 15 patients, 14 of whom were diagnosed using the first sample tested with Xpert MTB/RIF. Sensitivity and specificity of the first sample compared to Xpert MTB/RIF were more than those for the first two samples considered together or for all tested samples. Of these 15 positive cases, 13 were confirmed on sputum culture; 10 were positive from the first, one from the second, and two from the third sputum samples cultured.

794. Infectivity of Sputum-Positive Pulmonary TB After 2 Weeks of Rifampicin-based Anti-Tuberculosis Therapy

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Background. Pulmonary tuberculosis (TB) remains one of the leading infectious causes of morbidity and mortality worldwide. Most data showed that infectuousness of pulmonary TB diminishes rapidly after 2 weeks of effective anti-tuberculosis therapy and the bacilli seen in the smear after 2 weeks are most likely nonviable. We aim to assess this hypothesis by doing sputum culture after 2 weeks of therapy to assess the viability of the bacilli in the smear.

Methods. A prospective cohort study was conducted on patients admitted to Communicable Disease Centre (CDC), Qatar with smear positive pulmonary tuberculosus during the period November 2013–November 2014. We repeated sputum smear and culture after 2 weeks of rifampicin based regimen to assess the infectivity. Demographic and clinical characteristics of patients was evaluated and compared with smear and culture conversion rate.

Results. Ninety-five cases were included in the study. All had sputum smear and culture after 2 weeks of supervised rifampicin based therapy (Table 1). Sputum culture at two weeks of treatment was positive in 91 cases (95.7%) and only four cases were culture negative after 2 weeks. Demographic and clinical characteristics were compared with the culture status after 2 weeks, found Patient from Indian subcontinent and symptoms duration more than 1 month are less likely to clear infection after 2 weeks with P-value 0.01 and 0.009, respectively (Table 2).

The calculated mean for sputum smear and culture conversion rate was 4 and 8 weeks, respectively. The presence of cough and the duration of symptoms were associated significantly with rapid sputum conversion (P < 0.05); however, the presence of cavity on CXR had no statistical significant effect (Table 3).