Adoption of Reference Frameworks for Diabetes and Hypertension Care in Adults for Quality Improvement in Primary Care Settings

Dr. Angus CHAN Ming-wai
Vice-president (Education & Examinations)
The Hong Kong College of Family Physicians
Adoption of Reference Frameworks for Diabetes and Hypertension Care in Adults for Quality Improvement in Primary Care Settings

Clinical Audit
What is Clinical Audit?

- Clinical audit is the process of critically and systematically assessing our own professional activities with a commitment to improve personal performance and ultimately, the quality and/or cost effectiveness of patient care. (Fraser, 1982)

- Clinical audit is a key element of clinical governance

Reasons for not performing clinical audit in my Practice

- “Patient load could prove my quality of care”
- Not a very cost-effective activity in improving my medical practice
- Lack of time
- Lack of skill
- Lack of guidance
Performing Clinical Audit in your Practice

*Need to have good reason(s) to persuade yourself*

- Understand and improve your medical practice
- Contribute to professional peer
- Fulfill requirements for professional education/development (e.g. Exit Examination, The Hong Kong College of Family Physicians)

Tips for designing a clinical audit (1)

- Choose a topic you / your team are interested
- Keep it short and simple (KISS)
- Emphasize teamwork
- Use the no-blame approach
Tips for designing a clinical audit (2)

- Aim not just to provide better care but more efficient care
- Consult others who have audit experience before starting 😊
- Complete the cycle

Audit Cycle

1. Identify the problem or issue
2. Set Criteria and Standards
3. Observe practice / data collection
4. Compare performance with criteria & Standard
5. Implementing change
6. Second data collection to evaluate change
Six Steps!

1. Define aims of clinical audit
2. Criteria and standard setting
3. Data collection
4. Evaluate and compare with set criteria and standards
5. Implementing Changes
6. Second data collection to evaluate change

Step 1- Define aims of clinical audit

Aims?

Lead to an improvement in the quality of service providing:
- Improved patient care
- Enhanced professionalism
- Efficient use of resources
- Accountability to those outside the profession
Step 1- Define aims of clinical audit

Factors affecting your choice of audit topic

- Strong impact on health
- Convincing evidence is available about appropriate care
- The condition is common and can be clearly defined

Step 1- Define aims of clinical audit

- Good reasons for believing that current performance could be improved.
- The data are readily accessible and can be collected within a reasonable length of time.
- There should be a consensus on the audit topic among the practice members.
Step 2 - Criteria and standard setting

- In measuring performance, explicit statements are needed about what to measure (i.e. the audit criteria) and what level of performance is expected (i.e. the standard).

Skeleton:

- Protocol in the management of hypertension in primary care
- By Clinical Governance Research and Development Unit (previously known as Eli Lily National Clinical Audit Center)

 Modifications were made:

- Contemporary evidence and guidelines---WHO (ISH), United States (JNC VI), British hypertension society
- My clinic practice characters, consensus with other colleagues
I am so busy ... lack of time to do literature search

Reference Framework for Hypertension and Diabetes Care
Hong Kong Reference Framework for Diabetes Care for Adults in Primary Care Settings

- Module 1  Framework for Population Approach in the prevention and Control of Diabetes across the Life Course
- Module 2  Early Identification of People with Diabetes
- Module 3  Dietary Intervention for People with Diabetes
- Module 4  Recommending Exercise to People with Diabetes
- Module 5  Glucose Control and Monitoring
- Module 6  Drug Treatment for Hyperglycaemia
- Module 7  Drug Treatment in Type 2 Diabetic Patients with Hypertension
- Module 8  Lipid Management in Diabetic Patient
- Module 9  Diabetic Nephropathy
- Module 10  Diabetic Eye Disease
- Module 11  Diabetic Foot Problems

Hong Kong Reference Framework for Hypertension Care for Adults in Primary Care Settings

- Module 1  Framework for Population Approach in the Prevention and Control of Hypertension across the Life Course
- Module 2  Blood Pressure Measurement
- Module 3  Secondary Hypertension
- Module 4  Evaluation for All Newly Diagnosed Hypertensive Patients
- Module 5  Dietary Intervention
- Module 6  Exercise Recommendations to People with Hypertension
- Module 7  Drug Treatment for People with Hypertension
- Module 8  Annual Assessment
Criterion 1
Patients who have been diagnosed as diabetic has been recorded in the practice diabetic register.

Justification: a manual or computerized register of affected patients is the corner stone for systemic care. The register should record whether or not the patients are receiving insulin and whether they are cared for by the practice alone, by hospital or share care, as this is required for the chronic disease management program.

Reference:
1. Monitoring Diabetes, Eli Lilly National Clinical Audit Centre, Department of general practice, University of Leicester.
Criterion 2
The diagnosis of diabetes is correct.

Justification: a mistaken diagnosis of diabetes has profound social and medical implication. Patients without diabetic being treated with hypoglycemic agents can be life threatening.

Reference:

Criterion 3
The HbA1C has been checked at least annually.

Justification: Unlike daily glucose monitoring, which is subject to fluctuation throughout the day, HbA1C reflects the average glucose level over the previous three months. It is therefore the preferred standard as an index of mean blood glucose and as a treatment goal in patient care.

Reference:
1. Module 5, HK Reference Framework for Diabetes care
2. Diabetes Hong Kong 2005; Position statements on diabetes management.
Criterion 4
The records show that at least annually there has been an assessment of symptoms including hypoglycemic attack.

Justification: Symptoms indicate the level of control and the development of complications. Moreover, hypoglycemic attack could be life-threatening especially in the elderly patients and it should be prevented. Drug induced hypoglycaemia accounted for at least 50% of hospital admissions due to adverse drug reaction and was the major reason for diabetic related hospitalizations in Hong Kong. Patients should have good knowledge of hypoglycaemic symptoms and its management.

Reference:
1. Chapter 8, HK Reference Framework for Diabetes Care

Criterion 5
The records show that at least annually the feet have been examined.

Justification: Prevalence study in Australia showed that the prevalence of peripheral neuropathy was 13.1% in those with known diabetes and 7.1% in those with newly diagnosed diabetes. The prevalence of Peripheral vascular disease was 13.9% in known diabetes and 6.9% in newly diagnosed diabetes. A small scale local study showed 7.3% young diabetic patient had peripheral neuropathy.

Reference:
Criterion 1
Patients who have been diagnosed as hypertensive have been recorded in a practice hypertension register.

Justification: This is Eli Lily recommended Audit Criteria and it is widely accepted that a register is the cornerstone for systematic care.
Criterion 2
The records show that in patients without target organ damage, the blood pressure has been measured at least twice prior to commencement of drug therapy.

Justification: About 30-50% of patients have been diagnosed as hypertensive on the basis of one single reading. Many patients considered to be hypertensive at the first visits are in fact normo-tensive.

Reference:

Criterion 3
The records show that mean pre-treatment blood pressure was at least a diastolic of 90mmHg or greater and/or a systolic of 140 mmHg or greater, or a diastolic of 80 mmHg and/or a systolic of 130 mmHg in the presence of target organ or diabetes mellitus.

Justification: The records Eli Lily Audit Criteria suggest the thresholds for treatment for systolic BP at 160 mmHg and diastolic at 90-95. These thresholds have been lowered with the updated guideline including JNC 7, 2003, WHO/ISH 2003, BHS, European Society of Hypertension (EHS, 2010). Therefore, modifications have been made for this criterion as above.
Criterion 4
The records show that at diagnosis, the following symptoms and signs of target organ damage have been sought: retinopathy, left ventricular hypertrophy, angina, stroke, heart failure, peripheral vascular disease and renal disease.

Reference:
1. Module 4, HK Reference Framework for Hypertension Care.

Criterion 5
The records show that an assessment has been made of the risk factors for cardiovascular and cerebrovascular disease and that if necessary, appropriate advice and treatment has been given: smoking habit, diabetes mellitus, serum cholesterol, excessive alcohol intake, physical inactivity and family history of premature coronary artery disease.

Reference:
1. Module 8, HK Reference Framework for Hypertension Care.
Step 2 - Standard setting

- The standard is defined as the percentage of events that should comply with the criterion (Baker and Fraser, 1995).

Standard set for the criterion should:

- reflect the **clinical importance** of the criterion
- be **realistic**
- be **attainable**
- No **magic figure**

Step 3 - First data collection

- Target patient population
- Sampling methods
- Sample size
Sampling Methods

Random sampling
Each item or element of the population has an equal chance of being chosen at each draw. A sample is random if the method for obtaining the sample meets the criterion of randomness (each element having an equal chance at each draw).

Systematic sampling
It is random sampling with a system. From the sampling frame, a starting point is chosen at random, and thereafter at regular intervals.

Sample size calculation
Step 3 - First data collection

- **Data Collection** - **prospectively or retrospectively**

- Identification of cases for review in a prospective project
  - Random selection, consecutive attendances, all patients on the same day each week

- Identification of the cases in a retrospective review
  - From an age/sex/disease register, review of referrals/prescriptions/investigations, from appointment schedules

---

### Example of data collection form

<table>
<thead>
<tr>
<th>Patient number</th>
<th>Clinic code</th>
<th>Age</th>
<th>Year diagnosis</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Criteria**
  - DM register
    - Y
    - N
    - NK
  - Diagnosis
    - Y
    - N
    - NK
  - HbA1C
    - Y
    - N
    - NK
  - Hypoglycemic attack
    - Y
    - N
    - NK
  - Well-being
    - Y
    - N
    - NK
  - Feet
    - Y
    - N
    - NK
  - Urine result
    - Y
    - N
    - NK
  - Fundi check
    - Y
    - N
    - NK
    - MO
    - Nurse
    - Both MO & Nurse
    - Dietitian
    - Dietitian & MO & Nurse
  - Smoking status
    - Y
    - N
    - NK
  - Lipid profile
    - Y
    - N
    - NK
  - Education
    - Y
    - N
    - NK
  - Diet assessed by
    - MO
    - Nurse
    - Both MO & Nurse
    - Dietitian
    - Dietitian & MO & Nurse

---

**Adoption of Reference Frameworks for Diabetes and Hypertension Care in Adults for Quality Improvement in Primary Care Settings**
Step 4 - Evaluate and Compare with set criteria and standard

- Analyzing data may be done by computer or manually.

- **Simple** manipulation of data like calculating rates.

- Data will most commonly be in the form of the proportion of patients whose care complies with the criterion.

---

Step 4 - Evaluate and Compare with set criteria and standard

- All → True performance

- Samples → Error in the results that may have occurred. **Confidence intervals** can be calculated to show the probable interval within which the results for the target population will be located.
Step 4 - Evaluate and Compare with set criteria and standard

- Results may be presented in tables, bar charts or graphs.
- Compare our performance with the preset target standards for all the audit criteria

Step 5 - Implementing Changes

- Feedback of results of the first data collection to team members.
- Identify areas of deficiencies.
- Identify the prime cause of problems by applying tools such as process flowchart, cause and effect diagram.
Step 5 - Implementing Changes

- Agree on appropriate changes for improving performance. The practical issues may be related to four questions – **What** needs to be done? **Who**’s going to do it? **When**? and **How**?
- Identify ways in which such changes should be implemented
- Some common strategies
  - Education / training
  - System changes
  - Reminder system
  - Policies / guidelines
  - Team changes

Intervention

- Meeting with staff, self appraisal, discussion with peer
- Deficiencies noted
- Staff briefing and education
- Set up a hypertension/diabetes registry
- Modification on doctors consultations
Step 6 - Second data collection to evaluate changes

- After an appropriate interval, a second data collection is carried out as in the first phase.

- The findings are compared to
  1. The criteria and standards to check that they have been achieved
  2. The findings of the first data collection, to check that desired improvements have taken place

If standards have not been met
  - Review them and/or adopt alternative strategies to implement the required changes.

If satisfactory changes have been demonstrated
  - Consider whether and/or when to repeat the process to ensure that standards are maintained.
Audit Cycle

1. Identify the problem or issue
2. Set Criteria and Standards
3. Observe practice / data collection
4. Compare performance with criteria & Standard
5. Implementing change
6. Second data collection to evaluate change

Common problems encountered in performing clinical audits in general practice

- **Selecting a topic**
  - Significance to daily practice
- **Criteria and standard setting**
  - Contemporary criteria
  - Evidence literature support
- **Data collection**
  - Appropriate method
Common problems encountered in performing clinical audits in general practice

- **Intervention**
  - Appropriate period of intervention to generate any change

- **Analysis**
  - Statistical method
  - Discussion on the failure to improve

- **Results presentation**

Check out some samples with your clinical audit advisor!
Thank you