**supplementary 1 Detailed standard operating procedure for D-Xylose breath test**

* Patients instructed to be fasting from 2400 h of the day prior to testing. The technician is to set up seven scintillation flasks, with one labeled “Blank,” two labeled “Background,” two labeled “Standards,” and the one each labeled “Basal,” “30 min,” and “60 min.” For patients with a documented or suspected history of delayed gastric emptying, an additional sample was collected and labeled accordingly as “180 min.”
* Leaving the “Blank” flask empty, the technician used a pipette to place 4 ml of 0.5 mol/L Hyamine Hydroxide (ICN Radiochemicals, Irvine, CA) into the other six flasks.
* One drop of phenophthaline (JT Baker Chemical Co., Phillipsburg, NJ) was then added to the “test” vials (baseline, 30 min, 60 min, *etc.*).
* The patient exhaled into a straw placed into each flask through pursed lips removing lips after each exhalation. Patients were instructed to continue exhaling into the solution until its color changed from pink to clear. The technician inserted the tip of the Pasteur pipette into the Hyamine Hydroxide solution.
* Lab technicians recorded starting and finishing times of each collection to the second.
* After collection of the basal sample, the patient received 250 ml of water, to which 1 g D-Xylose and 10 uCi 14C D-Xylose (Amersham Biosciences, Arlington Heights, IL) had been added and subsequently thoroughly mixed.
* Thirty minutes after this 14C D-Xylose solution was ingested, the technician collected the 30-min sample, followed by all subsequent collections at appropriate time points.
* Immediately after collection of all samples, the technician added 16 ml The technician will add of a PCS solution to each flask and 1ml of PCS in the background flasks.
* To complete, the technician added 10 μl of a lilodilution 14C D-Xylose solution to each sample (containing 0.1 uCi) and then 16ml of PCS (1.0 uCi or 2.2 x 106 DPM).
* Bacterial counts from the sample flasks were assessed on a Scintillation counter along with counts from baseline flasks (Standard-baseline @1.9 x 106 CPM; 1.0 uCi = 2.2 x 106 DPM).