Improved implementation of the Enhanced 18-Month Well-Baby Assessment:

Kingston area primary care – public health partnership advances developmental health and well-being of children

by Veronica Catry, BSc (Hons Kin), MPH Candidate; Diane Dowling, RN, PHN, BNSc; Connie Wowk, RN, BNSc, MPA; Diane Batchelor, RN(EC), MScN, NP-PHC, CON(C); Danyal Martin, BAH, BEd, MA, MSc Candidate, Clinical Program Co-ordinator; Karen Hall Barber, BSc (Hons), MD, CCFP; Kieran Moore, MD, CCFP(EM), FCFP, MPH, DTM&H, FRCP; Kingston, Frontenac and Lennox & Addington Public Health

COLLABORATION BETWEEN PRIMARY CARE PRACTICE AND PUBLIC HEALTH IS IMPORTANT TO IMPROVE THE POPULATION’S HEALTH. TO FOSTER AN ENVIRONMENT FOCUSED ON ENHANCING THE DEVELOPMENTAL HEALTH AND WELL-BEING OF CHILDREN, A UNIQUE PARTNERSHIP OCCURRED BETWEEN QUEEN’S FAMILY HEALTH TEAM AND KINGSTON, FRONTENAC AND LENNOX & ADDINGTON PUBLIC HEALTH WITH THE ENHANCED 18-MONTH WELL-BABY ASSESSMENT AS THE FOCUS.

The 18-Month Well-Baby Assessment is a pivotal visit in a sequence of scheduled primary care provider contacts prior to school entry. It is recognized as a critical point to continue the publicly funded immunization schedule, assess the health of young children, and to build strong partnerships between primary care practitioners, parents, and community services.

The focus of the universal 18-Month Well-Baby Assessment was shifted toward an advanced assessment of developmental progress after extensive evidence and reports, such as the 2005 Report of the Expert Panel on the 18-month Well-Baby Visit, supported doing so.1 In October 2009, designated fee codes (GP/FP-A002; Pediatrics-A268) for the Enhanced 18-Month Well-Baby Assessment were introduced to the OHIP Schedule of Benefits by the Ontario Ministry of Health and Long-Term Care, as a joint effort of multiple partners.2 Such fee codes were created to reflect the increased time needed to complete the visit, thus providing an added incentive to conduct the appointment.

The newly modified Enhanced 18-Month Well-Baby Assessment instituted standardized tools to initiate discussions between parents and health-care professionals regarding healthy child development, parenting, local community programs and services, and early literacy promotion.3

As a result of reviewing the Ontario Medical Review featured article published in 2010 regarding the province-wide implementation of the Enhanced 18-Month Well-Baby Assessment, and the Institute for Clinical Evaluative Sciences preliminary evaluation report of the uptake of the new fee code for the Enhanced 18-Month Well-Baby Assessment in Ontario’s Local Health Integration Networks published in 2011, Kingston, Frontenac and Lennox & Addington (KFL&A) Public Health became concerned with the implementation rates of this fundamental visit in the KFL&A jurisdiction.2,3

The purpose of the pilot project was to conduct a practice-wide intervention to serve as the necessary catalyst to increase and sustain the implementation rates of the 18-Month Well-Baby Assessment and routine 18-month vaccinations within QFHT (see Appendix A, p. 33).

The Pre-Implementation Audit Of Queen’s Family Health Team

In June 2010, to begin the continuous quality improvement initiative, nurse practitioners at QFHT conducted an electronic medical record and paper chart formative audit of the practice to evaluate the utilization of the 18-Month Well-Baby Assessment. The Open Source Clinical Application Resource
Ontario Medical Review with KFL&A Public Health and regional learn in-house education sessions were provided to staff via lunch-and-alms and procedures. Regarding anticipatory guidance materi- and important implications for physicians that were unique to the 18-Month Well-Baby Assessment. Interdisciplinary teaching opportunities were used to further QFHT staff comprehension by incorporating teaching moments into clinical assessments.

The educational processes also integrated the clerical staff. Specialized information sessions, as well as professional development assemblies, fostered an empowering atmosphere for the clerical teams to gain knowledge and apply software system skills to clinical booking and identification processes. As the direct contact to the patient, receptionists are the keystone to a successful intervention. Clerical teams were fundamental to the inter-vention program as they assisted and advised parents to be present for the 18-Month Well-Baby Visit.

- Clinical processes
Upon arrival to the 18-Month Well-Baby Assessment appointment, reception provided parents with the Nipissing District Developmental Screen (NDDS*) and the Modified Checklist for Autism in Toddlers (M-CHAT*). Parents self-assessed the child while in the waiting room to give maximum value to the time spent with a primary care practitioner. Following this, the child and family were seen by the health-care professional and assessed with the 2009 Rourke Baby Record (RBR). Afterwards, the primary care practitioner reviewed the NDDS and M-CHAT with the family, identifying and discussing any concerns of both parties. Concerns resulted in either early follow-up appointments or referrals to a general pediatrician or community agencies.

Referrals were made according to the Kingston 18-Month Enhanced Well-Baby Visit Referral Pathway (see Appendix B, pp. 34-35), a local-level resource created by the 18-Month Well-Baby Working Group to extend the use of the generic Ontario template located on the back of Guide IV of the Ontario RBR. The Referral Pathway provides health-care professionals with an easily accessible reminder of the services available in the KFL&A region.

The appointments concluded after vaccinations, documentation, billing information and tracking tools were comprehensively completed. As an academic family medicine centre, the 18-Month Well-Baby Assessments at

**Enhanced 18-Month Well-Baby Visit**

(OSCAR) electronic medical record software was used to create a customized query to determine the total number of children born from July 1, 2006 to November 30, 2008. The query identified 410 eligible patient records of children born within the aforementioned time period. Random sampling selected 99 patient medical charts of children to review for the cross-sectional audit.

OSCAR software was used to create queries regarding the number of children within this age group that did not receive an 18-Month Well-Baby Assessment, as well as the number of children who did not receive the routine 18-month immunizations.

Hand searching paper patient charts also occurred to ensure the accuracy of uptake rates, as customized electronic forms did not exist for the appointment. Such queries identified 18 (18%) children missing 18-Month Well-Baby Assessments, and 32 (32%) children missing the routine 18-month immunizations.

**The Intervention**
The continuous quality improvement procedure led to a practice-wide intervention at QFHT to improve the implementation rates of the 18-Month Well-Baby Assessment. Resident and staff education, innovative clinical booking and identification processes, specialized clinical practices, as well as implementation of tracking tools were the foundational standards for the intervention.

- **Education**

Teaching the importance and fundamental components of the 18-Month Well-Baby Assessment were among the first actions of the intervention program to refresh staff knowledge of this primary care visit. Learning objectives included sharing expert knowledge of the 18-Month Well-Baby Assessment, teaching the importance of specialized clinical tools, as well as providing information to primary care providers regarding anticipatory guidance materials and procedures.

Educational materials and resources were provided to staff via lunch-and-learn in-house education sessions with KFL&A Public Health and regional partners. A grand rounds teaching session, conducted by Dr. Jean Clinton, the Faculty Lead for Primary Care Education of the Enhanced 18-Month Well-Baby Visit, introduced primary care practitioners to the evidence-based key initiative components and important implications for physicians that were unique to the 18-Month Well-Baby Assessment. Interdisciplinary teaching opportunities were used to further QFHT staff comprehension by incorporating teaching moments into clinical assessments.

The educational processes also integrated the clerical staff. Specialized information sessions, as well as professional development assemblies, fostered an empowering atmosphere for the clerical teams to gain knowledge and apply software system skills to clinical booking and identification processes. As the direct contact to the patient, receptionists are the keystone to a successful intervention. Clerical teams were fundamental to the intervention program as they assisted and advised parents to be present for the 18-Month Well-Baby Visit.

- **Clinical booking and identification**

The educational piece facilitated clerical queries conducted at the beginning of every month to identify eligible children for the 18-Month Well-Baby Assessment. The receptionists contacted the parents of eligible children and timely booked appointments.

During a situation in which an 18-Month Well-Baby Assessment or the 18-month immunizations were cancelled or missed, clerical skills also allowed for frequent patient record updates to alert all QFHT staff.

In-chart reminders within the OSCAR software system, called ticklers, served as the most effective prompts within patient electronic medical records, as they were accessible to all staff. Reception would identify the need to reschedule the 18-Month Well-Baby Assessment and vaccinations in the ticklers, with the intention that any treating staff would be notified and thus assist in rebooking the health check when the patient returned to QFHT for another matter.

Booking the time-sensitive 18-Month Well-Baby Assessments was made easier by the specialized clinics held by nurse practitioners. During such clinics, individual 18-Month Well-Baby Assessments were scheduled for one-hour appointments with nurse practitioners and medical residents simultaneously, to ensure the education component of the assessment took place. In addition to the specialized clinic hours, 18-Month Well-Baby Assessments were also booked within regular clinical time slots. QFHT experimented with evening visits as well, so as to assist patients with the provision of flexible clinic hours.

- **Clinical processes**

Upon arrival to the 18-Month Well-Baby Assessment appointment, reception provided parents with the Nipissing District Developmental Screen (NDDS*) and the Modified Checklist for Autism in Toddlers (M-CHAT*). Parents self-assessed the child while in the waiting room to give maximum value to the time spent with a primary care practitioner. Following this, the child and family were seen by the health-care professional and assessed with the 2009 Rourke Baby Record (RBR). Afterwards, the primary care practitioner reviewed the NDDS and M-CHAT with the family, identifying and discussing any concerns of both parties. Concerns resulted in either early follow-up appointments or referrals to a general pediatrician or community agencies.

Referrals were made according to the Kingston 18-Month Enhanced Well-Baby Visit Referral Pathway (see Appendix B, pp. 34-35), a local-level resource created by the 18-Month Well-Baby Working Group to extend the use of the generic Ontario template located on the back of Guide IV of the Ontario RBR. The Referral Pathway provides health-care professionals with an easily accessible reminder of the services available in the KFL&A region.

The appointments concluded after vaccinations, documentation, billing information and tracking tools were comprehensively completed. As an academic family medicine centre, the 18-Month Well-Baby Assessments at
QFHT were most frequently conducted by a nurse practitioner or a registered nurse with a resident for educational purposes. Consequently, the 18-Month Well-Baby Assessment fee codes could be utilized, as each resident was linked to a practicing physician.

- **Tracking tools**
  As a mechanism to more effectively track children’s contact with primary care and ensure the pivotal assessments were being completed, QFHT developed an electronic form for the 18-Month Well-Baby Visit during the continuous quality improvement intervention. The two-page form was embedded within the patient electronic medical records, serving as a checklist, to make certain all the appropriate measures were taken during the appointment.

  The use of electronic forms is not only beneficial for quality assurance among primary care practitioners, but also advantageous for querying data regarding the incorporation of appointments, such as the 18-Month Well-Baby Assessment, in practice. Despite the advantages related to electronic forms, completion of such forms by the primary care practitioner is necessary for the accuracy of data queries, and is therefore a related challenge. Double charting is also a limitation associated with the electronic forms as they contain similar information to the NDDS, RBR and M-CHAT assessments. Nonetheless, the electronic forms for the 18-Month Well-Baby Assessment were implemented universally across the QFHT practice.

**The Post-Implementation Audit of QFHT**

In July 2010, the post-implementation audit of QFHT utilized a comprehensive review to conduct a process evaluation of the continuous quality improvement initiative. First, an OSCAR query to identify children in the practice born between December 1, 2008 and November 30, 2009 was employed. Other methods used for the evaluation of the 18-Month Well-Baby Assessment uptake rates included paper chart auditing, as well as analysis of data from the 18-Month Well-Baby Assessment electronic forms, the RBR, and the vaccine module.

The search identified 258 patient medical charts of children, of which 164 (63%) were eligible for review. The cross-sectional evaluation of eligible children indicated an improvement in uptake of the 18-Month Well-Baby Assessment, as well as improved implementation rates of the routine 18-month immunizations.

In total, only 7 (4%) 18-Month Well-Baby Assessments were not completed, and 13 (7%) children did not receive the scheduled vaccinations associated with the 18-Month Well-Baby Visit.

The review also employed phone and electronic surveys for patients and primary care providers, as well as residents. Patients and providers alike agreed that flexibility of clinical hours assisted in arranging successful appointments, implying successful intervention methods. Residents and primary care providers requested further education concerning the 18-Month Well-Baby Assessment, especially with regards to the anticipatory guidance with parents and developmental milestones recorded on the NDDS.

**The Primary Care – Public Health Partnership**

The recommendations of the Commission on the Reform of Ontario’s Public Services encourage the integration of the public health system into primary care models to improve the health-care system via quality of care and efficiency. Together, QFHT and KFL&A Public Health identified the quality improvement methodology that led to the significantly successful intervention, to disseminate and replicate within other KFL&A FHTs and CHCs.

By way of planning an intervention program, implementing the program, analyzing the results and acting upon the outcomes, QFHT has become a standard for quality improvement practices, and the benchmark practice for the continuation of the 18-Month Well-Baby Assessment auditing project among other KFL&A FHTs and CHCs.

Applying the QFHT methodology allows for evaluation of the implementation rates of the newly introduced Enhanced 18-Month Well-Baby Assessment through longitudinal audits of relevant billing codes, patient charts and practices over time.

Given the success of the QFHT intervention and the favourable outcomes,
KFL&A Public Health will use the post-implementation 18-Month Well-Baby Assessment rates as a benchmark for other KFL&A primary care models to attain throughout respective practice audits.

Given the high prevalence of 18-Month Well-Baby Assessments conducted by nurse practitioners, limitations toward capturing the correct service delivery rates exist during billing code audits. KFL&A Public Health will bring a distinctive skill-set to the collaborative project, facilitating an empowering, formative evaluation process for FHTs and CHCs to prevent challenges related to the incorporation of patient chart audits and electronic forms into the audit.

KFL&A Public Health is prepared to assist practices with the creation of electronic tracking forms, educational sessions, practice detailing and resource provision. With the supportive resources supplied by public health, primary care practices can accurately measure and improve the implementation rates of the Enhanced 18-Month Well-Baby Assessment within individual practices for quality assurance purposes.

KFL&A Public Health will also apply an innovative determinants of health lens to the service delivery data of the Enhanced 18-Month Well-Baby Assessment. Application of patient postal code data to implementation rates will quantify service delivery of the enhanced assessment by neighbourhood income quintiles to measure the equity of service coverage.

Furthermore, to determine if this early developmental assessment process has a long-term positive effect in aiding children with school preparation, KFL&A Public Health will relate the Early Development Instrument group scores to the neighbourhood patient record results of the Enhanced 18-Month Well-Baby audit.

The Early Development Instrument is a population-based measurement tool carried out by kindergarten teachers to assess children’s readiness to learn as a group and reported at the community-level.7

Longitudinal research such as this not only acts as supportive evidence for the essential Enhanced 18-Month Well-Baby Assessment, but also helps put into place programs and policies that support healthy child development for all families within unique communities.7

Conclusion
As KFL&A Public Health is committed to providing public health programs and services of the highest quality to all KFL&A residents, ensuring the equity of service delivery of the Enhanced 18-Month Well-Baby Assessment and the 18-month routine immunizations is of utmost importance to make certain that all children are being offered important contacts with primary health care (see Appendix C, above).

As the collaborative skill-set generated during this joint venture is applicable to other continuous quality improvement initiatives, it will facilitate future collaboration between primary care and public health. The novel partnership, combined with the longitudinal audit processes, will support improvements in the incorporation of this Enhanced Well-Baby Assessment into primary health care for FHT and CHC quality assurance and population health benefit.■

Appendix C: Lessons Learned
- Implementation rates of the 18-Month Well-Baby Assessment and the routine 18-month vaccinations were unnecessarily low in KFL&A region.
- Primary care practitioners benefit from educational materials and resources provided by public health agencies.
- Benefits to research and primary care quality assurance are associated with the use of electronic medical records and electronic tracking forms.
- Clerical responsibilities alleviate administrative duties of primary care providers so that they may focus on quality of care.
- Administrative teams are imperative to the success of this intervention involving monthly OSGAR queries.
- Public health can empower primary care practices through provision of educational and supportive materials.
- QFHT continuous quality improvement methodology is applicable to multiple intervention designs within primary care models.
- Public health integration into primary care improves quality of care and thus improves community health.
- Subsequent audits of primary care models will measure equitability of service delivery.

References
Appendix A: QFHT Methodology

QFHT as a standard for quality improvement practices

Areas of Concern
- 18-Month Well-Baby Assessment implementation rates
- Routine 18-month immunization uptake rates

Pre-Implementation Audit
- OSCAR electronic medical record queries and hand searching paper patient charts

Intervention

Education
- Interdisciplinary teaching
- Learning materials
- Staff education
  - Administrative
  - Clinical

Clinical booking and identification
- Monthly queries identify eligible children
- In-chart reminders
- Specialized clinics

Clinical processes
- NDDS and M-CHAT completed by parents
- RBR completed by health-care professional
- Anticipatory guidance
- Concerns discussed
- Referrals made based on Kingston 18-Month Enhanced Well-Baby Visit Referral Pathway

Tracking tools
- Customized electronic forms

Post-Implementation Audit
- OSCAR electronic medical record queries
- Satisfaction surveys
Appendix B: 18-Month Enhanced Well-Baby Visit Referral Pathway

18 Month Enhanced Well Baby Visit - Kingston

Concerns ◄ No Concerns (All Children)

If there are > = 1 “no’s” on the Nipissing and/or a concern from Rourke

Referral Needed
Agencies listed below are point of first contact for clients. These agencies may also make appropriate referrals.

Consider Referral to General Pediatrician
1: Follow up care.
2: Care Coordinator.
3: Multiple Concerns.
4: Medical Concerns.

Physical, Neurological/Developmental Concerns

Child Development Centre (CDC) 613-544-3400 ext. 3175
www.kingstoncdc.ca (referral form)
Fax: 613-545-3557

Dental

KFL&A Public Health, Dental Program
613-549-1232 or 1-800-267-7875 ext. 1218

Frontenac Children’s Aids Society
613-542-7351 (TR) (SR)

Kingston Interval House
613-546-1777 (TR) (SR)

Vision

Pediatric Ophthalmologist
Hotel Dieu Hospital
613-544-0380 (FR)
Fax: 613-549-1799 (FR) (SR) (TR)

Nutrition

Family Health Team Dietitian
KFL&A Public Health, Dial-a-Dietitian
613-549-1232 ext. 1224

Parenting

Family Health Team Dietitian
KFL&A Public Health, Dial-a-Dietitian
613-549-1232 ext. 1224

Autism

Child Development Centre (CDC)
613-544-3400 ext. 3175

M-CHAT
If M-CHAT is abnormal, use the M-CHAT follow up interview.
See protocol here: http://www2.gsu.edu/~psydlr/Diana_L._Robins,_Ph.D.html

Social, Emotional, Behavioural

Pathways for Children & Youth
613-546-1422 ext. 1 (SR) (TR) (FR)

Lost telephone interview

Speech, Language, Speech, Language, Hearing

Early Expressions
613-546-3854 or 1-800-267-7875 ext. 1184
Fax: 613-549-1500 (SR) (TR) (FR)

Infant Hearing
613-549-1232 ext. 1145 or 1-800-267-7875 ext. 1145
Fax: 613-549-1799 (SR) (TR) (FR)

Pathways for Children & Youth
613-546-1422 ext. 1 (SR) (TR) (FR)

Wondering where to refer?
Call KFL&A Child & Babytalk Phone Line
613-549-1154 or 1-800-267-7875 ext. 1555

Hotel Dieu AudioLOGY
613-546-3382 Fax: 613-544-5280 (FR)

Adapted from Niagara Regional Public Health Department
Distributed by KFL&A Children and Youth Services Steering Committee

Recommended Community Resources for Parents and Children:

- Ontario Early Years Centre
  613-384-1231
- Child & Babytalk Phone Line,
  KFL&A Public Health 613-549-1154 or 1-800-267-7875, ext. 1555
- Katarokwi Native Friendship Centre 613-548-1500
- Kingston Military Family Resource Centre 613-541-5010, ext. 5195
- Better Beginnings for Kingston 613-542-2835 (catchment area North Kingston)
- Early Literacy Specialist 613-546-9355

Legend:
TR - Telephone Referral (with parental consent)
FR - Fax Referral (with parental consent)
SR - Self Referral

Book a follow up at 24 months of age with a health care professional

October 2010
### Appendix B: 18-Month Enhanced Well-Baby Visit Referral Pathway

<table>
<thead>
<tr>
<th>Service Provider Resource</th>
<th>Description</th>
<th>Contact Information</th>
</tr>
</thead>
</table>
| **Child Development Centre (CDC)**            | Team diagnostic assessment and/or treatment for children and youth (0-19) years with physical or neurological disabilities and preschoolers with developmental delays. The Infant Development Program provides in-home developmental monitoring and support to 0-5 year olds who experience or are at risk of developmental delay. | P: 613-544-3400, ext. 3175  
F: 613-544-3557                                                                             |
| **Early Expressions Preschool Speech and Language Services** | Single point of access for referrals to preschool speech and language system, from birth to 4 years. Please inform of any other relevant referrals that have been made (e.g. CDC, Pathways, Infant Development, Audiology, etc.). | P: 613-544-3854, or 1-800-267-7875, ext. 1184  
F: 613-544-1799                                                                           |
| **Food For You Food For Two**                 | Drop-in centres in rural areas (Napanee & Amherstview) offer free groceries, prenatal vitamins, information and support from a dietitian and public health nurse. Open to pregnant women or mothers with babies up to 6 months of age in the geographical area. | P: 613-354-3357                                                                 |
| **Frontenac Children’s Aid Society**          | Administers the Child & Family Services Act. Assesses allegations of child neglect and abuse, offers alternate care to children when necessary, provides guidance, counselling and services to parents | P: 613-542-7251                                                                         |
| **Hotel Dieu Audiology**                      | Program offered to infants, children and adults. The program provides audiological services for the Infant Hearing Program for the Southeastern Ontario region. For extreme concerns, make urgent. | P: 613-546-3382, 613-544-5280                                                         |
| **Infant Hearing Program**                    | This program is designed to identify babies who are born deaf or hard of hearing, or are at risk for developing hearing loss in early childhood and provides them and their families with the support and services they need, including family support, audiology, and communication development services. | P: 613-549-1222, ext. 1145 or 1-800-267-7875, ext. 1145                              |
| **KFL&A Public Health’s Dental Program**      | The Children in Need of Treatment (CINOT) program pays for essential and urgent dental care for children aged 17 years and under from low-income families who do not have dental insurance. The intent of this program is to ensure that no child goes without essential/emergency dental care as a result of an inability to pay for dental services. | P: 613-549-1232, ext. 1218, or 1-800-267-7875, ext. 1218                             |
| **KFL&A Public Health’s Dial-a-Dietitian (DaD)** | Public health dietitians provide answers to nutrition questions from community residents.                                                                                                                 | P: 613-549-1222, ext. 1224 or 1-800-267-7875, ext. 1224                          |
| **KFL&A Public Health’s Healthy Babies Healthy Children (HBHC)** | An early identification and prevention home visiting program for pregnant mothers and families with children aged 0-5 who are at risk of poor child development outcomes. | P: 613-549-1154 or 1-800-267-7875, ext. 1555                                             |
| **KGH Sexual Assault/Domestic Violence Program** | SA/DV program provides 24 hours a day, 7 days a week emergency medical and nursing care including treatment for all forms of pediatric sexual assault - acute: chronic, historic or suspected. | P: 613-549-6666, ext. 4890 (KGH Emergency open 24 hours)                             |
| **Kingston Interval House**                    | Emergency shelter for abused women (16 years and older) and their children. 24 hour crisis support line.                                                                                                  | P: 613-546-1777 Kingston                                                              |
| **Pathways for Children & Youth**             | Provides individualized assessment, intervention, consultation and case management services. Interventions may be any combination of individual, parent, family, and group counseling. Intensive services include in-home and in-community interventions and therapeutic classrooms (Nexus). Resource services include psychiatry, psychology and behaviour pediatrics consultations. As lead agency providing regional autism services we provide intensive Behavioural Intervention (IBI) and School Support Services (ASS Consultants). Pathways serves children from birth to age 18. | P: 613-546-1422, ext. 1 Centralized intake                                            |
| **Pediatric Ophthalmologist**                 | All primary care provider’s discretion.                                                                                                                                                                   | P: 613-544-3400, ext. 3100  
F: 613-544-0360                                                                           |