Respiratory viral infections have increased rapidly over the last few weeks. The Microbiology laboratory at Saint Luke’s Hospital performed more than 100 rapid flu tests between November 24 and December 5. Approximately 40% of the test results were positive. All of the influenza virus detected has been Type A.

Saint Luke’s Regional Laboratories offers influenza testing by rapid antigen detection and conventional virus culture. The rapid flu test differentiates between types A and B. Sensitivity is reported to be 88-96%, with the best performance obtained from nasopharyngeal (NP) washes or aspirates. The optimal NP wash volume is 2-3 mL, as larger volumes may decrease test sensitivity. Nasopharyngeal swabs should be submitted in viral transport media or saline. Swabs with wooden shafts, calcium alginate, or cotton tips may interfere with results and should not be used. Viral culture can be performed subsequently on the same sample, if requested. NP swabs with transport containers may be obtained from Microbiology, 932-2435. Results are reported within 4 hours, and testing is available 24 hours daily.

New Screening Test For Platelet Dysfunction and Von Willebrand Disease

Starting on December 15, 2003, Saint Luke’s Regional Laboratories will offer a new test for initial evaluation of platelet function, which is known as platelet function screen or PFA-100®. The test is an in vitro system capable of detecting platelet dysfunction in a citrated whole blood sample under high shear flow conditions. The blood sample is made to flow through an aperture in a membrane coated with either collagen and epinephrine (COL/EPI) or collagen and ADP (COL/ADP). The time taken for blood to form a platelet plug that occludes the aperture is called the closure time and is an indication of platelet function. The system is able to detect defects in platelet adhesion, platelet aggregation, and von Willebrand factor, and is thus highly sensitive to inherited and acquired defects in platelet function, as well as von Willebrand disease (vWD). Sensitivity for diagnosis of vWD has varied from 88% to 100% in different studies; the only subtypes of vWD not detected have included occasional cases of Type 1 and the rare Type 2N.

The new platelet function screen has been shown to be significantly more sensitive and specific than the bleeding time in detection of platelet function disorders and vWD. The bleeding time was discontinued by Saint Luke’s Regional Laboratories in June 2003 due to its poor reproducibility and unreliability. The platelet function screen correlates well with platelet aggregation studies, and is more sensitive than platelet aggregation in detection of vWD and inherited platelet function defects (96% versus 80% sensitivity for diagnosis of inherited defects).

Normal ranges for closure times with COL/EPI and COL/ADP are 80-192 and 60-112 seconds respectively.

- Normal closure times with both COL/EPI and COL/ADP indicate normal platelet function.
- A prolonged closure time with COL/EPI and normal result with COL/ADP is characteristic of platelet dysfunction secondary to aspirin or aspirin-like drugs. This pattern may also be found in mild hereditary platelet function disorders such as storage pool disease, and in occasional cases of mild type 1 vWD. Use of platelet-inhibitory drugs should be ruled out in these cases prior to further laboratory testing.
- Prolonged closure times with both COL/EPI and COL/ADP are typical of either vWD or significant hereditary platelet function disorders, warranting further laboratory investigation including a vWD panel (ristocetin cofactor, von Willebrand factor antigen, factor VIII and platelet aggregation).

It is important to keep in mind that the new test is not appropriate for random pre-operative or other screening; its use should be restricted to those patients with a history suggestive of hereditary or acquired platelet dysfunction, or vWD. The algorithm below delineates the recommended
approach to the laboratory investigation of such patients.

### Improved HCV Viral Load

The initial test for hepatitis C (HCV) infection is an immunoassay that detects antibodies to multiple HCV proteins. Supplemental or confirmatory testing is recommended for all reactive HCV antibody tests to determine the presence of active infection. Detection of HCV RNA in the blood is indicative of active infection. Currently, there are two types of PCR assays that detect HCV RNA; qualitative and quantitative. Qualitative PCR has a lower limit of detection of 50 IU/mL and is used both as a confirmatory test for anti-HCV and as an end-of-therapy assay. Quantitative HCV PCR is the preferred test for evaluation prior to therapy, along with HCV genotype.

Beginning December 1, Saint Luke’s Regional Laboratories began using an improved real time PCR method for quantitative HCV, which allows for reduction of the lower limit of detection to 20 IU/mL, from the previous 600 IU/mL. This lower limit of detection obviates the need for qualitative PCR. The new method is also linear up to 200 million IU/mL in the upper range.

The specimen requirement for HCV RNA by PCR is one EDTA, ACD, or SST tube of blood. Tubes containing heparin cannot be used. Serum needs to be separated from cells within 6 hours of collection and refrigerated or frozen to avoid degradation of viral RNA. HCV PCR can usually be performed on residual specimen from anti-HCV testing. Client services can be contacted at 932-3850 to add an order for HCV RNA by PCR.

### Elimination of Weak D testing

Historically, if a patient typed as Rh negative, additional testing was then performed to determine if they had Rh D\(^+\) or weak D expression. In the past several years, weak D testing has been eliminated for all patients except obstetric patients.

Recently, the American Association of Blood Banks has determined that weak D testing is no longer necessary for obstetric patients. The main reason is that today’s blood typing reagents are much more potent and most of the patients who were previously typed as weak D are now typed as Rh positive.

Saint Luke’s Regional Laboratories has recently discontinued weak D testing. All women are now typed as either Rh negative or positive. The clinical implication of this change is that a few women who actually have weak expression of the D antigen will now be classified as Rh negative and will be candidates for Rh immune globulin. Giving Rh immune globulin to these women is not harmful.

### What is a normal TSH?

During the past 20 years, the upper reference limit for TSH has steadily declined from ~10 to 5.5 mIU/mL because of improvements in TSH assays and the enhanced sensitivity of thyroid antibody tests used to pre-screen subjects for reference range determinations.

More than 95% of rigorously screened euthyroid volunteers have TSH values between 0.4 and 2.5. Individuals with a TSH >2.0 have an increased odds ratio of developing hypothyroidism. In the future, it is likely that the upper limit of the normal range will be reduced to 2.5.