Use of the rapid assessment method in maternity care: a practical example

Attia Z. Taha, MD, MSC, MS, DTM&H, CABCM
Hassan Bella, MD, PhD, MSc, DTPH, DTM&H

Abstract Objectives: To assess maternity care services in three primary health care centers in Al Khobar area, Saudi Arabia, using a rapid assessment method.

Design: Retrospective review of a random sample of antenatal care family health records.

Methods: A 30% systematic random sample of antenatal care records were selected. Data was collected using a checklist and focus group discussion with health teams of the centers.

Results: Recording of history and physical examination was adequate for all records in all visits. High risk mothers were identified and appropriately referred. About half of the pregnant mothers attended antenatal care at 16 weeks or less. The mean number of visits during pregnancy was 7.0 ± 3 (1 SD). There was no significant difference in the mean Hb levels between the first and last antenatal care visits.

Conclusions: There is increased utilization of antenatal care services and better awareness of health team members. More effort is required for the management and prevention of anemia during pregnancy.

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Keywords: Rapid assessment method, pregnancy, antenatal care, anemia.

Rapid assessment method (RAM) consists of a set of observations and survey-based diagnostic activities to generate qualitative and/or quantitative information that can be fed into the health planning cycle at all levels. The RAM is sometimes referred to as rapid evaluation (REM) or rapid assessment procedure (RAP).1,4

The RAM follows the steps of a field survey e.g. hypothesis, specific objectives, methodology, etc. The term 'rapid' refers to the period from the start of the method to the application of the results within health care activities/programs rather than only to the end of data collection. Results are readily available to decision makers within days or weeks after the end of the survey. This should be followed by managerial decisions and actions aimed at improving effectiveness and efficiency of health care programs. In other words it is 'action oriented research'.

Health personnel are required to collect and record routine data during their work. This data is often excessive with too much form filling and, in most cases, does not improve health services. Data is sometimes recorded carelessly which makes it unreliable; however, most of the data recorded is rarely used.

There are a number of methods for data collection in RAM. These include:

1. Household interviews.
2. Health staff interviews.
3. Community and staff focus group discussions.5,6
4. Observation of task performance in community or health facilities.
5. Review of clinic, health services, patients records.
6. In depth case-control interviews.7
7. Checking of facilities, equipment and supplies.

RAM is used to:

1. Identify major health problems in a specific community.8,9
2. Determine knowledge, attitude and practice of the community regarding a specific health problem.

From the Department of Family and Community Medicine, King Faisal University, Dammam (Taha, Bella).

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Address correspondence and reprint request to: Dr. Attia Z. Taha, PO Box 570, Dhahran Airport 31932, Kingdom of Saudi Arabia.
3. Assess performance and effectiveness of health care programs, such as maternal and child health services (MCH), disease control and training programs.

4. Evaluate primary health care programs at all stages of planning, implementation and impact.\textsuperscript{10}

Several measures have been used to ensure reliability and validity of data in RAM.\textsuperscript{11-13} These include:

1. Early and careful planning of the study.
2. Training of interviewers.
3. Review and correction of data in the field as early as possible.
4. Comparison of results from different sources to check consistency.

The current study is an example of a RAM in the field of maternity care using review of antenatal care (ANC) records. The aim of the study was to assess aspects of maternity care services in three primary health care (PHC) centers in Al-Khobar area, Eastern Province of Saudi Arabia. The hypotheses were that the proportion of mothers attending five or more ANC visits was high and that care given to pregnant mothers was as satisfactory as stated by the PHC Directorate.\textsuperscript{14} The specific objectives were to assess:

- Essential services provided during first and follow-up ANC visits.
- Attendance for ANC services in relation to gestational age and the total number of ANC visits.
- Changes in hemoglobin (Hb) level between first and last ANC visits.

**Methods** The study population comprised all pregnant mothers who attended ANC in Al Khobar PHC centers and delivered during the year 1412 H (1991-1992G). Three PHC centers were randomly selected from all 9 centers in Al Khobar using table of random numbers. The total number of women who attended ANC and delivered during 1991-1992 was 390 in the three centers (160+123+107). A 30% systematic random sample of ANC records (i.e. every 3rd record) was selected. The records selected were: 48 from Al Bayoniah, 37 from North Khobar and 32 from South Thqobah PHC centers respectively, giving a total sample of 117 ANC records. The recording of data by the MCH team in all PHC centers is carried out by filling out a standard form designed by the Ministry of Health.\textsuperscript{14} Members of the team were adequately trained in all aspects of MCH including correct recording as part of the National MCH training program. These workers are continuously monitored by their technical supervisors. These measures ascertain reliability of data and minimize inter-observer errors. Data was collected using a (Appendix 1) designed by the first author. The checklist was based on the standard criteria for ANC recommend by the PHC manual of the Ministry of Health\textsuperscript{14} and a modified checklist used for evaluation of female health visitors in Qatif area (personal communication). Focus group discussion was also conducted with the health team members. The study was conducted over a three week period. Variables measured included: obstetrical history and examination, high risk pregnancy, essential investigations during first and follow-up ANC visits, gestational age at first attendance, number of ANC visits and Hb levels at first and last ANC. A minimum of five visits was considered as satisfactory ANC.\textsuperscript{14} Data was analyzed using Epi Info version 5 computer software.

**Results**

**History, examination and investigations:** The recording of history and physical examination was adequate in all records for almost all visits. High risk mothers identified in the records were consistent with what the health team members stated in focus group discussions. However, the differentiation between moderate and high risk pregnancies was unclear. The common high risk pregnancies identified were: grandmultiparity (14.5%), previous abortion (10.3%), previous cesarean section (7.7%), and toxoplasmosis (6.0%). All high risk pregnancies were referred to hospital for further management.

Testing of urine for albumin and sugar which was supposed to be carried out at each visit, was recorded for only 19 (16.2%) of the mothers. From discussions with physicians, it appeared that there was no agreement among them about screening for toxoplasmosis and hepatitis B during pregnancy.

**Attendance for ANC services:** About half the pregnant mothers (51.7%) attended ANC early in pregnancy at 16 or fewer weeks, as shown in Table 1. The mean gestational age at first attendance was 17.6±3.2 (1SD). The majority of mothers of all ages (78.4) attended five or more visits during pregnancy (Table 2). The mean number of visits during pregnancy was 7.0±3.2 (1SD). Table 2 also shows that 11 mothers in the
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الطول: 
الوزن: 
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1. تسجيل الزيارات في الح瀚ات بشكل صحيح:
2. يسجل عمر الأم:
3. تدون نتيجة الحمل:
4. تاريخ الولادة المترقبة صحيح:
5. التحاليل الروتينية في أول زيارة للحامل مدونة:
6. تحليل السول في كل زيارة (عدد المرات __________):
7. الوزن في كل زيارة:
8. قياس ضغط الدم في كل زيارة:
9. قياس نبض الجنين في كل زيارة:
10. قياس ارتفاع قاع الرحم في كل زيارة (عمر الحمل بالاسبوع):
11. تسجيل وجود أودمية (توم بالرجلين) في كل زيارة:
12. تحليل الهيموجلوبين Hgb
13. تطعيم الكوراز (جرعتين):
14. إعطاء الحديد وحماض الفوليك (بعد الشهر الثالث):

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15) تدون درجة الخطورة (H.M.N): 
16) تدون عوامل الخطورة:
ما هي:

17) تحويل الحالات شديدة الخطورة للمستشفى:
18) تتم زيارة منزلية واحدة على الأكثر أثناء الحمل:
19) تتم زيارة منزلية بعد الولادة (مرتين على الأقل):
20) تتم زيارة الأم للمركز بعد الولادة:
عدد الزيارات بعد الولادة للمركز:

21) أي إرشادات أو توعية صحية (مرة واحدة على الأقل) مسجلة بالملف: نعم ☐ لا ☐ غير مكتمل ☐ غير واضح ☐
22) عمر الحمل في الزيارة الأولى (بالأسابيع):
23) الدهموجلوبيين في الزيارة الأولى:
24) مجموع عدد الزيارات أثناء الحمل:
25) هل تم تحليل الدهموجلوبيين بعد الولادة؟
26) المشكلات الصحية أثناء فترة الحمل:


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younger age group (20-24 years) attended less than 5 times during pregnancy. Statistical analysis showed no significant association between mother's age and number of ANC visits.

**Hb estimation and anemia in pregnancy:** A hemoglobin level of 11 gm/dl was taken as a cut off point below which a pregnant mother was considered anemic.13 Twelve point eight percent and 19.7% of mothers would be considered anemic in the first and last visits respectively (Table 3). The fifteen mothers who were anemic on their first ANC visit were also anemic on the last visit. An important observation was that 4.3% of mothers did not have their Hb recorded on the first visit and even a higher proportion (23.9%) on the last visit. There was no significant difference between the mean Hb level at the first visit (11.9±1.0 g/dl) and the mean level at the last visit (11.5±1.5 g/dl).

**Table 1:** Number of mothers attending antenatal care by gestational age at first attendance.

<table>
<thead>
<tr>
<th>Gestational age at first attendance (in weeks)*</th>
<th>No. of mothers</th>
<th>Percent</th>
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<tbody>
<tr>
<td>≤ 16</td>
<td>66</td>
<td>51.7</td>
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<tr>
<td>17 - 24</td>
<td>33</td>
<td>28.4</td>
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<tr>
<td>25 - 28</td>
<td>15</td>
<td>12.9</td>
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<td>&gt; 28</td>
<td>4</td>
<td>6.9</td>
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<tr>
<td>Total</td>
<td>116</td>
<td>100.0</td>
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</table>

* Mean gestational age at first attendance: 17.6±3.2 (1SD).

**Table 2:** Number of mothers attending antenatal care by mother's age and number of visits.

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Number of ANC visits *</th>
<th>Total</th>
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<tbody>
<tr>
<td>&lt; 20</td>
<td>&lt; 5</td>
<td>8</td>
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<tr>
<td></td>
<td>≥ 5</td>
<td></td>
</tr>
<tr>
<td>20 - 24</td>
<td>11</td>
<td>31</td>
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<td></td>
<td>20</td>
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<td>25 - 29</td>
<td>7</td>
<td>45</td>
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<tr>
<td></td>
<td>38</td>
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<tr>
<td>≥ 30</td>
<td>5</td>
<td>27</td>
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<td></td>
<td>22</td>
<td></td>
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<tr>
<td>Total (%)</td>
<td>24 (21.6)</td>
<td>87 (78.4)</td>
</tr>
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X² value = 5.04; P: NS

* Mean number of visits during pregnancy: 7.0±3.2 (1SD).

**Table 3:** Distribution of Hb levels at first and last antenatal care visits.

<table>
<thead>
<tr>
<th>Antenatal Care Visits</th>
<th>Hb &lt;11g/dl No. (%)</th>
<th>Hb ≥11g/dl No. (%)</th>
<th>Not Recorded No. (%)</th>
<th>Total No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First visit</td>
<td>15 (12.8)</td>
<td>97 (82.9)</td>
<td>5 (4.3)</td>
<td>117 (100)</td>
</tr>
<tr>
<td>Last visit (At 34-40 weeks)</td>
<td>23 (19.7)</td>
<td>66 (56.4)</td>
<td>28 (23.9)</td>
<td>117 (100)</td>
</tr>
</tbody>
</table>

**Discussion** The adequate recording of history and physical examination data reflects the impact of training of health team members in maternity care. Discussion with health team members showed their awareness and enthusiasm about ANC and its importance. Focus group discussions with the health team emphasized qualitative data whereas for quantitative data, the records proved to be an adequate and reliable source. Therefore the fear of confounding effect is minimized. Albumin and sugar in urine are important routine and simple investigations for all pregnant women. The possible explanation for a very low recording of them, is that it might have been carried out but not recorded. Sometimes the test is carried out by one nurse and the recording by another. Another possible explanation is that the test might not have been carried out due to shortage of reagents, which is not unusual. The importance of these two investigations cannot be over emphasized. Albumin is important for early detection of pre-eclampsia and renal disease, and sugar for early detection of gestational diabetes.

The availability of an effective vaccine against hepatitis B and the routine immunization of infants at birth in Saudi Arabia does not make routine screening of pregnant mothers for hepatitis B cost-effective. In the authors' view, screening for hepatitis B should be limited to pregnant mothers at high risk. Cost-effectiveness and cost benefit of screening for both hepatitis B and toxoplasmosis should be considered by policy makers.

The increased utilization and early attendance at ANC are good practices and may reflect improved health awareness of mothers and efforts of the health team in maternal care and education. At least one physician and one nurse/midwife in each health center had an intensive two week training course in MCH. Several studies in Saudi Arabia and the Gulf Region16-18 showed a similar pattern of maternity care utilization.

However, social class, educational level and accessibility of health centers (in this case
dependence on husband or driver for transport) are all factors known to influence attendance at ANC. More effort is required by the health team to educate mothers, especially those who attend late in their pregnancies, to help them overcome any difficulties.

Maternal nutritional anemia during pregnancy is a common health problem worldwide. In our study, anemia was a common health problem during pregnancy as recorded in the family health records and as perceived by members of the health team at the three centers. The results showed that there was no significant difference in the mean Hb levels between the first and last ANC visits. Possible reasons for these results, if physiological changes during pregnancy are excluded, include lack of mother's compliance, inadequate health education, inadequate dosage of iron supplementation, faulty laboratory results, or other conditions causing anemia.

These results were consistent with the Smart et al study in pregnant Saudi women who reported a mean Hb level of 11.9 g/dl at term. Khoja et al in their study of iron status in pregnant Saudi women in Jeddah, revealed a non-significant difference in the mean serum Hb level between mid and late pregnancy (11.6 ± 0.1 g/dl vs. 11.9 ±0.2 g/dl). Other studies elsewhere also showed similar results.

Conclusions

There is increased utilization of ANC services and improved awareness of health team members about MCH. However, there is a need for improving the quality of records and a clear policy on screening for hepatitis B and toxoplasmosis. The problem of iron deficiency anemia (IDA) in pregnancy needs to be considered by members of the health team with emphasis on management and prevention. There is a need for repeated health education and follow up of pregnant mothers to improve compliance with iron therapy. Appropriate dosage should be considered by physicians.

To ensure quality assurance in PHC, regular assessment of PHC services should be considered. The RAM is a useful tool providing information for decision making which would improve management, efficiency, and effectiveness. Physicians in PHC centers as well as policy makers have to include assessment as part of their routine practice. The results and conclusions of this study were communicated to those concerned in order that action may be effective.

Acknowledgment

We would like to express our thanks and gratitude to all members of the health teams in all three primary health care centers for their help, support and cooperation which made this study possible.

References

الخلاصة

هدف البحث: تقديم خدمات رعاية الأمهات الحوامل في ثلاثة مراكز للرعاية الصحية الأولية بمنطقة خبر.

باستخدام طريقة التقييم السريع.

خطة: مراجعة ملفات رعاية الأمهات الحوامل اللاتي تم توليدهن في العام 1412 هـ. باستخدام كشف المراجعة،

المراجعة.

طريقة البحث: تم اختيار 117 ملفًا في ثلاثة مراكز صحية باستخدام طريقة العشوائية المنتظمة بالاستعانة

بكشف الأمهات الحوامل اللاتي راجعن المركز الصحي للعام 1412 هـ. تم تصميم كشف المراجعة لجمع المعلومات

الأساسية عن خدمات رعاية الأمهات الحوامل، كما استعملت طريقة المناقشة الهادفة مع أعضاء الفريق الصحي.

النتائج: أوضحت الدراسة استعمال تسجيل التاريخ المرئي والكشف السريري وحالات الخطر، كما أن حوالي

نصف الأمهات الحوامل راجعن المركز في الأسبوع السادس عشر أو أقل. معظم الأمهات الحوامل (78,4٪)

راجعون المركز خمس مرات أو أكثر، لا يوجد فرق إحصائي معنوي في متوسط مستوى الهرمونات في الدم بين

الزيارة الأولى الأخيرة للحمام.

الاستنتاجات: هناك زيادة في استعمال خدمات رعاية الأمهات الحوامل بمراعاة الرعاية الأولية مما يدل على

زيادة الوعي عند الأمهات واهتمام أعضاء الفريق الصحي بخدمات الأمومة. الملفات الصحية تحتاج إلى تحسين

كما أن فقر الدم لدى الأمهات الحوامل يحتاج إلى خطة عمل لverterابة وتحسين العلاج.