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# Professional skill development needs of newly graduated health professionals: A systematic literature review

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## Abstract

Health professionals need a variety of skills for successful practice and patient care. Although much focus has been placed on clinical skill and knowledge acquirement during undergraduate degrees, it is becoming increasingly recognised that a range of professional skills are required for safe and effective practice. These include communication, reflection, ethical practice, teamwork and professional development. This systematic review aimed to identify the skill development needs of newly graduated health professionals that are required for effective practice, in terms of the professional skills identified and possible causes for deficits. Scopus, Psyc Info and ERIC databases were

searched for relevant data published from 2000-2009 using described criteria. The review suggests that curriculum planners, educators and senior clinicians regard professional skills important in healthcare practice. However, these skills are not rigorously measured throughout undergraduate programs, and graduates are often ill-equipped to practise them. The roles of clinical supervisors, educators and healthcare organisations were found to be essential in the training and consolidation of professional skills in the long term. Despite the improved awareness of the value of these skills, health professional educators need to consider robustly evaluating the preparedness of graduates for practice, further developing innovative teaching methods, establishing more rigorous and reliable assessment processes and providing ongoing support and recognition of professional skills to enable future graduates to excel in diverse and complex environments. A transparent and integrated professional skills curriculum with associated formative and summative assessment procedures is likely to bolster recognition of the importance of professional skills and support incremental skill development.

**Keywords:** health professional education, health professional graduates, professional skills, skill development needs

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## Background

University health professional programs appear to recognise the need for students to attain competency in all entry level areas, including professional behaviour. Professional skills enable health practitioners to perform their jobs in an ethical manner, caring for the community they are employed to serve with integrity and compassion. They also provide the necessary self-reflection and drive required for ongoing professional development and continuous improvement for both their own and organisational practice. Professional disciplines acknowledge the requirement for the development of these skills, including physiotherapy (Hunt et al. 1998), medicine (Parker 2006), dietetics (Tougher-Decker 1998) and nursing (Bjorkstrom, Athlin & Johansson 2008).

Healthcare has a public accountability, and healthcare workers lacking these global competencies are noticed (Parker 2006). Health professionals in possession of these global competencies are more likely to have a positive impact on patient care (Leach 2008).

Health professional educational programs are now introducing more explicit teaching and assessment of professional behaviours which require new and creative methods to be successful. Areas such as communication, teamwork, reflection, adaptability, ethics, responsibility, respect, professional development, professional skills, professional competence, leadership, quality improvement, graduate attributes, fitness to practice and personal development are included under the banner of 'professional skills'.

This review sets out to investigate the professional skill development needs of newly graduated health professionals. Such an analysis will enable a subsequent informed consideration of the effectiveness of current education programs in developing practitioners with these identified attributes for clinical practice.

## Method

Scopus, Psych Info and ERIC databases were searched for relevant data from 2000 to May 2009 by one researcher. Both researchers reviewed the included papers, extracted data and performed independent quality assessments using the Letts et al (2007) critical review tool. There was no blinding to authors or institutions in the review. The following search terms were used:

- "entry level" or "new graduate" or novice or intern or "recent graduate"
- "communication skills" or "generic skills" or "non-technical skills" or "professional competency" or "professional skills"
- deficit or preparedness or need

## *Inclusion, exclusion and eligibility*

### *Included:*

- Health professionals, eg., dietetics, medicine, nursing, physiotherapy (Search terms did not include specific professions, as unfamiliar occupations may have been relevant and missed. It was more efficient to discard the few non-health profession related articles during analysis rather than enter more search terms.);
- Papers which measured all entry level competencies but included specific

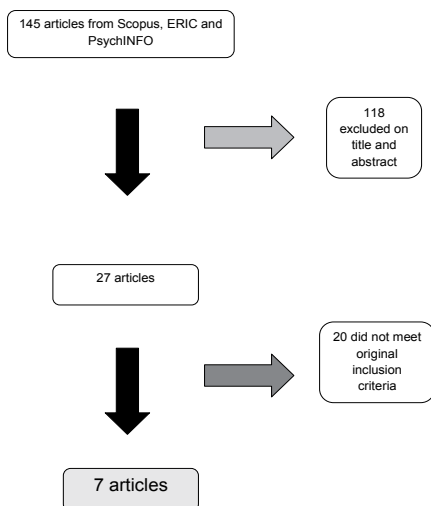
reference to the professional skills;  
and

- Studies which had source triangulated data collection.

*Excluded:*

- Graduates from health management, research, information technology or other non-clinical health related professions;
- Post graduate programs undertaken after student had completed entry-level professional qualification such as specialist training;
- Articles published prior to 2000 so references would be more related to recent educational program delivery;
- Papers where skills such as research, student supervision, technology, management or financial skills were the sole “professional skills” described; and
- Papers which described a very narrow focus of a professional skill (e.g., dealing with death and dying).

**Figure 1: Search Strategy Flow Chart**



## Results

Table 1 includes a description of the included studies. Several categories of data were extracted: (1) health professional disciplines studied, (2) professional skills targeted, (3) study settings, (4) methods used to assess professional skills, (5) identified degree/level of professional skill deficit/s and (6) possible causes of deficit/s. The studies were quantitative and/or qualitative reporting of perceptions of learners and/or educational program coordinators and/or clinical placement supervisors, with one study also including input from professional colleagues. All the studies captured perceptions of these stakeholders via the use of semi-structured interviews, focus groups or surveys. Table 1 also includes a quality rating for each study. Research quality was rated on a three point scale (1=low, 3=high) where strengths and weaknesses were assessed. The scale was derived from a qualitative study critical review tool (Letts et al. 2007) including clarity of study purpose; relevance of background literature; the appropriateness of study design, sampling and informed consent procedures; description, clarity and procedural rigour of data collection; and the rigour, auditability and theoretical connections obtained from the data analyses.

## Quality assessment

The included studies all had appropriate evaluation methods and study design. They all had source triangulated data collection, obtaining information from the graduates and their education-based and/or clinical supervisors with the exception of one longitudinal study (Bjorkstrom, Athlin & Johansson 2008)

**Table 1:** Studies describing quality ratings, study type, outcome measures, participants, deficits/training needs and proposed causes of skill deficit

Study and Study Quality Rating out of	Study type and methods used to assess professional skill needs	Participants
Hannon 2000	<ul style="list-style-type: none"> <li>Needs assessment, cross-sectional</li> <li>Semi structured interviews and questionnaires for graduates</li> </ul>	95 graduate doctors from five medical schools in Ireland
Jones, McArdle & O'Neill 2002	<ul style="list-style-type: none"> <li>Comparative, cross-sectional</li> <li>Questionnaire based on New Doctor competencies for trainees and educational supervisors</li> </ul>	171 'traditional course' medical graduates plus 194 educational supervisors and 163 'new course graduates' plus 218 supervisors in Manchester, UK
Dean, Barratt, Hendry & Lyon 2003	<ul style="list-style-type: none"> <li>Comparative, cross-sectional</li> <li>Preparation for Hospital Practice questionnaire for interns</li> <li>Informal, semi-structured interviews with directors of clinical training or the managers of the interns</li> </ul>	76 graduates from University of Sydney graduate-entry medical program plus 17 clinical training organisers.
Friedman Ben-David, Snadden & Hesketh 2004	<ul style="list-style-type: none"> <li>'Grounded' qualitative</li> <li>Focus groups with clinical consultants, specialist registrars, senior house officers and nurses</li> </ul>	Approx 88 medical graduates, 32 educational supervisors, 16 registrars, 16 senior house officers and 16 nurses in Scotland
Rose, McAlpine & Strychar 2005	<ul style="list-style-type: none"> <li>Cross sectional</li> <li>Questionnaires based on all competencies administered to trainees and program coordinators</li> </ul>	168 graduating trainees and 23 coordinators of Canadian dietetic programs, nationwide

Outcome measures	Deficits or training Needs	Proposed causes of skill deficit
Self-perception of graduates and interns for acquirement of competencies and professional characteristics, learning needs and educational and training experiences	<ul style="list-style-type: none"> <li>• Preparedness for internship</li> <li>• Counselling skills for specifics, eg, difficult questions, responding to patient fears</li> <li>• Specific teamwork skills</li> <li>• Delayed attainment of professional skills</li> <li>• Capacity to self audit</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of leadership</li> <li>• Lack of formal training</li> <li>• Need improved clinical placement experience throughout undergrad years</li> <li>• Shock of commencing internship, time and competing demands; balance between responsibility (and learn more) and overwork, some hospitals expected high loads of admin/clerical work</li> <li>• Highly specialised rotations</li> <li>• Uneven distribution of medical staff</li> <li>• Overall work conditions including bureaucracy, lack of role definition</li> </ul>
Self and supervisor perceptions of preparedness of competencies	<ul style="list-style-type: none"> <li>• Coping with uncertainty</li> <li>• time management</li> <li>• attitudes towards personal health and wellbeing</li> <li>• understanding audits/peer reviews/appraisal</li> <li>• cultural competency</li> <li>• legal and ethics issues</li> </ul>	Traditional course lacked skills laboratories Whole year clinical placements
Self-perceptions of preparedness of competencies and organisers of clinical training opinions of graduates strengths and weaknesses	<ul style="list-style-type: none"> <li>• Maturity</li> <li>• Teamwork skills</li> <li>• Contribution to work environment</li> </ul>	<ul style="list-style-type: none"> <li>• Traditional versus problem-based curricula (which include focus on professional skills)</li> <li>• Teaching methods</li> <li>• Learning environment (but details of this were not provided)</li> </ul>
Trainees' and trainers' perceptions of expected competencies for performance separating competent from incompetent Assessment model developed	Early detection of poor performers	Appraisal focusing on tasks and education only Not including sufficient detail of the broader professional competencies in appraisal processes throughout course
Perceptions of graduating students and program coordinators on preparedness to practice based on competencies, and breadth and depth of learning opportunities in educational programs.	<ul style="list-style-type: none"> <li>• Dealing with unethical or incompetent behaviour</li> <li>• Observing conflict of interest guidelines</li> <li>• Some areas of patient related communication</li> </ul>	Insufficient breadth and depth of some learning opportunities during course

Study and Study Quality Rating out of	Study type and methods used to assess professional skill needs	Participants
Musolino 2006	<ul style="list-style-type: none"><li>• Qualitative and evaluative</li><li>• Semi-structured interviews</li></ul>	<ul style="list-style-type: none"><li>• 11 Physical Therapists (seven students plus four entry-level graduates) – purposive sample, USA</li><li>• 1 internal, formative evaluation committee</li><li>• 1 external, international, summative committee</li></ul>
Bjorkstrom et al. 2008	<ul style="list-style-type: none"><li>• Cross-sectional and longitudinal</li><li>• Validated nurse self-description form (NSDF) administered at graduation and 3-5 years post graduation. NSDF has 19 items asking respondents to rate themselves in comparison to others in the same position on seven-point Likert type scale</li></ul>	163 Swedish nursing graduates from baccalaureate programme self-described abilities at beginning, at graduation and 3-4 years after graduation

Star quality and strength of findings ratings: (1 star=low; 3 stars=high)

which measured perceptions from course commencement to graduation then 3-5 years post graduation. One study of medical graduates obtained data by measuring perceptions of graduates/ interns, educational supervisors, registrars, senior house officers and nurses (Friedman Ben-David, Snadden & Hesketh 2004). Two studies also triangulated data collection methods with questionnaires and semi-structured interviews (Dean et al. 2003; Hannon 2000). All had appropriate numbers of participants and either interviews or focus groups were conducted until responses were saturated. Four of the studies investigated professional skills as the major focus of their enquiry (Bjorkstrom, Athlin & Johansson 2008; Friedman Ben-David, Snadden & Hesketh 2004; Jones, McArdle & O'Neill 2002; Musolino 2006) while three examined all entry-level

competencies with professional skills only forming a part of their discussion (Dean et al. 2003; Hannon 2000; Rose-Lucas 2003).

Of the studies collected, methodological weaknesses included that only perceptions (not performance) were measured, although the triangulation of data collection from education-based supervisors and clinical supervisors and colleagues helped to strengthen the findings. It should be recognised that these stakeholders may have had vested interest in the study outcomes. Two studies had poor or narrowly defined professional skills (Dean et al. 2003; Rose-Lucas 2003) which also provided only basic information on professional skill development needs. One study ascertained perceptions of preparedness in comparison to others (Bjorkstrom, Athlin & Johansson 2008); however, this is not a particularly reliable gauge

Outcome measures	Deficits or training needs	Proposed causes of skill deficit
<ul style="list-style-type: none"> <li>• Evaluation of physical therapy students/new graduates' self assessment abilities</li> <li>• Validated interview guide instrument to gather qualitative data developed</li> <li>• Training needs identified for physical therapy students to incorporate self assessment for lifelong learning</li> </ul>	<ul style="list-style-type: none"> <li>• Self-assessment</li> <li>• Reflection</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of time</li> <li>• Lack of feedback or mentoring</li> <li>• Competing demands of healthcare and educational facilities</li> <li>• Attitudes of peers/self/faculty</li> <li>• Inability to identify own strengths and weaknesses</li> </ul>
<ul style="list-style-type: none"> <li>• 19 items related to professional competence including drive, reliability, flexibility, persistence, leadership, independence, communication and creativity</li> </ul>	<ul style="list-style-type: none"> <li>• Flexibility and drive rated lower at graduation compared with three years post graduation</li> <li>• Leadership, creativity and desire to contribute through research rated lower after three years</li> </ul>	<ul style="list-style-type: none"> <li>• Organisational barriers – time, insufficient authority, lack of support, nurses own will</li> <li>• Lack of collaboration between nursing education and healthcare system.</li> </ul>

as the measure is dependent on others' skill levels which were not measured. Response/participation rates for studies varied, with low rates reported by studies using questionnaires to collect data.

All papers outlined study limitations, but on close examination, some authors underestimated the potential flaws in research design and how these may impact on the study results, strength of conclusions and transferability to practise.

### **Data Extraction**

#### *Health professional disciplines*

- One physical therapy
- One dietetic
- One nursing
- Four medical
- Professional skills identified

One study examined self-assessment and reflective practice (Musolino 2006). The data obtained from this study revealed that practitioners considered cultural competency, giving and receiving feedback, self esteem, decision making and ethics as constituting this umbrella competency. Five studies (Dean et al. 2003; Friedman Ben-David, Snadden & Hesketh 2004; Hannon 2000; Jones, McArdle & O'Neill 2002; Rose-Lucas 2003) measured perceptions of levels of preparedness of graduates. Where broad areas of competence were measured, only the professional skills relating to this review were included. The skills defined varied but covered the areas of effective communication, awareness of limitations, teamwork, time management, appropriate attitudes towards one's own health and wellbeing, coping with uncertainty, cultural awareness, understanding peer review,

**Table 2:** Professional skills measured versus deficits/training needs  
√=Professional skills measured. x=Professional skill deficits/training needs identified.

	Hannon 2000	Jones, McArdle & O'Neill 2002	Dean et al. 2003	Friedman Ben-David, Snadden & Hesketh 2004	Rose-Lucas 2003	
Self-assessment*	√x	√	√			
Communication**	√x	√	√	√x	√x	
Attitudes†			√	√x		
Professional role				√x		
Ethics		√x		√x	√	
Team work†	√x	√	√ x			
Professional development						
Personal development		√x		√	√	
Leadership††						
Independence						
Time management		√x				
Coping/confidence		√x	√			
Cultural awareness		√x				
Altruism						

\*Self assessment = awareness of personal and professional feelings, awareness of limitations

\*\*Communication = interpersonal skills

†Attitudes = drive, motivation, reliability, flexibility, confidence

†Teamwork = collaboration

††Leadership = ability to act as change agent

appraisal processes and ethics, and awareness of professional and personal feelings.

*Tools for measuring skill level*

The methods used include semi-structured interviews, questionnaires relating to the national professional organisations’ competency recommendations, and focus groups. Input was sought from students, graduates, educational and clinical supervisors and organisers, and in one case, professional colleagues. Table 2 outlines methods used.

*Professional skill deficits/training needs*

Table 2 summarises the professional skills measured and corresponding deficits or training needs identified.

*Proposed causative mechanisms for professional skill deficits*

Causes proposed for professional skill deficits were varied and many. One study proposed causes of professional skill deficits to include the steep learning curve at the commencement of internship, where the need for rapid technical skill acquisition adversely affects trainees’ ability to perform non-technical skills (Hannon 2000). It was also suggested that initial working relationships formed with other staff



	Musolino 2006	Bjorkstrom, Athlin & Johansson 2008	Number of studies identifying skill deficit/total number of studies measuring skill
	√ X		2/4 (50%)
	√ X	√	4/7 (57%)
	√ X	√x	3/4 (75%)
	√ X		2/2 (100%)
	√ X		3/4 (75%)
	√ X		3/4 (75%)
	√ X	√	1/2 (50%)
	√ X		2/4 (50%)
	√ X	√x	2/2 (100%)
	√ X	√	1/2 (50%)
			1/1 (100%)
			1/2 (50%)
			1/1 (100%)
		√	0/1 (0%)

were poor because of inadequate communication skills, which sometimes persisted throughout placement. Participants also reported overwork and fatigue having a negative effect on all areas of skill development.

Lack of time for clinicians to develop and refine professional skills was mentioned by two studies (Hannon 2000; Musolino 2006). Time to reflect and self-assess was described as crucial for effective practice.

Feedback and mentoring were described by three studies as requisites for effective practice and was not always provided by healthcare and education facilities at adequate levels (Bjorkstrom, Athlin & Johansson 2008; Hannon 2000; Musolino 2006). One study identified lack of sufficient supervising staff while on clinical placement as contributing

to this lack of formative performance information (Hannon 2000).

Clear definitions of professional roles was reported by one study to be important for teamwork and productive communication by one study (Hannon 2000), and friction often occurred when duties were poorly differentiated and poorly articulated.

According to three studies (Bjorkstrom, Athlin & Johansson 2008; Hannon 2000; Musolino 2006), competing demands of both healthcare and educational institutions prevented optimal professional skill performance. Bjorkstrom and her colleagues identified organisation-related barriers to include insufficient available time, authority and support. Hannon found that stress, excessive and overly demanding

workloads limited the time and energy for interns to reflect and learn.

One study found that attitudes of educators and clinical supervisors towards self-assessment and reflection could inhibit graduates' development of these skills (Musolino 2006). For example, supervising clinicians may have been taught in an apprenticeship model of learning themselves and may consider that immersion in practice (e.g., seeing more patients) is the best method of developing clinical skills. This study also reported that there may be inherent limitations in some individuals to reflect and self-assess.

Two studies described the need for sufficient number and variety of opportunities to practise professional skills (Hannon 2000; Rose-Lucas 2003). Some rotations were described as being too short for learners to develop skills. One of these studies reported that highly specialised rotations resulted in mainly clerical experience and few occasions to exercise professional skills (Hannon 2000).

Two studies found that a problem-based curriculum is required for optimal professional skill attainment (Dean et al. 2003; Jones, McArdle & O'Neill 2002) and that these graduates exhibited a higher level of communication skills, ethical and holistic care awareness and teamwork. The 'problems'/cases need to be strategically designed to encourage learners to consider holistic issues, for example, how the background and preferences of the patient may influence treatment options.

One study proposed that the lack of opportunities for students and graduates to participate in research negatively

affects professional skills such as motivation and continuous quality improvement (Bjorkstrom, Athlin & Johansson 2008), and the study by Friedman Ben-David, Snadden and Hesketh (2004) proposed that the lack of robust and reliable tools for measuring professional competencies contributed to poor professional performance.

## **Discussion**

All the studies in this systematic review acknowledged the need for health professional education programs to produce graduates with professional skills competence. Numerous tools can be used for measuring professional skills, but they often lack rigour and reliability (Friedman Ben-David, Snadden & Hesketh 2004). It is difficult to improve the teaching of these skills without valid tools for measurement, and it was noted that "whatever we measure we tend to improve" (Leach 2008, p. 439). According to this argument, the effectiveness of an educational program can be partly determined by its capacity to set transparent learning objectives and to assess the extent to which learners meet these targets. One of the reasons professional or 'generic' or 'non-technical' skills are so difficult to assess is that they are often noticed more by the presence of unwanted behaviours, rather than the demonstration of target behaviours (Parker 2006).

The studies were difficult to compare as the interpretations of professional skills varied, as did their measurement techniques. For example, one study (Rose-Lucas 2003) examined only basic skills in these areas without

detailing reflection/self assessment, teamwork, awareness of professional and personal feelings which other studies acknowledged. The studies which had the highest star quality ratings (Friedman Ben-David, Snadden & Hesketh 2004; Jones, McArdle & O'Neill 2002; Musolino 2006) reported a greater need for professional skill development, and assessment, within the health professions.

The fact that all but one of the studies involved triangulation of data collection ensured that more than one viewpoint was obtained when measuring professional skills. These methodological approaches improved the richness of data collected and may build a clearer picture of factors contributing to the suboptimal development of professional skills. When semi-structured interviews or focus groups were included in the research design, more insights into the causes of deficits were reported.

All studies examined skill levels at or near graduation. Professional competencies may be acquired after graduates commence employment, but the period between graduation and skill attainment is likely to be stressful and impact on working relationships and patient care. As one longitudinal study found, skills such as flexibility and drive improved after three years following graduation, while leadership, creativity and research interest regressed in ratings over this time (Bjorkstrom, Athlin & Johansson 2008). It would be reasonable to assume that health professionals need to possess these graduate attributes prior to employment. Some healthcare facilities were purported to not always embrace the notion of professional

competency (Hannon 2000; Musolino 2006) which further emphasises the need for graduates to bring these skills, and enthusiasm for practising them, to the workplace.

There were many causes of professional skill deficits proposed by the seven studies with surprisingly little overlap, possibly due to the variety of settings and methodologies. These ranged from time, competing clinical and educational demands, lack of support in the clinical and educational environment, a lack of opportunities to practise the skills due to types and duration of clinical rotations, and lack of reliable assessment methods in this domain.

Learners require further assistance in the contextualisation and development of these competencies during and after their education. The target skills need to be identified and integrated into their teaching and learning activities, assessment and appraisal processes from early training and into their careers. Further research is warranted into the teaching methods that can be offered by programs to develop professional skills in learners, along with investigation into the drivers and barriers to skill development once careers are established. A large-scale curriculum mapping exercise would be useful to identify how health professional university programs frame the objectives, teaching and learning methods, and assessment of professional skills. Observational studies outlining clear, comprehensive and accurate definitions and reliable measurement techniques of these skills in new graduates will provide valuable information on current status and future teaching needs. Longitudinal studies investigating not only the level

of professional skills at graduation, but how these behaviours and values change throughout health professional careers would also provide further insight into how to better develop these competencies.

### **Limitations**

This systematic review was limited to only three databases, although these were purposefully chosen to minimise overlap, and search terms were limited to those described in the search strategy. Including individual components of professional skills may have increased the yield. And although post-2000 published papers were chosen because educational programs are increasingly supporting development of professional skills as core business, earlier studies may have revealed insight into the development of this domain. Also, although the papers were published after 2000, data collection was sometimes conducted years prior to this which may be less representative of current practice.

Monographs, commentaries and narrative literature reviews did not meet the inclusion criteria however may be able to provide meaningful and relevant information to improve understanding of professional skill needs in the health professions.

In addition, no post graduate programs were included in the review, although they too may have provided useful insights into professional skills development needs and facilitators, and barriers to attainment of this skill set.

### **Conclusion**

Graduating health professionals do not always demonstrate professional skills required for practice, leaving them exposed and under-prepared for the complex and changing work environment. Although these skills are often taught, they are not rigorously supported and measured throughout undergraduate programs, and reliable and valid assessments at graduation are not always performed. The literature consistently places a high level of significance on the value of professional skills but has revealed that there is a lack of measurement and support of these generic competencies throughout undergraduate health professional courses. Clinical educators and supervisors are at the coal face when near-graduates are consolidating these skills, and they are often ill-equipped to assist learners due to lack of time, knowledge of target behaviours and their own skill levels in modelling and/or teaching. Links between universities and healthcare facilities need to be strengthened to assist clinicians in their teaching of these skills and to provide opportunities for feedback on the professional skill development needs as perceived at the workplace. This feedback loop ensures that the academic curriculum is relevant and responsive to the needs of the workplace. Healthcare organisations must also recognise, value and nurture these skills to ensure they become embedded in the healthcare workforce to optimise patient care.

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